Research Program History of the Max Planck Society

Report 2014 – 2017

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Research Program History of the Max Planck Society (GMPG)[1]

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Research Program History of the Max Planck Society

Introduction

This report presents the activities of the Research Program "History of the Max Planck Society" ("Geschichte der Max-Planck-Gesellschaft," GMPG) for the years 2014–2017. This period is marked by the considerable groundwork that had to be undertaken in the construction of the research infrastructure, and by the gradual build-up of its staff. In early 2017, the Research Program reached the projected size of the research group, and, together with the General Administration and the Archives of the Max Planck Society (AMPG), in 2016 laid the necessary foundation to access, administer, and use the digital sources. As can be seen in the following pages, the Research Program is engaged in and enriched by a number of interconnected research activities with regards to content, concepts, and methods. At the same time, we have accepted the challenge to produce a readable and comprehensive history of the MPG. This is therefore an opportune time to consider what has been already achieved, and to ponder the next steps that will lead the program to its conclusion. Of course, this report represents work in progress, and is deliberately selective. However, we have written it with an eye toward the course and projected outcome of the whole program.

The research report presents in its first chapter the scope, working methods, and aims of the research program, followed by an outline of first research findings and results. It then introduces the focus areas that we have selected to analyze and portray the history of the MPG. These are, in order of their presentation, governance and finance, social history, gender, and the politics of the past *(Vergangenheitspolitik)*, in both national and international perspectives. Next, in the third chapter, the research clusters are described. The fields chosen and worked on extensively so far are astrophysics, materials research, green biology, law, and history. The focus of the fourth chapter is on the research infrastructure, that is, the digitization project and the databases involved. In chapter five the building arrangements for the project are illustrated. The research report concludes with a number of appendices with additional materials, for example, on the workshops held.

At this point, the Research Program would like to thank the President of the MPG, Prof. Dr. Martin Stratmann, the members of our Council, Prof. Dr. Angela Friederici, Prof. Dr. Wolfgang Schön, and Maximilian Prugger, for their foresight and support. We are grateful for the counsel of our advisory board members. Additional thanks go to the MPG's General Administration, the Archives, and the staff of the Max Planck Institute for the History of Science (MPIWG). Many members of the MPG have generously given their advice and time, and though it is not possible to name everyone here, we wish to thank all of them as well. The contributions of our indefatigable staff members and student assistants are visible throughout the pages to follow. Without them, this program, and this report, would not exist.

1. Scope, Working Methods, Aims, and First Results

The goal of the research program is a history of the Max Planck Society (MPG) from its foundation in 1948 to the end of the presidency of Hubert Markl in 2002 and the establishment of new institutes in the former German Democratic Republic (GDR) up until 2005. We are aiming for a comprehensive history of the MPG as a research organization in multiple contexts. We analyze this history on the background of the relevant scientific fields and in the context of the MPG's relationships with economy, politics, society, and culture. In this way, the research program will contribute to a better understanding of the crucial role of the sciences for the development of modern societies and tread new paths in bringing together the history of science with contemporary history.

1.1 Publications and Digital Resources

The most important outcome of the research program will be a comprehensive volume in three parts (approximately 1,000 pages including appendices), which will appear in both English and German. Its intended audience is a broader, interested public both within and outside of the MPG. In the first part of this comprehensive work, the structural history of the MPG is studied in its social, economic, and political contexts and in chronological order. Often, close interdependences are shown between science and politics. For example, the beginnings of Big Science in its characteristic interplay of both political and economic goals impacted the MPG and its organizational structure with the foundation of the Institute of Plasma Physics (IPP) in 1960. Other examples, albeit of a different kind, are the start of diplomatic relations of the Federal Republic of Germany (FRG) with Israel, and the *"Aufbau Ost,"* the expansion of the MPG into the new German states after reunification in 1990. However, the science system enjoys considerable degrees of freedom, and its dynamics produce path dependencies both in the choice of research themes and their execution. Accordingly, in the second part of the comprehensive volume, we focus on selected research fields covered by the MPG, both in their international context and their role in the development of the Society. What were the characteristic features of "science, MPG style" and how did members of the MPG manage its long-term development? In the third part, we scrutinize the central challenges for the MPG from an analytical perspective and inquire into the strategies applied for coping with them. Among these challenges are crucial transformations of the relation between basic and applied research, deep changes in the social system of scientific work, and the social and epistemic effects of participation, inclusion, and exclusion mechanisms. Seeing these challenges and strategies together, readers will be able to acknowledge the contextual conditions that enabled – from a global perspective – a relatively small scientific organization to heavily impact the international development of science and the German national system of science and innovation.

The second important goal of our research program consists in the publication of studies focusing on specific themes. The complexity of the topics and their diversity is met by the multidi-

mensional qualifications of our research staff. This multiplicity of perspectives will be reflected in the variety of publications, first in the form of preprints and articles, later in the form of books and edited volumes. Themes range from the social history of the MPG, the history of governance and research management, and the role of gender, to the histories of specific fields covered by MPG research activities in the physical, life, materials, and behavioral sciences, as well as cultural and legal studies. Here, we will assemble the necessary depth and breadth to analyze in detail the full scope of the contextual dependencies present in MPG activities.

Meanwhile, the research program has started its own preprint series in which first results of the ongoing research are presented. They are in print or in preparation (abstracts of the preprints are provided in chapter 6.4.):

No. 1
Thomas Steinhauser, Hanoch Gutfreund, and Jürgen Renn: "A Special Relationship: Turning Points in the History of German-Israeli Scientific Cooperation."

No. 2
Peter Schöttler: "Das Max-Planck-Institut für Geschichte im historischen Kontext: Die Ära Heimpel." ["The Max Planck Institute for History: The Heimpel Era."]

No. 3
Luisa Bonolis and Juan-Andres Leon: "Astronomy, Astrophysics and Space Science in the Max Planck Society: A Preliminary Synthesis." (in preparation)

No. 4
Birgit Kolboske: "'Forschung rund um die Uhr: Notwendigkeit oder Ideologie?' Der Aufbruch der MPG in die Chancengleichheit, 1988–1998." ["Doing Research 24/7 – Imperative or Ideology? Towards Equal Opportunities in the MPG."] (in preparation)

An important condition for reaching the aims described above is the setting up and maintenance of a digital infrastructure. The research program deals with enormous amounts of sources of all kinds and continues to develop methods to access and archive highly diverse materials, ranging from primary research data and long-term sets of managerial documents to graphs, images, and interviews. Both the quantity and quality of our source materials are excellent, but without the digitization program that has recently been set in motion there would be no way of making adequate use of this empirical basis. In particular, digitization enables us to link different stocks of archival sources and to create connections, filling gaps in the existing records. In order to achieve this goal, we are developing innovative methods in the digital humanities that take into account the needs and opportunities of historical studies of science. Until now, also due to a lacking availability of large sets of digital records, contemporary history has been reluctant to apply digital methods. Our research program will help to change this situation and benefit from new methodological potentials. At the same time, in cooperation with the Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen (GWDG), we lay the foundations to create a long-term, sustainable digital memory of the MPG.

1.2 Scope and Working Methods

The underlying 'philosophy' of the research program is to connect contemporary history with the history of science, and this defines the scope and methodology of our work. To achieve this connection, we need to analyze the social, political, and cultural situation of the MPG within specific time frames and investigate the scientific and technological constellations that have formed the environment for the institutes of the MPG – all this, of course, in an interconnected way. We have decided to tackle this challenge "head-on" and have devoted our resources to inquiring into general governance and administrative structures, social and cultural developments, major research activities, and the challenges and opportunities that members of the Society faced.

1.2.1 Social History, Budget, and Governance

In 1949/1950, the MPG counted 33 institutes, employed 1,400 persons, and had a budget of 16.7 million DM. By 2002, there were 80 institutes, a staff of 11,600, and a budget of 1.26 billion €. We study this impressive process of growth that went hand in hand with increasing organizational complexity and deep structural change. The governance and finance, and the leadership and administration of the MPG will be central topics. How did this organization work? How were crucial decisions taken, and by whom? Which rules and statutes, policies and customs, formal and informal mechanisms affected the ways the MPG was directed, administered, and controlled? Crucial in this regard is the investigation of how the structures of the institutes have differed and changed. Equally important is the analysis of funding patterns, the basis of legal conditions and political decisions, and the processes of interaction between the MPG, politics, civil society, and the markets. Reconstructing the flows of expenditures helps to analyze the changing foci of scientific research in the MPG, and enables an understanding of the internal distribution of power and influence. The performance and impact of major actors – presidents, general secretaries, section heads, and others – receives appropriate attention, and are placed in their respective social networks.

We also study the MPG and its institutes from a socio-historical point of view. On the one hand, we concentrate on the personnel, on the different categories of persons who participated in the activities of the MPG and its institutes, on their growing numbers and social characteristics (gender and age as well as educational, social, regional, national backgrounds, etc.), their skills and specializations, and their functional and hierarchical relations to one another and to the MPG and its institutes. We study them as employees with different contractual relations, as directors, fellows, and guests, but also as scientists, specialists, technicians, and actors with different qualifications. On the other hand, we focus on the history of work and labor in the MPG, particularly on the history of scientific work and the ways it has been organized. We deal with work in the laboratories and offices, with the organization of space and time, working conditions and work experiences, contracts, salaries, and wages. How did all this change with the impact of changing technologies, for example, information technologies, changing markets for

scientific labor, and increasing globalization and mobility across borders? Team structures and patterns of cooperation, leadership structures and hierarchies, the role of demands for co-determination and democratization, protests, debates, and conflicts are all taken into consideration. It will be essential to successfully link the MPG's history of governance and finance, as well as the social history of the MPG, to its main agenda, that is, scientific research, its changing foci, topics and methods, challenges, and achievements. It is equally important to relate the history of the MPG to the social, economic, cultural, and political history of the time. By using both chronological and systematic forms of analysis and presentation, we interrelate the history of science and general contemporary history in new ways.

1.2.2 Research Clusters

Between 1948 and 2002/2005, the MPG comprised approximately 100 institutes, some of which have since been closed. We have chosen key fields of their scientific activities in order to structure the field and have assigned "research clusters" as an analytical dimension of our work. Research clusters consist of a number of institutes and departments that share genealogies, themes, methodologies, or political and industrial settings. Characteristically, they show strong patterns of both cooperation and competition. In our work on research clusters, we situate the activities of Max Planck researchers in their national and international contexts, and we ask for their conditions as well as their consequences. This enables us not only to simplify the complexity of past institutes and departments but crucially to describe the social conditions of scientific work in a dimension that crosses the boundaries of the single laboratory and the overall research institution. According to this view, the "scientific life" both inside and outside of the MPG takes place in global and local alliances and in networks among the scientists, as well as between scientists, managers, and politicians.

In order to portray this "scientific life," we have defined the following research clusters and have assigned appropriate resources for their study. This is a selection only and does not aim to cover all MPG research. However, the cases are exemplary, informing the overall picture and representing the major areas of the MPG in the time period studied, including the relevant changes.

- *Astrophysics and Astronomy*, the "shooting star" of the MPG, which emerged out of physics institutes and was crucially impacted by national and international political influences.
- *Solid State Research*, which had a strong footing in the Kaiser Wilhelm Gesellschaft (KWG), was continued into the postwar era, and experienced a deep transformation in both methodology and organization in the late 1960s and early 1970s.
- *Nuclear Research and High Energy Physics*, one of the cornerstones of military and postwar national research efforts, where the MPG could build on a head start, was affected by Allied restrictions, and later met opportunities based on international cooperation.
- *Agricultural Research and Green Biology*, which was one of the largest research fields of the KWG and has been in decline since the 1960s. Since then, it has experienced a sometimes controversial revival in the fields of genetic engineering and plant breeding.

– *Molecular Biology*, which changed from its postwar focus on genetics to become the most versatile and impactful toolbox of the biological sciences and beyond.
– *Behavioral, Neuro-, and Cognitive Sciences*, dating back to the KWG, a field that underwent major transformations in the period analyzed.
– *Earth System Sciences*, which since the 1970s emerged out of existing methodologies in the chemical tradition and embraced environmental challenges in a truly interdisciplinary endeavor.
– *Light and Laser Research*, which came from the context of plasma physics and, though affected by concerns of being close to military applications, managed to become an independent research field oriented toward civil applications.
– *Legal Studies*, which also relied on a KWG heritage, involved a complex network of relations to politics and was significantly expanded in the MPG.
– *Social Sciences*, not a full-blown cluster due to a limited number of institutes, orienting the MPG toward a reflection on the conditions of modernity.
– *Historical Studies*, embracing both general history and art history, organized more as "solitaires" than in a cluster-like fashion.

For astrophysics, solid state research, agricultural research, legal studies, and history, we already have results that are reported on in chapter three. For the other clusters, we have been engaged in the design stage, planning archival and digitization campaigns and putting future resources in place.

1.3 Aims and First Results

One of the most striking phenomena is the fact that the MPG as an organization has been able to renew itself and build a stable identity as Germany's major basic research organization. Over the course of more than 50 years, the MPG has been characterized by often far-reaching and sudden changes. We identify trends and counter-trends at the general and institutional levels that have been characteristic for the evolution of the Society.

Some of these trends concern the dynamics of scientific work, such as the changing forms of interdisciplinarity or the growing role of information technology, others deal with the regulative complexity within the Society, such as a tendency toward centralization, on the one hand, and the striving of institutes to achieve autonomy, on the other. We also analyze trends and counter-trends that concern the position of the MPG in the German and international academic system, such as its growing internationalization and the MPG's interactions with the state, society, and the market. Finally, we investigate the long-term development of the MPG, also with regard to its human and social dimensions, taking into consideration changes in work culture, hierarchies, and participation, as well as different modes of dealing with conflicts.

While it is too early to report on results regarding the overall development of the MPG, the question of such general trends is decisive for our methodology. The research program addresses two

major historiographical challenges: first, bridging the gap between the history of science and contemporary history and, second, bridging the gap between a history of science that focuses on knowledge and an institutional history of science. Establishing these two bridges will constitute a major historiographical innovation and in addition offer a basis for identifying the characteristics that distinguish the MPG both in an institutional sense and with regard to its specific contributions to science and society.

As far as the bridge between the history of science and contemporary history is concerned, we see three areas in which our research project is currently making contributions: the history of the employment of science for diplomacy and international politics; the history of confronting the Nazi period; and the adoption of a multidimensional form of periodization that allows the history of the MPG to connect to the history of science and general contemporary history.

As far as the bridge between a history of science focusing on knowledge and an institutional history of science is concerned, we spotlight the role of the institutional architecture of the MPG in scientific innovation processes.

1.3.1 Contemporary History and the History of Science

On the basis of preliminary investigations of these issues, we see a characteristic feature of the MPG in its capability to take up major societal questions and challenges, transforming them into subjects of basic research. We also see the organizational model of the MPG as an intermediate case between state-controlled scientific organizations, such as the French CNRS, on the one hand, and on the other, market-type decentralization, competition, and cooperation characteristic, for example, of the US system. In other words, the MPG constitutes an institution that keeps a relative distance from both the state and the market but at the same time encourages cooperative interdependence.

A first research endeavor was dedicated to the history of the employment of science for diplomacy and international politics, investigating the role of Max Planck scientists first in the establishment of diplomatic relations between Israel and Germany and then in the ever more intense scientific collaborations between the two countries. Contrary to the widely popularized account in which scientists were pioneers who courageously built bridges across the abyss left behind by World War II and the Holocaust, a thorough examination of the historical records revealed a more nuanced history. It could be shown, in particular, that politics in the beginning was in control and that science and scientists were being manipulated to circumvent diplomatic and political barriers and to mediate between the interests of the two countries. Scientific collaboration began as both a substitute for and an instrument of diplomacy, as well as a cover-up of secret military and economic deals. For the history of the MPG, the initial resistance of its officials against the involvement in political affairs is as revealing as the gradual learning process initiated by this experience. Eventually, the Society developed its own active foreign policy, creating innovative forms of international cooperation, and adopting a more conscientious attitude with regard to Israel and to political contexts of science in general.

We emphasize the interrelations between the history of science and contemporary history in general by choosing a multidimensional form of periodization to structure our historical analysis, in as far as it deals with continuity and change in chronological order. Our heuristic distinction between four periods is based on a combination of notions of change in the history of the MPG, the history of science, and the general history of (West) Germany and beyond. In the first period (1943–1955), we observe both the deepest break in modern German history and the most profound rupture in the history of the KWG/MPG. This was not only a period of chaos and heteronomy, which left scope for decisive developments and new departures, but also a period of powerful continuities on the way from the Nazi dictatorship to a liberal democracy, and from the KWG to the MPG. For the second period (1955–1972), our analysis reveals a close interrelation between accelerated economic growth, the rapid expansion of the MPG and the scientific system at large, an intensified cooperation between state authorities and social (including scientific) actors, courageous steps toward Europeanization, and the upgrading of science and education issues in the public debate and in politics. As the history of the MPG shows, these changes impacted scientific processes and institutions as well as social, cultural, and political life, bringing them closer together. Controversial moves toward "more democracy" and the increasing role of civil society influenced both the history of the MPG and the general history of the time. Decelerated growth – "after the boom" – characterized the third period (1972–1989), both in the economy at large and in the sphere of scientific institutions. The MPG reacted with organizational systematization, intensified internationalization, and by conferring more weight to economic considerations in the context of an even closer cooperation between the state and scientific and market actors. Both in the MPG and in the world of labor in general, the use of terminable or short-run projects and work contracts gained ground. The end of the Cold War, the reunification of Germany and accelerated globalization defined the fourth period of our analysis (1990–2002/05). As a major player, the MPG strongly contributed to these changes by helping to reform and rebuild the research infrastructure in East Germany, and by quickly expanding and intensifying its international and increasingly global networks and commitments. At the same time, these general trends deeply influenced and shaped the science policy preferences of the MPG. There were no sharp cut-offs between these four periods. Much more could be said about each of them individually, but comparing them can serve to identify changes over time. Here they are mentioned in order to show how we use periodization to build bridges between the history of the MPG, the history of science, and general contemporary history.

Another crucial link between the history of the MPG and contemporary history becomes visible when one reconstructs how the MPG handled the legacies of its Nazi past and the role of its predecessor organization in this respect. *Vergangenheitspolitik* (politics of the past) played a role from the very beginning in the transformation from the KWG to the MPG. Allied denazification and demilitarization measures not only impacted on continuity and change with respect to personnel and institutes, but also on scientific practices. Shifts in research programs and practices due to Allied control measures resulted, for example, from the prevention of research relevant for military purposes and from the objectionable fields of racial genetics, anthropology, and eugenics. Allied control measures enforced a realignment of research programs at the Max Planck Institutes (MPIs) toward basic research for peaceful purposes. From the very foun-

dation of the MPG, a commemorative culture of the new Society emerged in publications and jubilees, referring to the tradition of the international reputation and success of the KWG while omitting or relativizing the burdens of its Nazi past. In the publications of the MPG, the KWG was predominantly seen as a safeguard for scientists under the National Socialist regime and an institution that had allegedly successfully protected or actively "defended" basic research against external political intrusion by Nazi party officials. The resulting historical narrative was broadly accepted, but challenged from the mid-1980s on, when critical academic research about the Nazi past of the KWG began to raise questions about the involvement of former KWG scientists as perpetrators of crimes during the National Socialist regime. The progressing generational change and other historical developments set the conditions for changes in the *Vergangenheitspolitik* of West Germany in the 1990s. The opening of thus far inaccessible archives after the collapse of the USSR and the GDR, heated debates about the involvement of the Wehrmacht in atrocities and war crimes, or the exploitation of forced and slave laborers by German companies paved the way for the then President of the MPG, Hubert Markl, to establish a Presidential Commission and its Research Program "Kaiser Wilhelm Society in National Socialism" (1999–2005). As a consequence of this process, the dark sides of the KWG, and in this sense its own history, are now being faced relatively openly by the MPG. On this basis, critical research and discussions about legacies of the Nazi past can continue, both among historians and in the public at large.

It is obvious that in studying the development of attitudes and activities within the MPG with regard to its Nazi past and to the role it played in establishing international diplomatic relationships, one studies a version of a more general pattern of denial, self-critical revisions, and controversial debates on the role of the past that took place in West Germany over the decades. Besides elucidating the similarities and mutual influences concerning the ways in which the MPG, other institutions (such as universities, business enterprises, public authorities) and the country in general dealt with their past, we will also identify the particularities of the MPG.

1.3.2 Innovation, Basic Research, and Societal Challenges

Concerning the role of the institutional architecture of the MPG in scientific innovation processes, our preliminary analysis makes it clear that the Society has been able to support, with the institutional funding it provides, the emergence of new, interdisciplinary fields with a long-term impact. Its funding model has been particularly effective in periods of substantial growth, such as in the early years and after German reunification. In less affluent periods, innovation processes were marked by higher path-dependencies that led to a more gradual renewal. New orientations resulted from external stimuli and challenges, but, remarkably, also from branching processes and from interactions among institutes. To a greater degree than expected, the Society acted as a whole or as an assembly of thematic clusters and families, rather than merely as a collection of single institutes. According to our preliminary account, a particular strength of the Society was its capability to support the long-lasting scientific transformation processes that typically precede breakthroughs as well as its consolidation of breakthroughs in

the making. Its major contributions to science may therefore not always be as visible as the breakthroughs themselves. With the stable funding and relatively moderate size of its interdisciplinary, internationally highly visible institutes, the Society could play an important complementary role with regard to other academic institutions. This holds true in relation to the German university system with its disciplinary organization and more national outlook. But complementarity can also be observed in relation to major international research projects in which the Society often played a stabilizing, yet flexible and exploratory role.

Our work on the research clusters of the MPG illustrates such patterns of path dependency, the amplification of trends, and diversification in times of growth. We are analyzing the inner structures of research clusters in terms of coordination, cooperation, and competition and identify the long-term alliances ("families"), joint themes, and common methodologies that connect scientific units. While each of the clusters certainly has its individual history, they share a characteristic feature that seems to constitute a large part of the specificity of the MPG. This specificity is rooted in the ability to react to great societal challenges ("big questions") by translating them into basic research programs.

Prominently placed among such "big questions" is the need for energy. Here, the MPG engaged early on in fusion research and has taken on chemical energy conversion as well, while it excluded much of the more practical, engineering-type nuclear energy (fission) research. A second big question concerns the availability of novel materials. In this field, the MPI for Coal Research enjoyed a head start in plastics, while a whole cluster of institutes focused on metals, and later on solid-state research. In a third field, that of environmental sustainability and climate change, the MPG became a pioneer by contributing to the emerging earth system sciences. The cluster of space science, astronomy, and astrophysics, in its attempt to answer fundamental questions, also responded to a perceived technology gap with regard to the United States. At the same time, when traditional agricultural research, with its strong bent toward application, was abandoned in the 1960s, the MPG engaged in molecular biology and later genetic engineering, in part with regard to plant-breeding uses. A long-standing focus of the MPG is the neurosciences, where it continuously adapts to new approaches and methodologies. Similar developments are visible in the humanities and social sciences. Themes of the law institutes of the MPG have included questions of public international law and pressing societal issues in areas such as family, and social and tax law. The perceived crisis in education contributed to the foundation of the MPI for Human Development. The fundamental problems of modern technological societies were the major questions of the short-lived MPI for the Study of the Scientific-Technical World in Starnberg (1970–1981). In contrast, the MPI for the Study of Societies in Cologne (founded in 1985) has oriented its agenda toward the exploration of relations between economic, social, and political structures and their related actions.

We do not assume that all of MPG's research themes are based on such grand societal challenges. But many are. While the Society's capability to transform societal needs into basic research problems is a key item for understanding its role in German society, it also points to questions in the history of institutions. Here, we place the Society's organizational model between a mod-

el favoring a strong role of the state (e. g., in the French tradition) and a model with a stronger influence on private interests and market processes, such as the US research university system. As an organization, the MPG strives to gain and retain autonomy from both the state and the economy, while it closely cooperates with both sides and seeks to stay relevant, and is in constant need of resources. This can be understood in analogy to the contemporary West-German development of civil society and organized capitalism.

The social and epistemic factors of the feedback loops between societal challenges and basic research endeavors are at the center of our historical research efforts. We have identified communities of actors and multi-step procedures that form the Society's backbone for renewal, perpetuation, and abandoning of themes and methodologies. As these are neither entirely top-down nor completely bottom-up mechanisms, they require access to and interpretation of a large set of sources to show the interconnections of the relevant historical actors. We are convinced that examining individual and group opinions and decisions, when seen in this larger context, can lead us to an improved understanding of past events, structures, and developments through a historical lens. Methods in the digital humanities enable us to provide the context in much deeper and more meaningful ways than ever before, while still holding on to the traditional, hermeneutical historical methods.

1.4 Digital Infrastructure and Personnel

Digitization is far more than just a coping strategy for the huge amount of unregistered records for which archival finding aids are still not available. Digitization enables the identification and reconstruction of historical processes from scattered documents that are widely spread over different records. The full-text searchability of scanned records enables us to trace and identify relevant documents from a large number of records within a justifiable time frame and to reconstruct historical processes from them. Furthermore, network analysis and topic modeling are the methodological approaches of choice in the emerging field of computational humanities. By applying such analytic tools on large-scale sets of data from digital repositories, new insights can be won into the emergence of scientific concepts and network communities in the institutional context of the MPG.

Central parts of our activities depend on the accessibility of sources, with the two major challenges being their immense volume and legal constraints involved in some of them due to their recent origin. As far as the latter challenge is concerned, we obtained a practical foundation for our work in early 2016 in a resolution of the President of the MPG that governed access to and the treatment of sources of various kinds up to 2002/2005. For the former challenge, the fourth installment of our digitization program ("Module 4," see chapter 4.2), approved in November 2016 by the President of the MPG, creates the conditions for data supply and the workflows for dealing with such large amounts of data. In addition, the research program has created and works with several comprehensive databases:

– The *Archival Database*, which features finding aids of the AMPG and includes relevant sources kept in private and state archives in Germany and abroad; these digitized sources have been made full-text searchable.
– The *Biographical Database* of all Scientific Members of the MPG as well as members of commissions of the MPG.
– The *Patent Database* which collects patents filed by the MPG.
– The *Bibliographical Database* for publications of the MPG and secondary literature.
– The *Financial Database* that will provide data on the budget development of the MPG and all MPIs.

All databases deliver tools for the ongoing research and are being developed according to the needs of the researchers in a constant exchange process between the researchers and the research program's software engineer, as well as between IT experts from the MPIWG and the GWDG and colleagues from the digital humanities community at various universities and the Fraunhofer Society.

Altogether, the research program employs: one project coordinator, six full-time researchers, nine visiting scholars (periodically), one software engineer, one scientific curator for the digital repositories, and ten student assistants for the general support of research activities, two student assistants for IT support issues, as well as eight student assistants belonging to the two digitization groups in Munich and Berlin. We have reached the envisaged size of our group with the recent addition of a researcher who will study the behavioral, neuro-, and cognitive sciences. In the field of legal studies, we have built up a close cooperation with the MPI for European Legal History (MPIeR) in Frankfurt am Main. All of the full-time research staff members have been and continue to be engaged in both research in their respective fields and in the setting up of the data infrastructure. This has taken up considerable time but was vital in laying the foundation for both the data-related and the methodical approaches.

2. Focus Areas

2.1 Governance and Finance of the MPG

2.1.1 Object of Research, Methods, and Research Questions

Assessing the development of the MPG from its (re-)establishment in 1946 to the turn of the millennium, growth seems to be the most characteristic feature: the MPG expanded from 13 institutes (in the British Occupation Zone) to 80 institutes in reunified Germany, not to mention the large number of smaller research units attached to these institutes. How does the organism MPG work, given the size and complexity of the institution? Who provides the funding for basic research on a large scale, which by definition is not meant to make a profit? And how (and to what extent) did the MPG secure independence from the main donors with regard to research policy? Studies into governance and finance, which Jaromír Balcar started to conduct in the fall of 2014, will provide answers to these questions.

The term *governance* refers to the entirety of the governing processes in institutions. Thus, it is related to the process of interaction and decision making among various actors that leads to the production and modification of norms and guidelines for the acting of institutions, the definition of goals and individual decisions as well as the rules of their implementation. Dealing with the governance of the MPG means asking questions like: How are crucial decisions, such as the founding of new, or shutting down of old, institutes, made? Who influences and controls the MPG, its institutes and sections? Whose interests are represented and – in the case of conflicts – prevail? Which customs, policies, laws, statutes, and institutions affect the way the MPG is directed, administered, and controlled? And how does all this change over time?

To answer these and other questions, we follow the formal and informal paths of decision making within the MPG. Moreover, to understand the corporate action of a complex institution like the MPG, we analyze the institutional arrangements in which the MPG is embedded. Thus, the interaction of the MPG with other players comes into our focus. How did the organs of the MPG interact with government agencies? How was the MPG integrated into the (West) German science landscape? How and in which arenas did the MPG interact with universities, non-university research organizations, and scientific coordination organs? How were conflicts among these institutions solved? And how did the MPG react to the emergence of new players, for example, the founding of the German Council of Science and Humanities *(Wissenschaftsrat)* in 1957?

The history of MPG's financing grants particular attention to political institutions, especially the Federal Government, the Laender, and the emerging European Union, but also market and civil society actors like enterprises and foundations. The dependency on external donors poses the question of how changes in the spheres of politics, economy, and society affected the MPG and how the MPG reacted to these challenges. How did the relative contributions of the donors

change over time, and how was this translated into influence on the MPG? On the expenditure side, we want to find out how autonomous the MPG was and how this changed over time; how (and why) the distribution of expenditures on investments, personnel costs, and research projects developed.

The governance and finance of the MPG, embedded in its multilateral institutional arrangements and changing over time, has not yet been scrutinized. This research effort will provide an in-depth insight into the history of the (West) German research system as a whole. Following this approach, contemporary history can be written as history of science.

2.1.2 Hypotheses and Preliminary Results

2.1.2.1 Periodization

Intensive discussion in the whole research group led to elaborating a provisional periodization scheme of four periods with which we are working in order to present the analysis of governance and finance in a chronological way. The same scheme will serve as a basis for the narrative of the overall history of the MPG presented in the second part of the GMPG synthesis volume. It relates the history of the MPG and its governance/finance to major changes in the general history of (West) Germany and Europe as well as to major developments in the history of science.

In the first period (1943–1955) the KWG underwent a westward shift as a consequence of the war, which later helped to characterize the MPG as a West German research institution. After the end of the war, the KWG was founded again as MPG under the close control of the Allies, while the governments – at that time: the Laender – took over funding. MPG's mode of financing changed during the second period (1955–1972), when the Federal Government joined in. From 1964 onward the MPG was co-financed by the Laender and the FRG on a 50:50 ratio. This not only permitted an enormous annual growth of the budget, but also led to a major change in the internal governance: since 1964 the Federal Government and the Laender nominated representatives to the Senate of the MPG. During the third period (1972–1989), the MPG had to face two challenges: the "limits of growth" constricted the financial scope, while demands for "democratization" grew louder in the aftermath of the 1968 protests. The MPG faced these challenges with a thorough reform of the statutes in 1972. In the last phase (1990–2002), external challenges caused by German reunification and accelerated globalization were even more demanding: the MPG participated in building a research infrastructure in East Germany – partly by reducing its investment in the West – and quickly strengthened its international reach.

2.1.2.2 Governance

Up to now, we have mainly analyzed the formal structures of decision making, including the executive and controlling bodies of the MPG, with respect to their functioning in practice and to their change over time: the Senate, the General Meeting *(Hauptversammlung)*, the Scientific Council *(Wissenschaftlicher Rat)* with its three sections, and the Executive Committee *(Verwal-*

tungsrat), as well as executive officers such as the president, the vice presidents, the treasurer, and the secretary general, just to mention the most important players. To this end, we evaluated the minutes of the governing and controlling bodies stored in the AMPG in Berlin as the main sources of information; they have meanwhile been digitized, which has proved to be extremely helpful.

For a better understanding of the special features of MPG's governance regime, comparisons to other German non-university based research institutions are important. Such comparisons will examine the role of hierarchical structures within the institutes of the MPG, as well as the question of whether the international competition for reputation within the respective scientific communities is more important to the governance of the MPG than to the governance of other German research organizations. Certainly, the MPG's networks with international research institutions have developed increasingly. Internationalization became a signature of the last period. For instance, while in the early 1990s 26 % of the members of advisory boards came from abroad, in 2000 58 % of the members were non-German scientists. Within the formal structures of the MPG the position of the Senate is comparatively strong, since the Senate is responsible for all questions the statutes do not explicitly delegate to the General Meeting. On the other hand, the competences of the MPG's Scientific Council are limited, since this organ was not designed as a decision-making body but rather for counseling purposes. Thus, "activating the Scientific Council" has been a constant claim of MPI directors ever since the 1950s. The most striking feature, however, is the lack of direct political interference, despite governmental representatives in the Senate, which may well distinguish the MPG from most other German research organizations.

On this background, we decided to focus on the *pursuit of independence* (autonomy), a principle which in the MPG has been (and still is) strongly emphasized. In a way, this was the main lesson the MPG derived from the Nazi past, when scientists all too willingly served the ends of government aims, racist crimes, and total warfare. To nuclear scientists such as Otto Hahn and Werner Heisenberg, who held top executive positions in the early MPG, "Hiroshima and Haigerloch" (Joachim Radkau) were crucial experiences. Later on, the justification of the strive for autonomy switched to Article 5, paragraph 3 of the West German constitution, which guarantees (among others) the freedom of science and research. Given the almost complete dependence on external funding, the extent to which the MPG has been able to secure independence from its donors is remarkable. Although political pressure during the last phase became stronger than ever before, the decision making in all scientific questions (also with respect to the scientific orientation of the 20 newly created institutes in East Germany) still rested firmly with the MPG. This will have to be further analyzed.

Scrutinizing the minutes of the governing bodies, as well as preliminary comparisons with other research organizations, revealed *gradual centralization* as a major development of MPG's governance in the second half of the 20th century, particularly by strengthening central organs like the president, the executive bodies, and, most notably, the General Administration *(Generalverwaltung)*, which has grown immensely since the late 1960s. By centralization we mean the

shifting of administrative tasks, competences, and the power to control the resources from the individual institutes to the center. This started as early as 1949 with the dominance of government funding. From then onward, only the General Administration negotiated the budget with government officials, not the individual institutes or directors. As a result of collective, central, and global financing, the organizational structures of the MPG became much more consistent and tighter than those of the KWG had ever been before. Later on, fraud in the budgeting of individual institutes, the introduction of IT in accounting and administering, and a McKinsey report on administrative inefficiencies (1975) triggered further steps in this direction. We assume that centralization was used as one possible coping strategy vis à vis the growing complexity of the Society. In this context, it needs to be mentioned that the 1972 reform of the statutes introduced a regular evaluation of institutes by advisory boards and visiting committees. However, the single institutes have maintained much autonomy, and MPI directors still hold a very strong position. It is worthwhile remembering that, within the MPG, the founding of new institutes and research divisions does not respond to the articulated needs of governments and businesses, but results from scientific deliberations and is oriented towards the personalities of particularly distinguished or promising scholars who, once appointed, are guaranteed a free hand in setting the research agenda of the single institutes or departments.

2.1.2.3 Finance

The end of World War II *marked the deepest caesura in the financing structures of the KWG/MPG.* While private business had financed large portions of the budgets of the KWG institutes, the MPG, since its foundation, had depended heavily on governmental funding. In 1949, even before the founding of the FRG, the West German Laender agreed to co-commonly finance the MPG *(Königsteiner Abkommen).*

Year	Budget (in million DM)	Personnel	Number of Max Planck Institutes
1949/50	16.7	1513	35
1959/60	79.4	2968	47
1971	454.1	7463	66
1980	860.2	9219	–
1988	1,115.4	10167	61
1998	2,229.4	11036	81
2002	EUR 1,265.0	11612	80

Sources: Data in column 2 is from: Auszug aus der Niederschrift über die 2. Ordentliche Hauptversammlung der MPG am 13. 9. 1951, in: AMPG, II. Abt., Rep. 1A, Nr. 4 (Abt. 4291); Niederschrift über die 12. Ordentliche Hauptversammlung der MPG am 7. 6. 1961, in: AMPG, II. Abt., Rep. 1A, Nr. 4 (Abt. 4291); Jahresbericht 1971 und Jahresrechnung 1970; Jahresrechnung 1980; Bericht der Abteilung Interne Revision (gez. Gastl) über die Prüfung der Jahresrechnung 1988 vom 1. 6. 1989, in: AMPG, II. Abt., Rep. 1A, Nr. 4 (Abt. 4291); Jahresrechnung 1998; Jahresrechnung 2002. The figures in column 2 include the budget of the MPI for Coal Research and the MPI for Iron Research, which are legally independent, except for the years 1998 and 2002. The figures for 1980, 1988, 1998, and 2002 include the budget of the IPP (budget B). Data in column 3 is from AMPG, II. Abt., Rep. 1A, Statistik Handakte E. S., Personal Titel 104/1-2 ab 1967 bis 72, Az 29311 (QR 111198); Zahlenspiegel since 1974; Jahresberichte der MPG 1953–2002. Data in column 4 is from Verzeichnis der Organe und Institute der MPG 1950, 1953–1966, 1968, 1970–1979, 1981–2005.

As the table above indicates, growth was the main trend of MPG's development in the second half of the 20th century. Looking at the factor of growth more closely, however, the budget (75.7) skyrocketed, while the number of institutes (2.3) and personnel (7.7) grew rather moderately. Moreover, the increase in budget was not linear, but windless phases (e.g., from the mid-1970s to the mid-1980s) followed years of specific dynamics (e. g., from the mid-1950s to the late 1960s). Because of its high degree of dependence on state funding, changes of the MPG budget mirrored the economic development of the FRG.

The *origins of the financial resources* changed over time. MPG's financing came from the Laender and the Federal Government, which frequently competed. It is true that the MPG was not limited to government sources, but also included donations from enterprises and foundations as well as revenues that the MPG generated itself. During the second period, however, the government shares became extremely dominant: in 1955, according to Hans-Willy Hohn and Uwe Schimank, the revenues of the MPG made up 25.5 % of the total budget, and private donations amounted to 11.1 %, while the subsidies of the Laender contributed some 60 %. In 1976, state subsidies added up to 96 % of the budget, while private donations (0.4 %) and revenues generated by the MPG (3.6 %) were only marginal. This would never change again: in 2002, "private revenues" only made up 5.4 %, while state subsidies totaled 94.6 % of the total budget. The multitude of sources of income and sponsors may well have contributed to the MPG's financial and general success. Although the coordination of different funding agencies sometimes proved to be troublesome and lengthy, the MPG never became dependent on just one donor. When negotiating its budget, the MPG could always deal with various partners, which made it easier to keep the MPG and its institutes relatively autonomous.

Although the share of revenues generated by the MPG was small and became much smaller over time, they were still important, since this money was at free disposal, whereas state funds became more and more regulated due to new standards in bookkeeping and accounting introduced since the late 1960s. From then on, the MPG tried to increase its own revenues, most notably in times of tight budgets. For this reason, we decided to analyze the history of Garching Instruments Ltd. (GI). Jaromír Balcar conducted this research mainly based on documents of the General Administration and GI located in Berlin and Munich as well as on the records of the Institute for Plasma Physics (IPP, Garching). The small company was founded in 1970 to actively boost and centralize the transfer of technology from basic research to industry. During the next three decades, GI followed three different paths of technology transfer. In the 1970s GI developed, produced, and distributed instruments (mainly for other research institutions in various fields of natural sciences). When this business model failed in 1979, GI was restructured and turned into the patent office of the MPG, which proved to be financially successful. Since the early 1990s, the founding of start-ups and spin-offs became an additional mode of technology transfer and a second mainstay of GI. However, GI's contribution to the budget of the MPG was never significant. Moreover, many MPI directors preferred not to get in touch with GI. Some followed their own strategies of technology transfer, while for others the publication of research results was paramount. Thus, the MPG has undergone different processes of "commercialization" since the early 1970s which, however, never became a dominating strategy of the Society as a whole.

2.1.3 Outlook

Many of these results, of course, are still tentative. A comprehensive Finance Database, yet to be built, will enable in-depth insights into the global trends and the internal differentiation of the budget as well as into the financing of individual MPIs and research clusters. The database will contain detailed data on annual revenues (government subsidies, donations from industry and foundations as well as revenues of the MPG) and expenses (personnel expenses, investments, current maintenance costs). Among others we hope to come to a better understanding of the patterns of investment cycles of the MPG, which ultimately will lead to new research questions. The MPG's budgets will have to be analyzed in detail. With respect to the MPG as a whole, investments took place in waves, with peaks in the *Wirtschaftswunder* years and during the *"Aufbau Ost"* following German reunification.

Governance on the level of the institutes – its changes over time and the huge differences between different types of institutes – still needs to be analyzed. We still have to explore how the changing structures and practices of scientific research have triggered changes in the governance of the MPG and its institutes. So far, most of our preliminary results and hypotheses have been drawn from the minutes of the governing and controlling bodies of the MPG. They rather reflect the formal structures of decision making, while informal networks, personal alliances as well as the role of major individual actors and pressure groups inside and outside the MPG, sometimes acting behind the scenes and exerting influence on decisions of the MPG and/or individual institutes, did not yet come to our focus. The view from the center will have to be thoroughly supplemented by views "from bottom up." To this end, the forthcoming digitization of various sources will provide access to more decentralized sources including (among others) the files of the *Institutsbetreuer* (as intermediary agents between the General Administration and the institutes) as well as the papers of leading scientists and representatives of the MPG, which are mostly stored at the AMPG in Berlin.

2.2 Social History

2.2.1 The Research Area: Questions, Sources, Methods

For studying the history of the MPG from a socio-historical point of view, we have chosen two foci. We have concentrated on the personnel, on the different categories of persons who have participated in the activities of the MPG and its institutes, on their growing numbers and social characteristics (gender, age, educational background, social, regional, and national background), their skills and specializations as well as their – both functional and hierarchical – relations to one another and to the MPG with its institutes. We have studied them as employees with different contractual relations, as directors, fellows, and guests, but we also study them as scientists, specialists, technicians, and actors with different qualifications and tasks. By asking where they came from when entering the MPG, and where they went, if and when they left the MPG, we hope to say something about the MPG's place in the scientific, economic, social,

cultural, and political system of the FRG and beyond. By investigating how, why, and with which effects the numbers, composition, social characteristics, distribution, and mobility of the personnel have changed over time we will cover an important part of what one might call the social history of the MPG.

We are also analyzing the history of work and labor in the MPG, including the history of science as work and the ways it was organized and shaped by the MPG and its institutes. We deal with working conditions and work experiences, work time, contracts, salaries, and wages. Reconstructing and explaining change over time is a central aim. We analyze the impact of changing technologies, for example, the digital revolution, on changing markets for scientific labor, globalization and mobility across borders. Team structures and patterns of cooperation, leadership structures and hierarchies, the role of demands for codetermination and democratization, protests, debates, and conflicts over issues of work and labor are major topics. A heterogeneous picture will emerge since conditions of and experiences with work and labor have strongly differed between disciplines and institutes, skill and qualification groups, men and women, between decades and generations. One major aim is to relate the changes within the MPG to changes in other scientific organizations and in society at large.

This short interim report concentrates on aspects of the first focus, related to personnel.

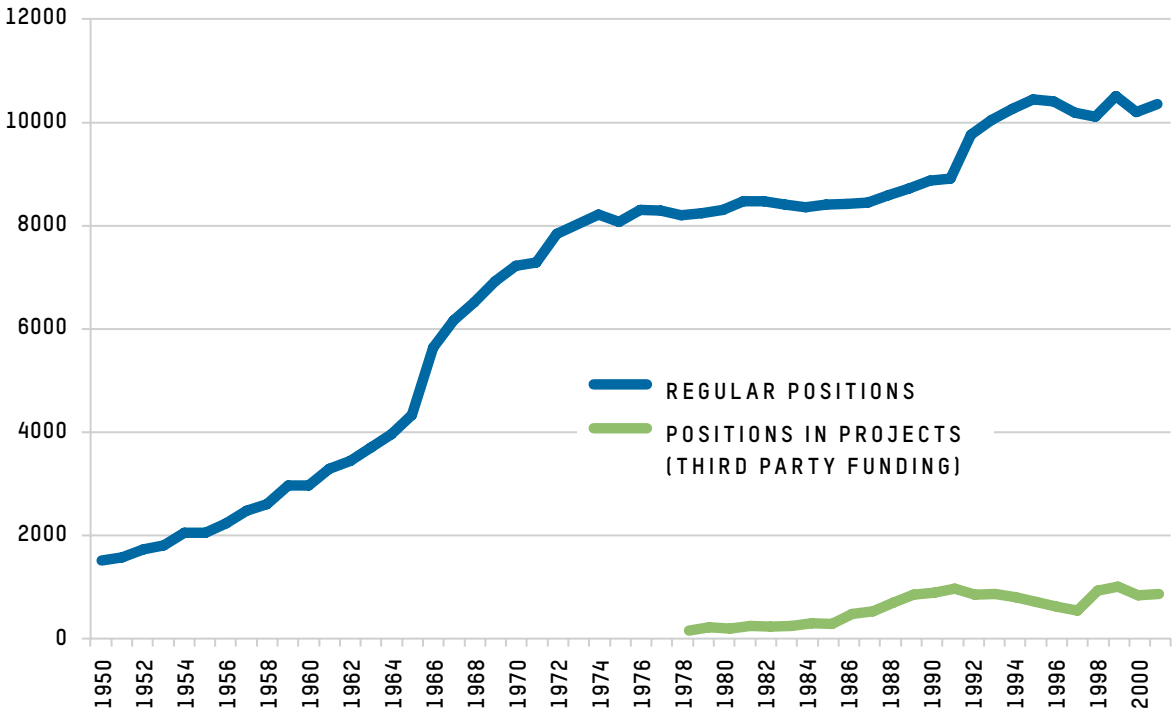
Information on the social history of the MPG can be derived from very different sources. We have started to exploit a broad variety of them, ranging from statistics and official reports, files from the different institutes, correspondence between directors and their co-workers, minutes of the different executive bodies and advisory boards to the files of the General Works Council *(Gesamtbetriebsrat)*, personal accounts, autobiographies, and oral history interviews. The work conducted by Ulrike Thoms is complemented with Birgit Kolboske's research investigating gender relations in the social history of the MPG (see chapter 2.3 Outside the Gender Mainstream?). Other members of the group have contributed from their own specific angles. Many hands and brains have been involved in establishing the databases (see chapter 4.3.1 Infrastructure). This work is ongoing.

2.2.2 Preliminary Results

2.2.2.1 Staff: Overall Trends and Periods

The MPG has collected statistical figures on its staff on a regular basis since 1964. But as these statistics are scattered and largely unsystematic it took a long time to assemble, evaluate and supplement them and to arrive at reliable long-term series that shed light on general developments, phases, and change. In order to selectively show some preliminary results, the following graph deals with the development of the total staff over nearly the entire research period. Regular positions *(Planstellen)* are represented by the blue line, while the green line indicates the number of employees financed by third party funding:

DEVELOPMENT OF STAFF OF MPG 1950–2002 ABS.



Source: AMPG, II. Abt., Rep. 1A, Statistik Handakte E. S., Personal Titel 104/1-2 ab 1967 bis 72, Az 29311 (QR 111198); Zahlenspiegel 1974ff; Jahresberichte der MPG 1953–1972.

There is a clear coincidence of this growth pattern with the phases we have distinguished for other dimensions of the history of the MPG and with the development of MPG funding in general (see chapter 2.1 Governance and Finance of the MPG). This is not surprising, as the MPG's expenditures for personnel account for the largest part of its expenses. From the graph, one clearly recognizes three major periods: strong initial growth, followed by a period of slower growth from the early 1970s to 1990; finally a period of once again accelerated but uneven growth following German reunification.

The first period includes the reconstruction years (1948–1972), which were marked by a stable increase in the number of employees, largely within the structure of and with much continuity to the former KWG. It also covers the years between the mid-1950s and the early 1970s which were characterized by accelerated growth. Given the relatively stable number of institutes and directors, this meant that in this period the average size of institutes grew from 39 to 145 people while the number of staff per director increased from 26 to 45. As a consequence, it is likely that personnel relations loosened while directors had to spend an increasing amount of their time on staff management. In 1964, a reform of the statutes of the MPG made it possible to reduce this burden by sharing administrative duties in the institutes with other Scientific Members: a step towards cooperative management.

The second period (1972–1990) was a period of slower growth. It corresponded to relative stagnation on the academic job market. The MPG reacted with raising more third party funding *(Drittmittel)* to hire more people on a contractual basis, which in the graph is indicated by the green line after 1978. The reform of statutes in 1972 established fixed-term contracts *(Zeitverträge)* as a general rule for all scientists – except for a small upper echelon ("Scientific Members" and "*Mittelbau*"). The category *Mittelbau* was established in 1964 for a small intermediate group sitting between the directors and the rest of the scientific staff. While this decision was intended to maintain or increase the institutes' options for initiating new research and for offering job opportunities to promising young researchers, some of those directly concerned complained about growing insecurity. Controversial debates followed and new adjustments were sought, including the increasing role of third-party funding as shown in the graph. This subject will be studied in depth in cooperation with visiting scholar Ariane Leendertz.

A third period began in 1990 after Germany's reunification. The *"Aufbau Ost"* was a program of "consolidation" in the western and of expansion in the eastern parts of the country. While the staff was slightly reduced in the West (by 737 positions until 2000), temporary working groups *(Arbeitsgruppen)* in universities (1993: 30) as well as 20 new institutes and 2 satellite stations *(Außenstellen)* were founded in the new Laender, with a total of 1,730 regular positions *(Planstellen)* in 2002. The number of grant holders grew once again.

2.2.2.2 Differences Between Institutes and Sections

A deeper analysis of the distribution of personnel and of scientific work will have to proceed to the level of the institutes and investigate their different organizations and working styles. As it will be impossible for us to study all MPIs in depth, we will need to select a certain number of institutes for closer investigation, which should be representative of different types of institutes. We are still working on such a typology. A few in-depth studies of single institutes will follow. As a preliminary makeshift, we have decided to use the MPG's own grouping of its institutes into three "Sections": The Biology and Medicine Section (BMS), the Chemistry, Physics and Technology (CPTS) and the Human Sciences Section (HSS).

DISTRIBUTION OF INSTITUTES AND OF DIFFERENT CATEGORIES OF EMPLOYEES BETWEEN THE DIFFERENT SECTIONS OF MPG 1956–1971

	ABSOLUTE NUMBERS			PERCENT (%)				
BMS	Number of Staff	Number of Institutes	Average Size of Institue	Scientists	Techni-cians	Craftsmen	Adminis-tration	Others
1956	1124	20	56	28	35	12	8	18
1960	1474	23	64	25	35	12	9	19
1964	2005	26	77	23	37	12	9	19
1968	2711	24	113	23	44	6	10	17
1971	2956	28	106	24	45	12	11	9
CPTS								
1956	876	21	42	32	29	24	7	7
1960	1585	22	72	31	34	21	7	8
1964	1969	22	90	29	35	21	7	9
1968	2072	16	130	29	48	9	8	6
1971	2574	15	172	29	46	10	10	5
HSS								
1956	108	4	27	44	21	10	15	10
1960	127	4	32	41	24	9	15	12
1964	227	4	57	47	29	4	12	8
1968	381	8	48	43	37	1	14	5
1971	496	9	55	42	8	1	45	4

The original German terms were *Wissenschaftler* (scientists), *Techniker* (technicians), *Handwerker* (craftsmen), *Verwaltung* (administration) and *Sonstige* (others). The categorization of technicians changed so that, for example, librarians were no longer counted as technicians, but as administrative staff; this explains the changes between 1968 and 1971.
Source: Verzeichnis der Institute und Organe 1956, 1960, 1965, 1968, 1971; AMPG, II. Abt., Rep. 67, Nr. 181.

In the third quarter of the 20th century, institutes from the HSS were the smallest, but had the highest share of scientists. In the other two sections – physical and life sciences – the proportion of scientists slightly declined while the proportion of technicians grew. Institutes in the CPTS were the largest; they had the smallest proportion of scientists and the highest proportion of technicians. Only in the CPTS did the number of institutes decrease while the number of employees grew – a process of concentration. But there was a growing tendency towards ever larger institutes in all three sections. Clearly, the HSS grew faster than the other two sections, though on a much lower level. We will supplement these figures for later decades, differentiate them further, and use them to shed light on the strategic decisions of the MPG.

2.2.2.3 Different Categories of Employees

Budget categories and internal MPG staff statistics distinguished between different types of employees. Although these categories slightly changed over time, something which needs more discussion, the differentiation and the relative distribution between scientific staff, technicians (medical-technical assistants, operators of scientific instruments and others), administrative personnel, and workers remained remarkably stable, at least in the last quarter of the 20th century. The same holds true with respect to the subdivisions of the category "scientists," which were divided into "Scientific Members," the *"Mittelbau"* and "scientific assistants." It was mainly the striking growth of the numbers of "grant holders" *(Stipendiaten)* which brought an element of remarkable change into this basically stable pattern.

Scientific Members are appointed via a formal procedure. This group accounted for only a very small percentage of the total workforce (1974: 2.6 %, 2000: 2.8 %). As this group is almost identical with the group of institute directors, it played the dominant role both in the institutes and in the MPG at large. Scientific Members held life-long contracts with enforced retirement age, and with only a few exceptions they stayed with the MPG until the end of their working life. They showed the highest average age of all groups, but had the lowest share of women (1974: 1.7 %; 2000: 3 %). Data on more than 840 Scientific Members has been systemically collected in the Biographical Database (BDB). For collecting basic biographical data of the Scientific Members, biographical dictionaries and encyclopedias were used. Articles from several hundred biographical encyclopedias included in the online edition of the *World Biographical Information System* (WBIS) were systematically examined. Further data was collected from *Munzinger online*, *Kürschners Deutscher Gelehrten-Kalender*, the MPG's *Handbook of Scientific Members* and all obituaries published in the MPG's yearbook. This standard set of data on social and family background, family situation, education, religion, professional career, honors, awards, memberships, etc. (although in many cases only in rudimentary form), has been fed into the Biographical Database. Data on membership in commissions has been assembled from the minutes of MPG's Senate, Administrative and Scientific Councils. One major aim is to reconstruct the careers of these leading scientists of the MPG as well as their networks within the MPG and their relations to different fields outside the MPG – as much as data will permit.

The *Mittelbau* category included persons with some leadership functions in the institutes. It was also meant to tie particularly promising persons or people with specific skills to the MPG. The category accounted for around 2 % of all employees, a similar size as the Scientific Members. But in contrast to these, *Mittelbau* persons were highly mobile. 224 of the 389 *Mittelbau* persons documented so far for the time between 1968 and 1982 left the MPG within one to five years. Most of them were awarded positions at universities while only very few of them took up positions in industry.

The large majority of the MPG's scientists held the status of scientific assistants *(Wissenschaftliche Assistenten)*. This category grew slightly from 20.7 to 23.5 % of all employees between 1974 and 2000. We have statistical data on their general characteristics (age, education, etc.). In addition, we will study members of this category within several selected institutes (representing

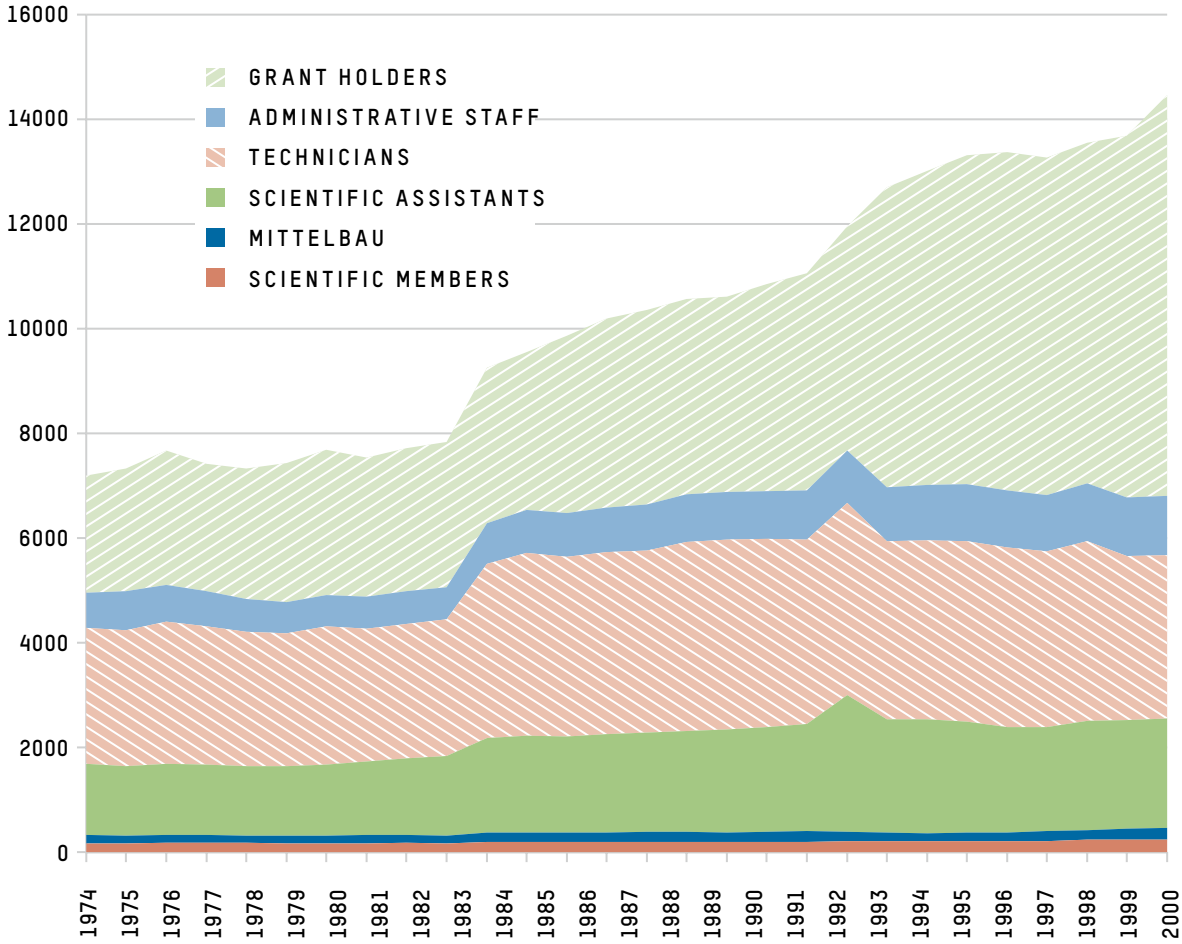
different sections and time periods). In the 1960s, many of them were given life-long contracts. In 1972, the MPG decided that in the future they would be hired on a temporary contract basis only. Already in 1979, 26 % of them no longer had a permanent contract, but were employed on a temporary contract basis. In the 1970s, as the expansion of the universities came to an end, alternative job opportunities became scarcer. Related to this changing market situation, the average duration of the scientific assistants' stay with the MPG grew from 6.28 years in 1974 to 10.9 years in 1993.

Technicians were the largest group in the MPG. Consisting of such highly diverse staff as, for example, toolmakers, laboratory assistants, and IT specialists, it needs further research. In 1974, technicians accounted for 39 % and in 2000 for 35 % of all MPG employees. Although they had lower levels of formal education, technicians possessed skills and tacit knowledge acquired through practice that neither scientists nor directors had. Technical staff differed vastly between the institutes. Technicians in the field of physics were mostly male, while technical assistants in the biological laboratories were largely female, as were the secretaries and other administrative staff. Technicians were the category with the lowest average age and a high turnover rate. Though they had open-ended contracts and could, in principle, stay as long as they wanted, they made up the largest number and proportion of departures (40 %).

The growing category of grant holders *(Stipendiaten)* was highly diverse. It embraced pre-doctoral and postdoctoral researchers financed by third party funding *(Projektstellen)* as well as visiting scholars *(Gastwissenschaftler)* from all academic levels. While PhD students were young, visiting scholars and postdocs displayed a broad spectrum of different qualifications and age levels. The overall growth of the grant holders' category reflected strategies of exchange, rejuvenation, and internationalization, which were increasingly stressed by the MPG. The growth of their numbers from only 223 in 1964 to 2,427 in 1974 and to 7,648 in 2000 has changed the social architecture of MPG. The expansion of this category strengthened the momentum of youthfulness, permanent change, and fluidity, increasing chances of innovation for the MPG and its institutes as well as elements of insecurity for the individual. It is important to stress that it was in this group of grant holders that the internationalisation of MPG quickly proceeded. Already in 1974, 51 % of the grant holders, but only 6 % of the Scientific Members came from foreign countries.

During the last quarter of the 20th century, the pattern of employment – as analyzed on this level – appears remarkably stable, in spite of the continuous growth of personnel involved. In this period, neither the definition of the major personnel categories nor the numerical relations between them seem to have deeply changed. But even on the rather general level of analysis which we have chosen so far, one major change is visible beyond doubt: Employment became less steady and more flexible, less life-long and more temporary, more adaptable to change and less secure or predictable for the individual, except for the minority at the top. This trend within the MPG had its parallels in other social spheres during those years. Its details and different aspects, its causes and its meaning, its intended and non-intended effects will have to be studied more deeply.

NUMBER OF EMPLOYEES IN THE DIFFERENT EMPLOYEE CATEGORIES OF MPG 1974–2000



Number of employees in the different employee categories of the MPG, 1974–2000
Source: Zahlenspiegel/MPG in Zahlen 1974–2000. This is a rough and preliminary picture based on statistical figures largely produced by the MPG itself. The figures still need to be checked. Certain visible changes, e.g., sudden changes and declines in 1983–85 and 1992–94 may be due to redefinitions of the statistical categories.

2.2.3 Outlook

Nearly all information presented on the previous pages needs further differentiation, supplementation, and interpretation. This is on the way. While this report has concentrated on aspects of the development of the staff, research on the history of work practices and cultures, on hierarchies and cooperation, on working time and workspaces has also taken place, including the history of controversies and conflicts over work and labor, questions of codetermination, unionization, and reform. Research on these topics will continue – particularly on the level of single institutes – in order to realize as much as possible from the program as sketched out above. Additional sources will be exploited, for example, the personal papers of some directors, auto-

biographical reports, descriptions by contemporary observers and files of the work council. Further work will profit immensely from the digitization of larger amounts of records and the possibilities of full-text research.

2.3 Outside the Gender Mainstream?

One research project is dedicated to a gendered history of the MPG (Birgit Kolboske). The aim is to pursue a longitudinal study (1948–2002) of the multiple layers constituting the social organism of the MPG. As an important analytical tool the study relies on the concept of *doing gender* introduced by West and Zimmermann in 1987. *How* and *where* has gender been done in the MPG?

In science, *doing gender* basically comes down to the questions: How do gender norms and issues influence research priorities, and subsequently the research agenda? And, more generally, how do gender aspects affect scientific practices and the daily life at the institutes? In looking at gender in the social environment provided by the MPG, two conflicting concepts are crucial: social cohesion vs. segregation. To which extent was the MPG a gender-segregated work environment where the societal distribution of labor allocates women the poorer positions regarding status, gratification, and stability? How did such practices affect role models as well as institutional and scientific personae cultivated in that environment, the allocation of funds or the recruitment of new members into this (exclusive) community?

Approaching the mental presuppositions and consequences of *doing gender* also requires looking at the self-conception of the MPG. Do specific rules apply for women in this context? Analyzing appointment and other decision processes is expected to provide insights into the mindsets of decision-makers, and thus insights into the dynamics behind the MPG gender structure.

Two aspects have so far been explored: (a) gender as a category of analysis in the history of science and (b) the institutionalization of gender equity in the 1990s. In researching the latter, the portfolio of the *History of Equal Opportunities* of the MPG, stored in the Munich registry of the General Administration, proved to be an unexpected windfall.

2.3.1 Gender in Science

A first foray into legal studies in the framework of the MPG from a gender perspective has yielded promising results. A bibliographical analysis based on gender specific key words (such as gender, women, violence, rape, and abortion) was applied to the publications issued by the Max Planck Law Institutes (1950s–1990s). Subsequently, two out of the eleven institutes were selected for a contextualized study of the gender aspect in legal studies: The MPI for Comparative and International Private Law in Hamburg *(MPI für ausländisches und internationals Privatrecht*, MPI-PRIV) and the MPI for Foreign and International Criminal Law *(MPI für ausländisches und inter-*

nationales Strafrecht, MPICC) in Freiburg. The leading question was whether their research in the 1970s and 1980s had been conducive to reforms in German family law and abortion law, respectively. The tentative first finding is that the MPIPRIV did indeed promote much-needed reforms in German family and matrimonial law *(Erstes Gesetz zur Reform des Ehe- und Familienrechts)*, owing to its publications and expert reviews provided for the Federal Ministry of Justice. This conclusion was confirmed in an interview with one of the institute's directors (Jürgen Basedow). Next on the agenda is an assessment of the almost twenty-year long research project at the MPICC on "Abortion in International Comparison" in the context of contemporary gender politics and women's rights.

Portfolio of the *History of Equal Opportunities* (Section) in the registry of the General Administration in Munich.
Photo ©Digi-Group GMPG

2.3.2. Gender Mainstreaming in the Max Planck Society, 1988–1998

In the late 1980s the gender imbalance in German research institutes and universities still displayed the by now well-documented pyramid structure, with women occupying a greater percentage of the lower grades and relatively few of the top positions as Margret Rossiter has shown for *Women Scientists in America* (1984, 1998) as well as Karin Hausen and Helga Nowotny (1986) or Beate Krais for women in German science (2000). The MPG proved to be no exception.

In reaction to this situation, the West German government initiated measures to increase the participation of women at all levels of the qualification process. The aim was to break through the "glass ceiling," that invisible barrier keeping women from climbing beyond a certain hierarchical level in science. This advance prompted the MPG to address its own gender structure, which trailed notably behind, both at international and national level. The Women's Committee of the General Workers Council proactively developed a comprehensive project for surveying the employment situation of women and men in the MPG. It also planned to gain additional information on personnel statistics and data concerning recruitment practices. In 1993, the *Empirical Study of the Employment Situation of Men and Women*, commissioned and based on that project, was submitted by Sonja Munz. It showed a segregated work situation for the MPG at horizontal (i. e., domain-specific), vertical and contractual levels. The distribution pattern was discernable across all employment groups – granting men the well-paid, secure, and influential

jobs, while the presence of women was diminished to the same extent in which status, gratification, and stability of the positions grew.

These figures as well as recommendations by its Scientific Council – and last but not least external political pressure – led the MPG to initiate its gender policy in the mid-1990s based upon three pillars: (a) a Senate decision in March 1995 about the "Principles for the Advancement of Women"; (b) a General Work Agreement on the "Equality of Women and Men" in 1996; and (c) the "Framework for the Advancement of Women" in 1998. Achieving and implementing that three-stage plan required intense negotiations, also in response to numerous top-down measures intended to mitigate or slow down this process. This is, *in nuce*, how the concept and the accompanying policies of equal opportunities were established in the MPG between 1988 and 1998.

The opportunity to digitize and access the *History of Equal Opportunities* portfolio in the Munich registry of the MPG proved to be beneficial for this investigation. It made it possible to analyze the gender equality process from a privileged inside perspective, thus getting answers to questions such as: how are relations of domination and inequality implemented, perpetuated – and eventually changed within an established hierarchical social system such as that of the MPG? What made the MPG consider a special program for the promotion of female scientists? What resistances and obstacles had to be overcome?

The papers contained in these files provide a wealth of information allowing insights way beyond facts and figures. But, of course, the facts and figures helped too, given that the MPG did not submit its personnel statistics systematically categorized according to gender until the 1990s. *First*, they permitted identifying the key actors, that is, the Women's Committee of the General Workers Council and especially its chairwoman Martha Roßmayer, of the General Workers Council, of the *Working Group on the Advancement of Female Scientists* (consisting of various female and male leading MPG scientists and directors), chaired by the consecutive heads of the Scientific Council (i.e., Peter Hans Hofschneider, Klaus Pinkau and Paul Baltes respectively).

Other key players were the General Administration as well as the General Secretaries, Wolfgang Hasenclever and Barbara Bludau, and, of course, the Presidents Hans F. Zacher and Hubert Markl. The papers also provided insights into existing and newly forming networks and alliances between the negotiating partners. The Workers Council and especially the Women's Committee demanded equal say in the increased appointment of women to the better paid jobs. At one point, the president cautioned his peers that continuance of a women-discriminating recruitment process might cost the MPG one of its highest cherished assets: its autonomy in recruiting scientists. In addition, the papers also throw new light on the relations between employers and employees in addressing gender issues.

Secondly, the correspondences, minutes, and memos contained in these files allowed a glance behind the scenes at the constraints, both externally and internally, that decision-makers faced

Accompanying program at the MPG Senate Session, November 1969
(front-right: Elisabeth & Werner Heisenberg, center: Erika Bollmann) Photo © AMPG

– like the impact of the German reunification and the federal consolidation program imposing restrictions on the MPG budget. Another constraint is the basic self-conception of the MPG based on the Harnack Principle, implying that MPIs are built up solely around outstanding researchers. It will have to be analyzed whether and how this self-understanding nourished the belief that female scientists could only in exceptional cases meet the implied standard of qualification. The preliminary insights gained from this rich set of documents were complemented with a series of interviews and discussions conducted with contemporary witnesses (Dirk Hartung, Mary Osborn, Martha Roßmayer).

Preliminary findings have been presented at talks given at the annual meeting of the Gender Equality Officers (April 2016, Göttingen), at the Institute's colloquium (June 2016, Berlin), within the scope of a conference given for the Chinese Academy of Sciences (4 July 2016, Berlin), and on occasion of the International Women's Day at the MPG General Workers Meeting on 8 March 2017 at the Harnack House. Some aspects were also included in the edited book *Wissen Macht Geschlecht. Ein ABC der transnationalen Zeitgeschichte* (Kolboske et al. 2016). A preprint on the beginnings of equal opportunities policies in the MPG is currently in preparation.

2.3.3 Outlook

Regarding *Gender in Science*, research on the selected Max Planck Law Institutes will be extended. In addition to the already mentioned MPG Law Institutes in Hamburg and Freiburg, the MPI for Comparative Public Law and International Law (MPIL) in Heidelberg will be included. The MPIL researchers have worked largely from a comparative perspective on fundamental issues in international law. The overriding gender research interest in the MPIL is the position of the MPG towards sexual violence against women, especially when used as a tool of psychological warfare (e.g., in Bangladesh in the 1970s, in Rwanda and Bosnia and Herzegovina in the 1990s). Has, for instance, the MPIL with its research objective of broaching pressing societal problems, been able to use its expertise and involvement in international policy counseling in helping that systematic rape is acknowledged as a war crime and a crime against humanity in international law? Mutual interaction and correlation between the MPG and the Federal Ministry of Justice *(Bundesministerium der Justiz)* will be analyzed regarding the impact of the MPG on German and international legislation and jurisdiction in this respect. Research will be based on institute and institute liaison files in the AMPG investigating political discussions and networks. Source analysis will be extended to the German Federal Archives *(Bundesarchiv)* and possibly the archives of the *Bundesministerium der Justiz* so as to assess, for instance, the impact of commissioned legal opinions and reports on legal gender issues at national and international levels.

Next on the agenda will be a prosopographical investigation of female scientists in the MPG. An initial survey revealed that the KWG was at some levels notably more women-friendly and in this respect ahead of its time (compared to universities) than its successor. The new organization seems to have missed the historic opportunity for a paradigmatic change regarding the participation of women in science at all levels – horizontally and vertically. Though continuity with the KWG was an outstanding feature in the emergence of the MPG, it did not include women in leading positions.

Analyzing personnel files of distinguished scholars, such as Else Knake, Elisabeth Schiemann, and Birgit Vennesland will allow deeper insights into the underlying dynamics. Vennesland was the first woman in the MPG to be appointed not only Scientific Member but also director of an Institute in 1967. The project will also further investigate the role of Eleonore Trefftz and her group of women "computers," who worked in astrophysics. The 96-year old scientist and former head of department, was interviewed at her home in Munich in December 2016 (Luisa Bonolis and Birgit Kolboske). The successful scientist Trefftz represents one end of the spectrum. Looking at her computers shifts the perspective to its other end, based on the question of what becomes of a profession when the gender structure of its professionals changes. The work of human computers, such as the ones employed in the aviation research of the KWG's Aerodynamische Versuchsanstalt (AVA) from 1938 to 1945, originated as feminized clerical labor, where women worked alongside men, solving problems for engineers by performing mathematical calculations. *Gendering the Computer* looks into socio-historical changes in the division of labor and technical organization of computing, in terms of calculation (terms that had been

interchangeable for a long time). It reflects on the semantic changes of the term "computer," which by the 1960s had become "programmer" – and predominantly male. Has occupational masculinization in this science ended long-term invisibility? This approach moreover allows for an international comparison between the female computers in the MPG and their US American "sisters" – women, some with degrees in mathematics, who worked in ballistics computation among whom the most prominent ones were Grace Hopper and the so-called "ENIAC girls."

2.4 Coping with the Past: *Vergangenheitspolitik* from 1945 to the Present

2.4.1 The Problem and the Issues

Historical studies have shown that the MPG's predecessor, the KWG, contributed tremendously with its institutes and scientists to the war efforts through military relevant research. Moreover, a variety of its scientists were involved in conceptualizing, legitimizing and implementing the racial policies of the National Socialist regime. The Society implemented the expulsion of Jewish scientists and benefitted from the "aryanization" of Jewish property. During World War II, Kaiser Wilhelm institutes (KWIs) took advantage of foreign forced laborers in the construction of new buildings or as workers. Research in the neurosciences, psychiatry, and anthropology used concentration camps and the killing centers of the "euthanasia" program as entities for the procurement of human specimens. Brain tissues and human remains of Nazi victims obtained through unethical human experimentation were incorporated into the scientific collections of several KWIs. How has the MPG coped with these inherited liabilities from the Nazi past of its predecessor?

According to Norbert Frei, the concept of *Vergangenheitspolitik* (politics of the past) subsumes the efforts of German actors in revising Allied denazification policies from 1945 into the 1950s. These efforts were aimed at parliamentary legislative procedures (amnesties, sanctions, and juridical punishments) as well as administrative decisions concerning the reintegration of former Nazi party members into social, professional, and civil life. Yet for our history of the MPG this concept of *Vergangenheitspolitik* needs to be chronologically expanded. We want to look at the whole period under investigation, that is, from the postwar years to 2002/2005. We want to investigate how the MPG looked at and dealt with its past, ignored, considered or used it for different purposes. We want to consider how this related not only to personnel and institutional continuities and discontinuities, but also to the change of epistemologies, scientific concepts, methods, and research practices as well as to forms of internal and public-related self-presentation. Last but not least we intend to study whether, when, and why the MPG developed something like a commemorative culture as a result of internal controversies, disputes, grassroots initiatives and/or influences from outside the MPG, including public controversies that began in the mid-1980s owing to historical studies about medical war crimes in which the KWG had been involved.

2.4.2 Overview

After the military defeat of Nazi Germany issues of *Vergangenheitspolitik* were negotiated between the General Administration of the KWG, the KWIs and Allied authorities in the four occupation zones. In addition to budget control and the consequences of the Allied denazification policy for scientific and technical staff, the epistemic dimension was at stake, too. Allied demilitarization and denazification policies for Germany included scientific organizations and in August 1946, the Allied Control Council decided to dissolve the KWG. Due to internal political divisions amongst the four Allied Powers during the emerging Cold War the dissolution of the KWG was, however, not implemented. Instead, the KWG was re-established under the new name of the Max Planck Society, at first in 1946 in the British occupation zone, followed by the American occupation zone in 1948, and eventually in the French occupation zone in 1949.

Allied control measures enforced an adaption and re-orientation of the KWG towards peaceful basic research according to Allied Control Council Law No. 25, and this became and continued to be an integral part of the self-concept and central aspect of the self-image of the MPG even after the Allied control was finally abolished in 1955. The 1950s also witnessed the beginning of lawsuits against the MPG for the restitution of Jewish property.

In the late 1960s, major epistemological transformations occurred that broke with path-dependencies derived from the establishment of research fields, and changed the trajectory of institutes that had been of interest in the context of the autarky policy of the National Socialist regime and its aim to build up a self-sufficient war economy, namely, agricultural research, traditional forms of breeding research, research on *ersatz* materials (metals, silicates, etc.), synthetic fuels or chemical compounds. In a transformation process that needs to be investigated further, major shifts in research priorities were reached by closing departments or even entire institutes, or by transferring them to other funding bodies (such as the MPI for Silicate Research or the MPI for Breeding Research).

Beginning in the 1960s, a generational change occurred in the MPG's body of scientists and Scientific Members. In a decade-long process, Scientific Members who had already pursued their academic careers in the National Socialist era, including members of the NSDAP, were gradually replaced by scientists of the so-called "Flakhelfer-Generation" and eventually by a postwar generation born after 1945. These shifts are quantitatively analyzed for all Scientific Members of the MPG.

Since the mid-1980s the MPG has been the object of critical studies by Götz Aly, Anna Bergmann, Gabriele Czarnowski and Annegret Ehmann, Ernst Klee and Benno Müller-Hill, regarding the existing remains of "euthanasia" victims in the collections of the MPI for Brain Research and the MPI for Psychiatry, as well as the exploitation of human tissues and blood samples of concentration camp inmates from Auschwitz that had been sent to the KWI for Anthropology, Eugenics and Human Heredity. These publications sparked heated debates on the question of how the MPG should ethically deal with this burdening inheritance. Following an official

request from the Israeli government in 1989 the German government advised the MPG and other research institutions to screen scientific collections possibly containing human remains. Specimens acquired within the context of Nazi medical atrocities or that were of doubtful origin were subsequently withdrawn from the collections of the MPI for Brain Research (Frankfurt am Main) and the MPI for Psychiatry (Munich) and ceremoniously buried in the Munich Waldfriedhof in May 1990. In 2015, Paul Weindling published a ground-breaking article concerning the controversial debate in Germany in 1989/1990 on the status of anatomical specimens from the National Socialist era in the collections of the MPI for Psychiatry and the MPI for Brain Research[2] As a result of those controversies in the late 1980s and 1990s, Hubert Markl, then president of the MPG, decided in 1997 to set up a Presidential Commission on the "History of the Kaiser Wilhelm Society in National Socialism." The ensuing homonymous research program conducted a thorough investigation between 1999 and 2005 and published 17 comprehensive volumes.[3] A turning point in the MPG *Vergangenheitspolitik* was reached when in June 2001, Hubert Markl acknowledged the Society's responsibility for the medical crimes committed during the Nazi era in the name of science by the KWG, publicly asking the surviving victims for forgiveness.

The establishment of this research program must be considered in the general context of a changing historical approach towards *Vergangenheitspolitik* in West Germany in the 1990s. By then a new generation of historians and scientists unburdened by any personal involvement in the National Socialist era uninhibitedly asked critical questions concerning the participation of their academic teachers in the Nazi regime. The collapse of the USSR and the GDR opened new archives and sources for historical research. Archival retention periods for papers of key scientists ended. Following class actions against major German companies by former forced and slave laborers exploited under Nazi rule enforced and fostered a process of opening up company archives for research. The MPG eventually joined this scholarly research trend, though not as a pioneer, but with remarkable resources to establish a well-furnished research program.

2.4.3 Sources and State of Research

The GMPG Research Program explored and digitized published and unpublished archival sources. A variety of sources is available to analyze how scientists presented the Nazi past in autobiographies, obituaries, anniversary publications, tributes to outstanding and persecuted scien-

2 In April 2015 brain tissues belonging to "euthanasia" victims from the Hallervorden collection were discovered in the AMPG. They had been transferred there in 2001. As a result, the President of the MPG set up a Presidential Commission to investigate all human tissue collections in the MPG. One of the main objectives of the *Presidential Commission on "Euthanasia" Victims* are to ascertain detailed identification of the victims and the reasons for their selection; the acquisition of brains and research interests; continuities of research on specimens of victim's brains during and after the war.

3 For the results see: http://www.mpiwg-berlin.mpg.de/KWG/publications.htm and https://www.mpg.de/geschichte/kwg-im-nationalsozialismus.

tists like Fritz Haber or Lise Meitner, and historical retrospectives for anniversary events such as an unpublished Festschrift by institute directors on the occasion of Otto Hahn's 70th birthday in 1949 or the MPG Yearbook of 1961, which included institutional histories of all Kaiser Wilhelm/ Max Planck Institutes for the 50th anniversary of the KWG. How did MPG scientists reflect, in general, on both their "corporate" and their individual roles as scientists in the KWG during the Nazi regime? What narratives and invented traditions shaped the historical self-images and self-perceptions, and how did they change?

Analyzing the official response of the MPG to public discourse, critical historical studies, and media reports on the history of the KWG during National Socialism will provide insights into how the MPG proactively intervened in presentations dealing with the history and role of the KWG in National Socialism. Archival sources indicate that from the mid-1970s up to the 1990s, the General Administration tried to prevent or tone down critical media reports or the already mentioned historical studies concerning the involvement of KWG scientists.

The Presidential Commission "History of the Kaiser Wilhelm Society in National Socialism" (1999–2005) has already provided new insights leading to several paradigm shifts regarding the history of the KWG and, for that matter, the history of science in National Socialism in general. In this context Carola Sachse studied how the KWG/MPG responded to the denazification process countered by a *"Persilschein culture,"* and how the Nazi past figured in the efforts of the MPG to re-establish international relations after World War II. Likewise, Richard Beyler analyzed the anti-Semitic "purges" in the KWG after 1933 and juxtaposed it with the denazification of the personnel after 1945. Gerald Feldman compared the *"Vergangenheitsbearbeitung"* in economic history and of German companies in National Socialism with the historiography of science in the "Third Reich." Michael Schüring, Reinhard Rürup and Ruth Sime have shed some light on the postwar relations between officials and former colleagues from MPG and scientists that were persecuted, expelled, and forced to emigrate from Germany. However, the problematic relations between scientists who had continued their careers in Nazi Germany or who had even become members of the NSDAP and on the other side remigrants or scientists who had opposed the National Socialist regime, have not yet been thoroughly analyzed (with some exceptional cases such as Robert Havemann).

2.4.4 What We Have Done So Far

2.4.4.1 Expert Roundtable Discussion (June 2015)

For an academic exchange on the complex topic of the MPG *Vergangenheitspolitik* and to discuss conceptual problems, the GMPG Research Program invited a group of distinguished historians to a roundtable on 9 June 2015 at the MPIWG (for the participants, see chapter 6.1 Workshops). The discussion clarified that the problem of continuities and discontinuities in the MPG should be addressed at several levels:

1 The institutes, the personnel, and the epistemic level of research methods, objects, and practices. This also involves the internal and the public discourse, which debated and addressed or silenced, obviated, tabooed, and suppressed remembrance of the Nazi past of the KWG and its scientists regarding causes, responsibility, and guilt. On which occasions and on whose external or internal initiative did the MPG and its scientists remember the victims of the Nazi regime and take a stance towards the perpetrators?

2 Beyond the issue of semantic shifts in the discourse about the Nazi past, the juridical and political dimensions of compensation and restitution should be taken into account. Who was compensated by the MPG, and how did the MPG respond to the claims of Jewish survivors or their legal successors to restitute the property that they had had confiscated or "aryanized" under the Nazi regime? Which turning points and paradigmatic shifts in the coping of the MPG with its Nazi past can we identify? How did the involvement of the KWG in the politics of the Nazi regime and the war experience impact the research programs and activities of the MPG, and the mentalities of its scientists in the broader societal, political, and cultural contexts of the contemporary history of West Germany? When and how did the MPG accept responsibility? Comparative perspectives on the Vergangenheitspolitik of other West German scientific institutions may foster the understanding of the MPG as a part of West German and European (social) history.

2.4.4.2 Biographical Database: NS-Memberships of Scientific Members of the KWG/MPG

In 2015, the GMPG Research Program began establishing a comprehensive Biographical Database that includes over 2,700 MPG Scientific Members, starting from the annually published MPG member register for the years 1949–2002.

Concerning continuities and discontinuities of the Scientific Members of the MPG these datasets allow for the first time to conduct quantitative studies about their transitional biographical pathways from the KWG to the MPG. Based on the NSDAP records kept at the Bundesarchiv we obtained a set of Scientific Members of the MPG belonging to the birth cohort between 1880 to 1928. All individuals of this sample (> 900 Scientific Members from an overall sample of 2,700 Scientific Members of the MPG between 1948–2002) were subsequently systematically screened in the *Bundesarchiv* with various – by now scanned – record groups of the NSDAP and affiliated organizations, such as the *Sturmabteilung* (SA), the *Sicherheitsstaffel* (SS), the *Reichsärztebund*, the *SS Ahnenerbe*, the *Reichskulturkammer*, to check if they matched membership files or personal records. Relevant biographical data will be aggregated in the Biographical Database to provide quantitative figures about former Nazi party members among the Scientific Members of the MPG and their distribution over the MPG as a whole, individual MPIs and among the three sections as well as about specific scientific disciplines and their generational stratification.

Another issue is the personal war experiences of scientists as combatants or prisoners of war. How many Scientific Members of the MPG served in the *Wehrmacht* or *Waffen-SS*? Were scientists underrepresented as combatants, compared to other parts of the male population as com-

batants or prisoners of war? To better understand how significant the war experience was for the scientists who originated from the KWG and continued their careers in the MPG, we are consulting the records kept in the archives of the *Wehrmachtsauskunftsstelle* (WASt) Berlin. Successful negotiations with the WASt director secured the GMPG Research Program privileged working conditions, allowing in-house work and access to databases that are usually restricted to WASt staff members.

2.4.4.3 Scientific Collections

A crucial factor in assessing how the MPG dealt with its Nazi past are scientific collections, which either came into the possession of the KWG through questionable ownership transfers or military raids during World War II or were later taken on by the MPG. Said scientific collections include libraries, collections of scientific objects such as seed banks, and assets from foundations of Jewish philanthropists or from "aryanized" real estate. Highly problematic in this context are those scientific collections that include human specimens from victims of "euthanasia" and executions. Severely implicated were the collections of the KWI for Brain Research (Berlin-Buch) and the KWI for Psychiatry (Munich).

In the context of *Vergangenheitspolitik*, the GMPG Research Program will focus on major events, such as the already mentioned burial of brain tissues in 1990, to illustrate exemplarily how the MPG has dealt with those collections. Topical overlaps and a reasonable division of labor are frequently discussed between the GMPG Research Program and the *Presidential Commission on "Euthanasia" Victims*, owing to the fact that Jürgen Renn and Florian Schmaltz are taking part in the meetings of the presidential commission. The latter has actively taken part – together with Gerrit Hohendorf – in the efforts to create an inventory and reorganize the archival record groups and the comprehensive collection of thousands of brain specimens kept at the MPI for Psychiatry. Jürgen Peiffer has shown as part of a study that brain tissues acquired from "euthanasia" victims continued to be used in research until at least the early 1960s. The extent, however, to which brains from "euthanasia" victims were used for research after 1945 remains subject to further historical studies.

2.4.4.4 "Aryanization" of Jewish Property, Foundations and the Successful Denial of Restitution Claims by the MPG between 1949 and 1958

The problem of the "aryanization" of Jewish property, foundations, and real estate by the KWG in the Nazi period has been documented in a comprehensive study by Christoph Kreutzmüller (2005). New sources discovered by Florian Schmaltz now give evidence that the KWG took advantage of the "aryanization" of Jewish property expropriated from 1937 onwards in the course of the expansion of the Aerodynamische Versuchsanstalt (AVA) in Göttingen. From 1944 onwards, the General Administration of the KWG moved from Berlin to Göttingen where it was housed in the AVA buildings. This continued to be the case for the General Administration of the MPG founded in 1946. A part of the AVA buildings was also one of several properties that had been expropriated by the Nazi state from Jewish owners. In a study, Florian Schmaltz explores the historical circumstances of how the Jewish owners of real estate were expropriated, and how lawyers of the AVA, which belonged to the MPG after the war from 1949 onwards,

accomplished a complete rejection of the restitution claims of holocaust survivors who had been the former owners. None of the Jewish families received any compensation.

2.4.5 Outlook

Without any doubt, the AMPG, founded in July 1976, contributed to the historical research on the KWG, including its Nazi past. To this end, records of the archive registry will be further explored to study how this institutionalization created a specific form of *Vergangenheitspolitik*. In which ways did the AMPG serve as counseling institution for the MPG General Administration concerning historical questions dealing with the Nazi past, as a place where records were collected and continue to be collected and preserved – including regulated access to external researchers?

Further investigations by the GMPG Research Program will have to shed light on the epistemological level in the context of the ongoing studies about the research clusters. Which paradigm shifts took place and when did they break with research traditions that had been prominent in National Socialism? Were these discontinuities triggered by external factors (political, economic) or through international processes of knowledge transfers that changed research agendas and approaches?

Another topic to be investigated further are issues related to historical research and the learning processes interacting with the creation of memorial sites established upon the initiative of political activists, both from outside and within the MPG. A case study will explore how public controversies led to the installation of a memorial plaque at the building of the former KWI for Anthropology, Eugenics and Human Heredity (today accommodating the Institute for Political Sciences of the Freie Universität Berlin) in remembrance of the victims from Auschwitz whose body parts were transferred to researchers of this KWI. Furthermore, we will study how the memorials for the victims of the National Socialist "euthanasia" program at the Munich Waldfriedhof were established by the MPG in 1990 or at Berlin-Buch at the site of the former KWI for Brain Research in 2000. In all three cases, the installation was accompanied by controversies concerning adequate commemoration of the victims as well as epitaphs regarding the role of scientists as perpetrators in the NS regime.

Additional research will focus on the ways the MPG dealt with the memory of this past, frequently neglecting, sometimes discussing, and increasingly commemorating it. How did the *Vergangenheitspolitik* of the MPG evolve? Was it a result of influences from outside or did it originate mostly inside the MPG? How was this connected to the changing self-understanding of the MPG, its public performance in West Germany and beyond, its standing and its scientific achievements in an increasingly international, even global world of science? Did the MPG succeed in developing a commemorative culture, remembering victims and naming the perpetrators and their deeds? And how does the record of the MPG in this respect compare to the records of other scientific and non-scientific institutions in the FRG?

3. Research Clusters & Selected Topics

3.1 Astronomy, Astrophysics, and Space Science

3.1.1 Object of Study

A research team has been formed to investigate the history of research in astronomy and astrophysics within the MPG (Luisa Bonolis, Alexander Blum, Roberto Lalli, Juan-Andres Leon, Thomas Steinhauser). It is within this field that the MPG achieved what is perhaps its most visible success within the West German research system. These "astro" disciplines went from being essentially absent from the KWG to being predominantly done (by measure of funding and scientific output) within MPIs in the second half of the century. Furthermore, unlike other fields, such as nuclear/particle physics, the MPG succeeded in taking most of the organization of large-scale projects in the field within Germany under its control. The research team has approached these developments from a variety of perspectives and with a methodology that includes the organization of exploratory workshops, individual interviews, archival research, and the use of digital humanities tools.

Our research aimed to characterize and analyze the disciplinary cluster of astronomy, astrophysics and space science of the MPG ("astro cluster" in the following). While individual accounts of the most important scientists, institutes, and research projects in the MPG often exist, we placed our focus on the dynamics among the different "families" of institutes that emerged in the first two postwar decades, which make this cluster function differently than just a collection of independent scientific research institutes. Our work seeks to frame this development within the West German state, and more particularly its scientific research system, while also utilizing the cluster to inquire into the particular ways in which scientific research in West Germany interacted with political, economic and social forces. Finally, we dwell extensively on the way this cluster dynamics interacted in the international arena and the intellectual, cultural, and institutional cross-fertilization, especially with the United States, other European countries, and the nascent international organizations and collaborations.

3.1.2 Methods and Results

The research group has developed an analytical-historiographical framework for this study. As it has turned out, astronomy, astrophysics and space science form a clearly recognizable disciplinary cluster of the MPG: rather than what could have been a single, central institute for astronomy or astrophysics, the MPG hosted a constellation of largely independent institutes dedicated to astronomy, astrophysics and the space sciences, a total of thirteen institutes over the course of the second half of the 20th century:

– MPI for Physics, Munich
– MPI for Astrophysics, Garching
– MPI for Extraterrestrial Physics, Garching
– MPI for Plasma Physics, Garching, Greifswald
– MPI for Quantum Optics, Garching
– MPI for Gravitational Physics, Golm, Hannover
– MPI for Nuclear Physics, Heidelberg
– MPI for Medical Research, Heidelberg
– MPI for Chemistry, Mainz
– MPI for Meteorology, Hamburg
– MPI for Aeronomy/Solar System Research, Katlenburg, Lindau, Göttingen
– MPI for Radio Astronomy, Bonn
– MPI for Optical Astronomy, Heidelberg

A primary research question has been the genesis and the mutual interdependency of the institutes belonging to this cluster. This question has been addressed by archival research and by triangulating these documents with the recollections of the historical actors. This investigation revealed that the institutes involved exhibited a very strong path-dependency, each coming from a distinct historical background, even inheriting antagonisms dating from before 1945; but at the same time, they acted very effectively together when it came to strengthening the role of the MPG in these disciplines against its external competitors.

Several institutes gravitated towards astronomy, astrophysics and space science from an initial strength and power base elsewhere, mostly in nuclear physics; some were opportunistic spin-offs with which Max Planck scientists extended their reach to take advantage of bandwagons like that created by Sputnik, the environmental turn of the 1970s or the *"Aufbau Ost"*; and other institutes date from projects originally outside the MPG, co-opted within the effort of Max Planck scientists and administrators to dominate large national research projects and infrastructure.

More than deliberate central coordination, the evolution of the cluster was the result of a striving towards engulfing as much research as possible in a rapidly expanding field, combined with the competition among different groups and power alliances to be the ones benefitting from such expansion. Then, starting in the 1970s, these informal power dynamics were increasingly enhanced with the actual circulation of scientists between the institutes of the cluster, the "physical" collaboration via the sharing of infrastructure and joint development of instrumentation, and finally the convergence towards similar research topics and even participation in the same horizontal multinational collaborations. By the first decades of the 21st century, there are even examples of second-generation Scientific Members of the MPG with a hybrid lineage built on what, decades earlier, were parallel and conflicting "families" within the astronomy, astrophysics and space science cluster. Hints at these developments were first revealed by anecdotal evidence and are being reinforced by the systematic evaluation of the historical sources currently undergoing digitization.

Besides the archival work and the analysis of the archival material using digital humanities tools, the project has sought personal interaction with historical participants. This has been done both through individual interviews and through two exploratory workshops which brought together in one room historical participants on one side and historians of science on the other. The interaction in these workshops, in the format of collective interviews interlaced with scholarly historical presentations, has been vital for shaping and further developing the analytical framework of the cluster. Finally, contact with the participant scientists has also led to a previously unseen wealth of archival material.

Further analysis of the cluster is being conducted via network analysis (Roberto Lalli, Dirk Wintergrün) as well as the detailed gathering of financial data from the MPG and the participating institutes in order to provide a more quantitative understanding of the collective actors' narrative and qualitative historical analysis that we have constructed (for further details, see chapter 4. Research Infrastructure).

3.1.3 Cluster Dynamics and Family Structure

The research of the project has mainly focused on a synthetic characterization of the historical development and function of the entire cluster, which is composed of several largely independent "families" made up of MPIs and their allies. The research project has identified five families, which in decreasing order of power and influence were as follows:

- The "Munich" family of institutes that originated from Heisenberg's Institute of Physics
- The "Gentner" family of institutes and allies in the German Southwest
- The Radio Astronomers in North Rhine-Westphalia
- The Optical Astronomy Institute in Heidelberg
- The Max Planck Institute for Aeronomy in Lindau near Göttingen

These families initially worked in a largely autonomous, often antagonistic relationship with each other, but presented a united front against their competitors outside the MPG, while increasingly finding points of encounter to strengthen their collaboration.

The project's research on the family structure of the astro cluster initially focused on the process of the Institute for Physics, led by Werner Heisenberg, branching into a group of institutes which became the dominant family of the cluster. A preliminary in-depth study has aimed at reconstructing the initial establishment of astrophysics as a research field within the MPG and in particular the roots and early scientific developments of the Institute for Astrophysics, born in 1947 as a research group led by the solar astrophysicist Ludwig Biermann within the Institute for Physics (Luisa Bonolis). This study then explored Biermann's quickly evolving astrophysical thinking in order to understand how the birth of the cluster was related to these initial research activities and to what extent this scientific background created the premises for the process of "cell division" of the MPI for Physics and Astrophysics into new sub-institutes.

The growing competence of the group in theoretical studies focused on astrophysical plasmas and the contemporary international declassification of pacific thermonuclear fusion research show how the premises were created for the decision in the mid-1950s to form a research group within the Institute specifically dedicated to plasma physics headed by Arnulf Schlüter. This eventually turned into a fusion project and the foundation of the entirely separate Institute for Plasma Physics Ltd.

In strong conjunction with the theoretical work, the key advantage of Biermann's group was its ability to draw on expertise in calculational techniques and technologies, which went back to the wartime work of the dismantled AVA and to the appointment of Heinz Billing who during the 1950s built the most advanced computers in Germany, at that time, for solving astrophysical problems. One specific application of this computational expertise played an important role for the further diversification of the cluster: publications and archival documents show that Rudolf Kippenhahn's 1960s computer simulations on the structure and evolution of stars established a focus on stellar physics. Following the advent of relativistic astrophysics, this in turn stimulated interest in the application of general relativity and motivated the appointment in 1971 of Jürgen Ehlers at the Institute for Astrophysics. Together with the parallel beginning of experiments aiming at the detection of gravitational waves originating within the same context, the research group's studies have uncovered the first roots of what would much later become the MPI for Gravitational Physics in Potsdam/Golm (Albert Einstein Institute).

A parallel study of the second major family within the cluster, the Gentner family, has also been pursued by the project (Luisa Bonolis). The Gentner family is centered around the Institute for Nuclear Physics in Heidelberg, founded in 1958 and led by Wolfgang Gentner up to the early 1970s. The evolution of Gentner's interdisciplinary interests (archeochemistry, cosmochemistry) led to investigations into processes involving neutrinos and to the idea of detecting solar neutrinos through radiochemical methods. The GALLEX underground experiment later contributed to orienting this institute's activities towards the quickly developing field of astroparticle physics, which unified many of the aims of different institutes of the cluster.

Analyzing Biermann's correspondence also helped with understanding interfamilial relationships, for example, between Biermann and Julius Bartels, the director of the Institute for Stratospheric Research at the Institute for Aeronomy, and how their shared awareness that the progress of individual sciences related to solar physics, astro-, and geophysics eventually led to a new and even more comprehensive kind of cosmical physics. This productive framework – together with Wolfgang Gentner's interests in cosmochemistry, investigating solar system problems, and the formation of chemical elements in the universe – shows in more detail what were the scientific motivations for the formation of an extraterrestrial research group at the end of the 1950s. It represented the root for the actual founding, within Heisenberg's Institute, of a dedicated Institute for Extraterrestrial Physics, directed by Reimar Lüst, around which the astro cluster took a definite shape and identity. Its evolution during the late 1960s and early 1970s from a research program mainly based on space science to astrophysical observations at new wavelengths started the evolution towards astroparticles and multimessenger astronomy.

A study of Gentner's papers and experts' commissions also provides evidence for his growing influence within the cluster around the early 1970s, marking the end of the Heisenberg-Biermann era.

3.1.4 The Astro Cluster in an International Context

Turning to international developments, the project has examined the role that the creation of pan-European, bilateral, and later horizontal, global, inter-institutional projects had in the identity and working of the MPG and the astro cluster in particular (Juan-Andres Leon). While the MPG, since its beginning, has been one of the most internationalizing forces in West Germany, it has experienced frequent uncomfortable disciplinary overlaps and authority conflicts, most strongly with European institutions like the European Organization for Nuclear Research (CERN), the European Southern Observatory (ESO) and the precursor institutions of the European Space Agency (ESA).

By examining the evolution of how the MPG has approached its national mission and international collaborations in the second half of the 20th century, the project sought to understand the way this relationship with Europe has shifted from an initial conflict between competition, cooperation, and coordination, towards a contemporary division of labor between long-term research infrastructure and high-stakes diplomacy on the side of international organizations, with shorter-term, question-oriented scientific research as the purview of MPIs – not unlike other research institutions like the universities, with which the MPG is increasingly converging.

Finally, the elephant in the room in West German science in the second half of the 20th century has been the dominant role of the United States. In the MPG, US-American science has exerted a powerful role, not just in determining scientific approaches, questions and the possibilities of collaboration, but also crucially, in a deep change in scientific culture from a characteristically German hierarchical and inward-looking community, towards institutes primarily concerned with excellence on the terms of the dominant global scientific community, and not their competing institutes within Germany. Most leading Scientific Members of the MPG had close cultural affinity to US-American or Anglo-Saxon research culture, and they deliberately sought to reproduce this culture in the MPIs, by the appointment of foreign directors and the reorientation of work towards US-American management practices. In this reorientation, space science in particular had an early leading role, which then radiated outwards towards ground-based astronomy, while theoretical astrophysics, cosmochemistry, and astroparticles very early on saw the influence of the project-oriented practices of particle physics research in CERN and the United States.

The history of the astro cluster is not always one of unbridled success. In the context of the research project, one of the most controversial episodes of the postwar MPG has been analyzed in depth: The initiative that led to the building of several large optical observatories outside of Germany, in Southern Africa, Spain, and Chile (Juan-Andres Leon). This episode is widely

considered a failure: Only one observatory was completed by the MPG, at much greater expense than was planned, and its scientific productivity has been comparatively low due to its poor design, local atmospheric conditions, and chronic disagreements with its local human environment. But further than that, the episode exhibited the tension in postwar Germany of striving for national scientific excellence in the newly democratic state while collaborating with controversial, right-wing regimes in different regions of the world. Much of this story, a microcosm of the German postwar attitude towards reconnecting with the rest of the world, will appear as a separate research article.

3.1.5 Outlook

Work on many of the aspects mentioned above is still underway. Regarding the families within the cluster, both in Bonn (Radio Astronomy) and Heidelberg (Gentner's Institute) access to archival sources was attained only in 2016 in the context of the group's workshops. These new materials will form one of the foci of the group's research in 2017. The process is still ongoing for similar material in the Aeronomy Institute (Helmut Rosenbauer and Vytenis Vasyliunas) and in Heidelberg (Till Kirsten). Connected with all these archival acquisitions is a campaign of individual oral history interviews.

More generally, work remains to be done on the specificities of scientific contributions and collaborations of the various families. In order to substantiate and corroborate the work presented here with digital humanities tools, a more quantitative analysis of the questions outlined above will be performed, building on material that is in the process of digitization, most notably the financial records of the entire MPG.

3.2 Materials and Solid State Science

In the period between 1948 and 2002, the CPTS in the MPG included more than 50 institutes, which conducted research in a broad spectrum of scientific fields. A first task was therefore to develop a framework for capturing the essential historical developments inside of the CPTS and to select clusters on which further research would have to focus. An exhaustive compilation of in-depth institute histories was neither intended nor would have been feasible in the timeframe available to the project. Based on the institutes' research reports, major trends in the section as well as larger groups of institutes or institute departments, were identified, that followed a common or similar research orientation.
A first result of this analysis is a list of seven CPTS research clusters based on the genealogy of the institutes, common research fields, and methodical or infrastructural contexts:

- Astronomy and Astrophysics
- Earth Sciences
- High Energy Physics

– Light and Laser Research
– Nuclear Physics
– Traditional Materials Science
– Solid State and Surface Science

Since not all scientific work accomplished in the section could be covered, some historically significant fields were selected, also with regard to the clues that such selected fields could provide to the overall history of the MPG. How were research agendas shaped? How were decisions made and implemented? Which internal or external factors, national or international trends influenced the decisions? What was the relation between scientific and technological trends and innovations on the one hand, and political and economic contexts on the other?

A research project (Thomas Steinhauser) has been dedicated to the history of research in the MPG on traditional material science, on the one hand, and solid state and surface science, on the other. Although these fields are closely interrelated, it turns out that they can be treated as two distinct clusters in the sense of groups of institutes and departments working not only in similar fields but also with similar methods, infrastructures, and instrumentation, and forming "pressure groups" within the governing bodies of the MPG. The first cluster, "Traditional Materials Science," has strong roots in the KWG, while the second cluster, "Solid State Science," only emerged in the 1960s as a consequence of initiatives coming from the scientific community outside the MPG.

In a first step, the project has identified the institutes and departments belonging to both clusters based on the research reports and publications from the institutes. Subsequently, archival work on the respective institutions was pursued revealing the main traits of the historical developments and identifying important protagonists and topics. This work was supplemented by building patent and commission databases for validating the cluster hypothesis and for delineating more precisely the groups and internal structures of the clusters (Luca Beisel, Enric Borrell, Aron Marquart, Paul Schild, Urs Schoepflin, Felix Lange, Thomas Steinhauser). The two databases also provided a foundation for insights into the international embedding of the clusters. As a result, it has become possible to better understand the relation between the two clusters as being one of transition, and in particular, of the substitution of older approaches for more future-oriented technoscientific research, in particular in the field of semi-conductors.

3.2.1 Methods and Results

In analyzing the research clusters of Traditional Materials Science and Solid State and Surface Sciences the project has interpreted mutual cooperation but also strong competition as signs of proximity. Together with the traditions and historical events documented in the archives, these indicators have provided a basis for defining the institutes and departments that belong to the two clusters selected. On the basis of the published records and initial archival work, short descriptions of the history of relevant institutes and departments were prepared.

The cluster Traditional Materials Science comprises the institutes:

– MPI for Coal Research, Mülheim/Ruhr
– MPI for Iron Research, Düsseldorf
– MPI for Metals Research, Stuttgart
– MPI for Silicate Research, Würzburg

These institutes were established by the KWG with a clear orientation toward industrial applications. During the Nazi era they flourished due to their industrial and military importance, as Helmut Maier pointed out. These relatively large and, in part, independent institutes then became a substantial fraction of the young MPG. The intense military research was stopped after 1945, but the archival records we have examined show that in the 1950s and 1960s these institutes were still characterized by personal and methodical continuities with the KWG. This was quite similar to the situation of the institutes dealing with agricultural, protein, and leather, or with breeding research in the BMS. Hence, despite a rhetorical emphasis on basic research, quite a number of institutes of the early MPG showed a strong tendency toward application in continuation of the KWG tradition. An investigation of the long postwar lifespan of the cluster Traditional Materials Science has made evident that the MPG only gradually transformed into a pillar of the new research topography of the young West Germany as it began to set up new arenas of operation. The eventual reorientation toward a cluster of Solid State and Surface Sciences also deeply affected the Traditional Materials Science cluster and set a new, additional mark for the end of the early West German postwar period.

Besides published material and partly digitized sources from the AMPG, the analysis has relied on data compiled in two databases. The project developed a database on the commissions established by the CPTS. Using the digitized section protocols, the database covers all commissions with their respective members. The data points to an oscillation between periods of stronger and of weaker activities within the clusters Materials Research and Solid State and Surface Science. The second data-related venture of the project was the planning and establishment of a database of all MPG patents. For the fields of Materials Science as well as for Solid State and Surface Science the respective inventors were identified. The database is operational and offers an additional tool for the analysis of the networks of cooperation around the two clusters. A network analysis of this data helped to identify the groups of scientists with particular interests within the clusters. A central topic of research was the dynamics of change in the evolution of the MPG from Traditional Materials Science to the new Solid State and Surface Science cluster. One remarkable result, evidenced by the data collected, is the increasing impact of international researchers from outside of the MPG on decision-making processes.

Complementing these results, the archival records from the 1960s and 1970s on the founding of the MPI for Solid State Research and on the reorientation of the Fritz Haber Institute highlight the installment of a cluster that marks a new, modern kind of materials research.
Institutes in the cluster are:

– Fritz Haber Institute, Berlin
– MPI for Chemical Physics of Solids, Golm/Potsdam
– MPI for Colloid and Surface Research, Golm/Potsdam
– MPI for Extraterrestrial Physics, Munich
– MPI for Iron Research, Düsseldorf
– MPI for Metals Research, Stuttgart
– MPI for Microstructure Physics, Halle/Saale
– MPI for Physics – Werner Heisenberg Institute, Munich
– MPI for Physics of Complex Systems, Dresden
– MPI for Polymer Research, Mainz
– MPI for Solid State Researc, Stuttgart

The archival records revealed that the initiative to create this new MPG research field came from a group of solid-state physicists outside of the MPG, who wanted to establish and institutionalize their sub-discipline within the Society. With support from the German Research Council, industry, politics, and a group of scientists at the MPG, in the end they succeeded, after several years of campaigning, in founding the MPI for Solid State Research. This activity was not isolated, as may be illustrated by the fact that in 1963 chemists in the *Gesellschaft Deutscher Chemiker* established a professional group on Solid State Chemistry and Materials Research. The Institute was not planned as a discrete research institution but as a new, central national research facility of the field.

In lengthy discussions involving several institutions, the planned research field of the Institute was expanded to include solid-state research in general. The archival documents examined showed that the plans of the MPG comprised not only the construction of a central institute in a transdisciplinary research field but also complementary research facilities, which should explore microstructures of solids like metals or semiconductors.

A central point of the research pursued by this cluster concerned the connections between the material structures and the electrical, mechanical, magnetic, or optical properties of the materials. Based on such knowledge, a selective manipulation of the materials' properties was possible and was expected to open up the road to manifold applications. Michael Eckert showed that because of this rationale, solid-state research had been regarded as a very innovative research field since the early 1960s. The keywords were transistors, computer, superconductors, MASER, or LASER. The detailed examination of archival sources in the course of the project has revealed how important this motivation was also for the MPG, in spite of its focus on basic research.

Even though this argumentation relied largely on a 'gap' in semiconductor technologies between West Germany and the USA or Japan, the implementation of solid-state and surface science within the MPG was guided by this emphasis on basic research. In other words, this was a case of "applied-basic research" – to use a contemporary terminology – which also meant that the MPG placed basic research in the systemic slot of the just consolidating national research

structure. Helmuth Trischler has described a complementary activity in the case of the Fraunhofer Society.

In the MPI for Solid State Research, traditional disciplines such as physics, chemistry, and technology were still present in the institutional structures and in the professional careers of the directors and researchers. But the archival data document that there was also a strong emphasis on the realization of scientific research in transdisciplinary projects, which overrode the departmental structures in terms of merging physical, chemical, and technical knowledge. An integrating factor was the application of complex instruments and the respective methods, which were usually transferred from other fields of research and adapted to the specific needs of this research field.

Following the reorientation of the Fritz Haber Institute toward surface science in the late 1960s, some institutes of the Traditional Materials Sciences cluster adapted to the new cluster with more "basic" research agendas. The MPI for Metals Research expanded its research into the field of semiconductors using the established methods of electron microscopy and X-ray spectroscopy for work on topics such as structural discontinuities, superconductivity, or the multi-electron theory of atomic groups. Finally, in 2002, this close cooperation among institutes of the cluster was further strengthened by the fact that the MPI for Metals Research moved to the campus of the MPI for Solid State Research. In the 1970s, the MPI for Iron Research also changed its operational range under the new director Hans-Jürgen Engell and began to analyze surface phenomena with new methods such as low-energy electron diffraction, Auger, and photoelectron spectroscopy. The MPI for Silicate Research was transferred to the Fraunhofer Society in 1971, while scientists working in basic research moved to the MPI for Solid State Research. In summary, by the mid-1970s many of the institutes originally belonging to the cluster of Traditional Materials Science had either reoriented their research agendas or left the MPG.

In the 1980s a further shift took place: the focus of the entire cluster of Solid State and Surface Science moved toward applications and societal returns of basic research. During the 1990s, the MPG used the opportunities offered by the political changes around German unification to strengthen applied research in the cluster. Nevertheless, an important distinction between applied scientific research and industrial development prevailed. Although ever more technically relevant research had come under its purview, the MPG refused to adopt a stronger technical orientation in spite of pressures toward the societal benefits of research arising from the new political context. In the case of the MPI for Microstructure Physics, the only former institute of the Academy of Sciences of the GDR integrated into the MPG, the MPG abandoned the technical orientation of the GDR research. Instead, researchers from established institutes of the Solid State and Surface Science cluster developed the new institute as a place for "applied-basic research." As the contemporary documentation of the pertinent and often controversial discussions shows, this re-orientation was also guided by what one may describe as the scientific culture of the cluster Solid State and Surface Science with its emphasis on innovative research in fields between the classic scientific disciplines and new technologies. Its trademark was not so much a particular academic style of science, but rather the application of modern techno-

scientific methods for the production of knowledge, for example about carbon tubes, or other nanotechnologies.

3.2.2 Outlook

The patent and commissions databases became operational in the beginning of 2017, hence the project will continue to use their potential for a closer analysis of the collected data to find more detailed information about the processes and the dynamics of group building and international cooperation. Regarding the archival sources, the most important task still to accomplish is the identification of the cash flow at the institutes for Traditional Materials Research and Solid State and Surface Science. The ongoing digitization of archival sources with subsequent optical character recognition (OCR) technology and their storage in a searchable database will furnish the project with the means for a selective search of additional sources.

Selected contemporary witnesses will provide another important source of information through interviews and collected papers. A first contact has already been established with Gerhard Wegner, one of the founders of the MPI for Polymer Research. Information from this source should help with the analysis of developments in the 1980s and the shift towards applications. On a more general level, analogous research to be performed regarding the cluster Nuclear Physics, as a field pushed intensely by the West German Federal Government from 1955, will provide complementary insights into the ways the MPG developed large research fields in the CPTS. It will also offer further opportunities to exploit the growing potential of the established databases.

3.3 Life Sciences

3.3.1 Theme

Work on the history of the life sciences in the MPG started with Alexander v. Schwerin in November 2014 (research focus on biology and medicine) and has been complemented with the appointment of Sascha Topp in March 2017 (research focus on behavioral, neurological, and cognitive sciences). In 2017, three short-term visiting scholars will supplement the scope of our efforts with foci on neurobiology, ethology, and ecology. We seek to study the history of the life sciences in the MPG with respect to the amazing rise of the life sciences in the second half of the 20th century and their increasing social significance. Our first results show that the MPG life sciences have run through similarly dynamic times. They comprise all research units (MPIs and independent research groups) of the BMS and additional ones represented in the HSS, encompassing medicine, biology, and the agricultural, nutritional, behavioral, and cognitive sciences. At the foundation of the MPG in 1948/1949, the life sciences included 15 research units. Forty years later, at the time of German reunification, the number of units had increased to 28.

At present, there are 40 research units that belong to this group. The complete list adds up to 53 units in the research period – including those that have ceased to exist in the meantime.

In our research we inquire into the characteristics of MPG life sciences with respect to their structures, focus areas, scientific topics, resources, and practices. In doing so, we apply the clustering strategy generally adopted for studying the scientific fields of the MPG in their epistemic, institutional, and social contexts. Crucially, the commercialization of basic research, and the applicability of the life sciences in the key societal challenges of nutrition and health, come to the foreground.

3.3.2 Results

In accordance with the overall strategy of the GMPG Research Program, we started to break down the landscape of the MPG Life Sciences step by step in terms of their synchronic and diachronic structures, scientific approaches, personnel, and finances. The first step was to obtain a general but precise overview. We drew up the "life-times" and relations of all research units in a genealogical table. Remarkably, this has shown that the overall increase from 15 research units at the foundation of the MPG to 40 at present was not simply the result of linear growth, but of expansion, continuance, and reduction – often happening at the same time. Likewise, it became clear that the overall increase of the life sciences in the MPG came along with the formation of main focus areas. In order to validate this impression, we compared the broad scientific approaches of all research units, defined as the combination of the disciplinary belongings, the main research agendas, and the methodological profiles. The results from this analysis were compared with how governing bodies such as the BMS and the Executive Committee have structured the life sciences. As a result, we identified four main clusters:

1 cellular and molecular biology,
2 agriculture and "green biology,"
3 brain research, behavioral and cognitive sciences,
4 medicine – clinics and physiology.

This division leads to some overlap and omissions, but serves as an important heuristic tool. We note, in particular, a dramatic reduction in research units belonging to agriculture and "green biology" (cluster 2) and a significant decrease in medical research units (cluster 4), whereas brain, behavioral, and cognitive sciences (cluster 3) and cellular and molecular sciences (cluster 1) increased. One conclusion is that the general direction of the MPG life sciences followed the global trend towards a "molecularized" understanding of living matter and a "neurologized" understanding of behavior. However, this claim has to be confirmed and differentiated in the course of the ongoing completion of the structural analysis.

A second step was to break the structural analysis down to the departmental level. It became evident that the MPI departments regularly developed quite independently from the institutes'

frameworks and often started to pursue a new course on their own. This explains why approximately half of the newly founded institutes in the research period were "spin offs" of existing ones. The analysis of the departmental scientific approaches revealed that the mentioned trends in the reduction of clusters 2 and 4 and increase of clusters 1 and 3 were even more pronounced. Several medical and clinical departments (cluster 4) turned towards molecular biology (cluster 1). Also, there was an increasing interest in neurobiology. In the late 1980s, besides the seven MPIs that were explicitly dedicated to brain research, behavioral, and cognitive sciences, five more MPIs were active in these fields. Thus, our second conclusion from the cluster analysis is that out of MPG life sciences emerged a cluster of research on behavior and the human mind (cluster 3).

In contrast, the protracted uptake of developmental biology can be understood as a counter-trend to the momentum favoring molecular biology and neurobiology. It is a good example for the working modes of MPG decision procedures. Though early initiatives towards developmental biology date back to the early 1960s, the field was institutionalized only twenty years later, when the MPI for Virus Research became converted into the MPI for Developmental Biology. In the 1960s, molecular biologist Alfred Gierer redirected his department for molecular biology at the MPI for Virus Research towards developmental biology. In the 1970s, MPG's adjoining Friedrich Miescher Laboratory for junior researchers became the locus for path-breaking research leading to the conjunction of molecular biology and classical developmental biology. One of the young scholars was Christiane Nüsslein-Volhard. However, only after her spectacular experiments (which she performed during a stay at the University of Freiburg) became widely acknowledged (later, in 1995, Nüsslein-Volhard's work was awarded with the Nobel Prize), the MPG began to consider developmental biology as a promising future research area. What was the reason for this reluctant implementation? As far as we can see from the dynamics of the committees involved in the discussions and decisions on future main research areas within the MPG, the BMS had been caught up in a mechanism of self-affirmation, without much sensitivity for future trends not centering on molecular biology. The underlying mechanisms of self-affirmation still have to be explored in more depth. An interesting lead is based on molecular biologists' seeming historical consciousness of having overcome the old, Nazi-tainted KWG science partially on the basis of molecularization, and a resulting renunciation of non-molecular approaches. This of course is just a hypothesis, not specifically related to developmental biology, and needs further verification.

So far, we have approached the reasons of the dynamics of the MPG life sciences at the level of institutional decision-making and interactions with politics and industry, focusing mainly on cluster 2, agriculture and green biology. As main sources we examined the minutes and materials of the governing bodies of the MPG as well as of crucial commissions: the Senate, the Executive Committee, the Scientific Council, the BMS, the Senate's and President's Commissions, especially the *Senatskommission für Forschungspolitik und Forschungsplanung*, and the commissions of the Scientific Council and the BMS. The intention was to get an overview of the discourses and arguments that shaped the development of the agricultural sciences and green biology. Next to the minutes, we searched the vast attached material to the minutes and the

voluminous accompanying files to the meetings of the General Administration for a list of key words. The speedy and complete analysis of this voluminous material was only feasible because the GMPG had digitized and prepared all files for full-text search.

As a result we were able to differentiate four phases in the development of the agricultural sciences and green biology in the research period. The first period of continuity and consolidation begins with the almost complete transition of the KWG agricultural sciences into the MPG, forming a considerable cluster with nine MPIs out of 21 total in 1948. Agricultural research comprised a broad spectrum and included plant breeding, animal breeding, nutritional physiology, and ergonomics and was stable until the mid-1960s. In the late 1960s, after a short second period of modernization, the MPG broke with its profound and long-term commitment to the agricultural sciences, scaling down the number of agricultural institutes to one in a period of only ten years (third period of reduction). Since then, the situation has changed only slightly, at least in terms of numbers, up to German reunification and the *"Aufbau Ost"* (fourth period of internationalization). Whether there is a fifth phase, beginning in the 1990s, is still an open question.

Further research indicates that during all phases the history of the agricultural sciences within the MPG has been deeply embedded in its own institutional history as well as German politics. To show this embeddedness, we expanded our research to the files of the General Administration and papers of involved administrators and scientists. The personal papers of Ernst Telschow, for instance, show that his network is key for understanding the striking continuity from the KWG to the MPG. The MPG used the agricultural sciences in its negotiations with the German Federal Government and the Laender to argue for an increase in its governmental funding, highlighting their orientation towards application. However, the rising claims of the Federal Government to dominate science and technology politics and MPG's developing into the main provider of basic, and not applied, research disrupted this early arrangement. The agricultural cluster became a hindrance to the MPG for being clearly seen as an institution of basic research. Thus, from the late 1960s on, the leading governing bodies of the MPG were relieved when the Federal Ministry of Agriculture was willing to integrate several MPIs into its portfolio.

However, some biologists in the MPG were not that positive. When in the mid-1970s MPG's General Administration was going to pursue the liquidation of the agricultural sciences altogether, a conflict emerged between the General Administration and the President on the one hand and the Scientific Members on the other hand. This conflict is worth to be studied in detail as it reveals important general aspects. Since the early 1960s, the suggestion has been made repeatedly to devote resources to the urgent problem of feeding the world. In the first place, nutritionists such as Heinrich Kraut raised this suggestion. Also, Carl Friedrich v. Weizsäcker became a stakeholder of this vision. When in the mid-1970s, the BMS discussed the future perspective of "green biology" in the MPG, the molecular biologist Alfred Gierer resumed this suggestion. The vision of an MPI for Breeding and World Feeding found support as it was designed to integrate the whole chain of research and development from basic breeding research to the social and

technological assessment of innovation. However, this vision did not prevail because neither the General Administration and the President nor the majority of the BMS members did want to venture into this kind of experiment. Rather they preferred to continue the traditional path of technological innovation the MPI for Breeding Research represented since the 1920s. In consequence, the MPI for Breeding Research was dedicated solely to the development of the future key technology of plant breeding, genetic engineering. By doing that, the MPG missed the chance for a broader change in MPG science policy towards an interdisciplinary, problem-centered approach. This approach would have been an innovative experiment towards the reflection and assessment of research and development, including its social impact. In the end, the MPI for Breeding Research in Cologne survived as the only remnant of a cluster that once comprised nine institutes. However, the institute itself expanded significantly and had an important role in the introduction of genetic engineering into plant breeding.

Our discussions with the GMPG Advisory Committee, and the presentation of our findings at the international GMPG workshop "From Knowledge to Profit? Scientific Institutions and the Commercialization of Science" (October 2016, see chapter 6.1 Workshops), support the thesis that the formation of the MPI for Breeding Research in Cologne as the MPG's center for genetic engineering is a perfect example of the deep and lasting changeover of the MPG in the era of Reimar Lüst. It is as well a signpost of the general transformation of research and development during that time. Notably, the MPG appears here as both object and actor. First, the above-mentioned conflict in the mid-1970s reveals rising claims of the central governance bodies for more control of the scientific profile of the MPG. This confirms the impression of increasing centralization of governing structures in the MPG in the 1970s. Second, this development emphasizes a significant change in the understanding of basic research, the key element in MPG's institutional profile. Against the background of economic crisis in West Germany and rising political pressure on the leading German science organizations, the MPG became willing to define basic research as a core element of technological innovation. The political change in 1982 reinforced this tendency, as the government under chancellor Helmut Kohl saw basic research as the crucial condition of the high technologies to come, amongst them biotechnology and genetic engineering.

In order to study the link between the MPG and politics in more detail, we turned to the files of the Federal Ministry of Research and Technology at the *Bundesarchiv*. It became clear that the path of the MPG into biotechnology and genetic engineering was rather complex and included diverse activities. For instance, the MPG jurists Friedrich-Karl Beier and Joseph Straus were members of crucial ministry expert commissions and helped to prepare the measures to be taken by the West German government to foster the economic exploitation of federally funded research. After that, intense full-text analysis of the GMPG Digital Archive revealed that there was a connection between these activities and discussions in the MPG that resulted in a commitment in favor of the economization of MPG research activities. This, in turn, was closely related to the decision process on the future of agricultural research within the MPG.

In conclusion, our research so far shows that the history of the agricultural cluster between 1948 and the 1990s reveals a progressing withdrawal from the broad spectrum of agricultural sciences and a reduction to plant breeding research. This process corresponded to the policy at the general level of the MPG and, in its own right, was closely related to German politics. Also, it shows a strong influence of tradition on future decisions. It still has to be examined whether the decisions in case were the result of the supposed leading role of molecular biology in the BMS at that time.

In the course of this research, we intensively used the GMPG Digital Research Archives for the explorative research and identification of relevant information through full-text research. This global-access tool turned out to be crucial for approaching the history of the life sciences comprehensively.

3.3.3 Outlook

We are going to complete the descriptive overview on the other life sciences. Alexander v. Schwerin will continue to analyze the genealogy of the MPG life sciences with the main focus on the agricultural and biomedical sciences (clusters 1, 2 and 4). Sascha Topp will investigate the history of brain research, cognitive, and neuro-sciences (cluster 3). This effort will gain additional momentum through visiting scholar Frank Stahnisch, who will analyze the development of the neurosciences in the MPG as a process of catching up with international research trends after World War II. The biggest challenge is to complete the overview of the research topics, resources and practices of the various institutes. This step is central to our comprehensive approach, which, in terms of practices and resources, seeks to integrate both the central perspective and the perspective from the periphery of the MPG. Though it is clear that this cannot be studied for all institutes in detail, an overview of the main research trends will be feasible as soon as the digital research infrastructure of the GMPG has been expanded as planned. In general, the more documents are added to the GMPG Digital Research Archives, the more this approach will pay off. Thus, the comprehensive research approach to the history of the life sciences depends on the continuation of the digitization process.

Our historical reconstruction will continue to focus on main trends, striking continuities, and crucial breaks. For brain research, the cognitive, and neuro-sciences, Sascha Topp engages in a systematic analysis of both material and social networks. Therefore, the Bibliographical Database will be expanded, including information on research fields, topics, methods, cooperation, and funding. This information will be supplemented by archival sources with respect to the impact of resources and finances on the development of the cluster. Contemporary witness interviews have turned out to be an invaluable source for insights into the interpretation of our text-based research, and for the institutional life of the MPG in general. We will therefore continue to do interviews. In order to approach decision processes more systematically, we will continue to analyze the composition of governing bodies and commissions of the MPG in cooperation with the GMPG IT group.

Besides the clusters, it will be crucial to take into account research fields that have not become substantial. Why did the MPG neglect special fields such as ecological research approaches and thinking in systems in general, whereas others flourished? Therefore, two short-term visiting scholars focusing on ecology and ethology, respectively, are planned for mid to late 2017.

3.4 Jurisprudence

Within the MPG, legal scholarship occupies a prestigious niche. Though the law-related institutes might seem to be a small group in numerical terms, their emergence, growth, and research were firmly intertwined with the construction of a postwar legal order in Germany and Europe.

In 2015, a collaborative initiative of the MPI for European Legal History, led by Thomas Duve and Stefan Vogenauer, and the GMPG Research Program was put into place. A first gathering that included authors and members of the research program was held in Frankfurt in November 2016 (for the participants, see chapter 6.1 Workshops). It was an opportunity to discuss overarching questions and topics connecting the intended case studies dealing with the single law-related institutes, to bring together the participants of the Frankfurt-based project with members of the Berlin-based project, and to highlight the connecting threads between legal history and the history of science. It became clear that the nature of law-related MPIs differed from other MPIs in such ways that they merit a distinct analysis. Ultimately, the law-related institutes should be seen as a cluster in its own right with a specific logic, an entity where the whole was bigger than the sum of its parts.

The Frankfurt-based project focuses on the history of legal scholarship within the MPG. Its aim is to assemble case studies of individual law-related institutes in an anthology. While these case studies are important accounts of legal scholarship, they simultaneously enable us to further analyze the cluster of legal studies within the MPG as a whole. This analysis shall in turn lay the foundation for a comprehensive chapter in the three-part synthesis volume of the GMPG Research Program.

The Frankfurt-based project is in close contact with the project in Berlin. This contact is of particular importance as the Berlin-based digital infrastructure will point to further sources and evidence hitherto unknown. Another gathering of all authors is scheduled for June 2017 in Frankfurt. On this occasion, we expect the authors to provide first drafts of their case studies. Ideally, this should enable us to proceed quickly to giving these case studies another iteration of research and its final shape by the end of the year, leading to their publication in book form by early 2018. On this basis, we will write a chapter for the GMPG synthesis volume.

Our project aims to delineate the double nature of law-related MPIs: What was their role within the MPG? And what was their role with regard to developing the legal sciences as well as a new legal order in Germany and beyond?

The inquiry proceeds from case studies of individual institutes and is coordinated by Jasper Kunstreich (MPIeR). The case studies endeavor to assess the role of the institutes within their respective disciplinary environments. They attempt to portray legal scholarship as part of a scientific and intellectual field in Germany. The projects pay particular attention to the conditions for researchers for producing output in the individual institutes as well as to the requirements and influence of an ever more mobile and global academy.

We have commissioned six external legal historians for the respective case studies:

– **Ulrich Magnus**, Universität Hamburg – MPI for International Private Law
– **Felix Lange**, Humboldt-Universität Berlin – MPI for International Public Law
– **Jan Thiessen**, Universität Tübingen – MPI for European Legal History
– **Sascha Ziemann**, Universität Freiburg – MPI for International Criminal Law
– **Diethelm Klippel**, Universität Bayreuth – MPI for Intellectual Property Law
– **Eberhard Eichenhofer**, TU Dresden – MPI for Social Law and Social Policy

Each author commands in-depth knowledge of their respective legal field as well as of historical methodologies.

The MPIs focused primarily on legal fields that traditionally received scant attention at universities, such as international private law, social law and policy, intellectual property law, and legal history. Yet these fields have grown ever since and are now regularly taught at German law faculties. The question arises: to what extent did the MPIs provide a necessary stimulus for legal scholarship that was not coming from the universities; and how did they develop their research agendas rendering them different from law faculties? Thus, our study also deals with elements of competition and cooperation between law faculties and MPIs.

Law faculties at German universities had for a long time provided advice to legislators and served an important function in the development of law and jurisprudence. They also had a veritable monopoly position in educating the country's lawyers and civil servants. The law-related MPIs changed that landscape in a number of ways. Their influence on the shaping of international public law and social law as academic fields has been deep and lasting. The fact that legislators and ministerial committees frequently solicited expert opinions from these institutes further underpins their crucial role in developing and reforming Germany's postwar legal system. Their influence did not stop there, however, directors of MPIs served at the German Constitutional Court or were involved in important legal associations. By accepting and training PhD students, the MPIs partly intruded upon the territory of legal education. Those PhD students, being raised in the respective intellectual agendas of these institutes, in turn embarked upon legal careers in the judiciary, ministerial bureaucracies, and EU institutions.

It is not fully far-fetched to argue that the law-related MPIs had a hybrid nature from their beginnings; they combined research and think-tank activities, the training of PhDs and young jurists, and the promotion of German law across the globe in one single entity. To name just two

examples: The events around the founding of the MPIeR in 1964 were clearly inspired by the quest for a united and pacified Europe. Walter Hallstein, the first president of the European Commission, did speak at the Institute's opening ceremony, certainly not by coincidence or just for reasons of mere prestige. The MPI for Social Law and Social Policy was founded shortly after German legislation had begun to codify social law. The institute's research accompanied that development. Similar stories can be told for several other institutes. It is furthermore mandatory to determine the extent to which the institutes subsequently broke free from their founding ideas, embraced new research agendas or transformed the original ones into something new.

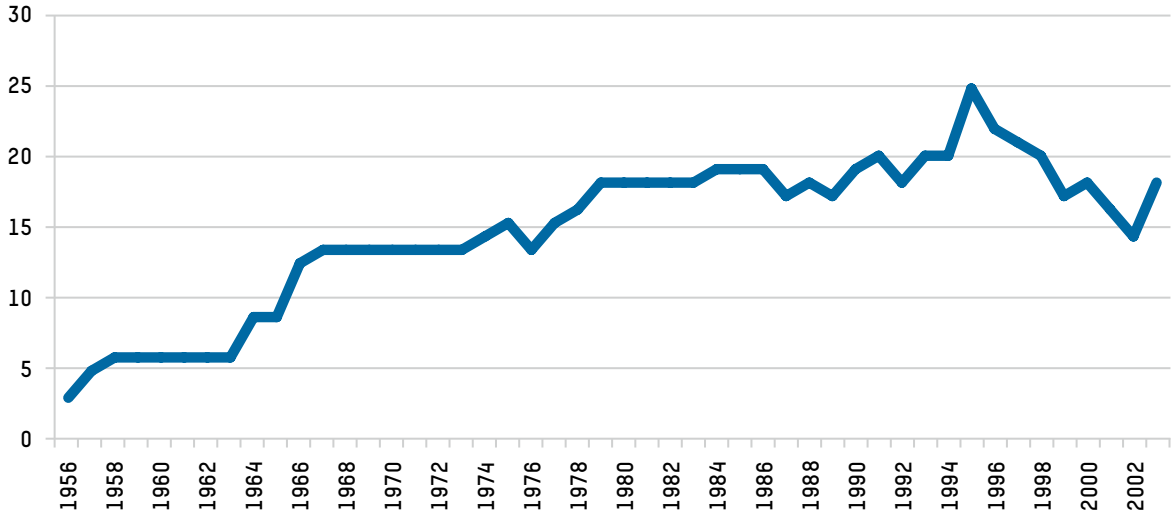
Previous research on the topic is scant and heterogeneous, its scope and profile varying from case to case. Important sources include the documents on record in the AMPG and the Berlin GMPG Research Program, material archived by the institutes themselves, and – tentatively – the archived records in Munich registry. Further sources will likely be unearthed from private collections and from public archives; bequeathed papers of former institute members are of particular importance. The material will be complemented by elements of oral history, including structured interviews with retired Scientific Members and staff.

3.5 Humanities: The Case of the Max Planck Institute for History

The Max Planck Institute for History (MPIG) was approved on 25 March 1955 by the MPG Senate and inaugurated on 13 July 1957 in Göttingen, in the presence of Federal President Theodor Heuss. Within the GMPG Research Program we think it deserves particular interest since it was one of the first institutes for the humanities in the MPG. Why and how did the MPG decide to diversify its portfolio into fields outside the natural and life sciences which had been central already in the MPG's predecessor organization, the KWG? How did the structure of the MPG influence the development of an institute in the humanities? In addition, studying the history of the MPIG promises insights into the particularities of small institutes in the MPG; the MPIG usually had no more than 20 employees (see graph). Finally, by organizing and supporting research in the field of history, the MPG had to deal – or had the chance to deal – with subject matters and questions which received attention not only in professional circles but also in the general public. What did this mean for the relation between the MPG and West Germany's society and culture at large?

The GMPG Research Program decided in favor of a case study on the history of the MPIG. Visiting scholar Peter Schöttler (Freie Universität Berlin) has worked on this project and continues to do so.

THE DEVELOPMENT OF THE NUMBER OF SCHOLARS AT THE MPIG
EXCLUDING DIRECTORS AND DEPARTMENT HEADS



Source: Calculated on the basis of personnel statistics of the MPIG.

3.5.1 Research Done and Specific Intermediate Results

On the basis of his studies, above all in the AMPG, but also in the Federal Archive in Koblenz, the University Archive in Heidelberg, and the German Literature Archive in Marbach, Peter Schöttler produced a sketch of the history of the MPIG. He has presented parts of it in a preprint, dealing with the origins and the evolution of the MPIG until roughly 1970. The point of departure for his reflections were the following questions: What distinguishes this particular institute? How did it come to be founded? From where did its dynamic come, and wherein lay its contribution to the rise and development of German historical scholarship during the second half of the 20th century? How was the relationship between the institute and the MPG? How can we describe and assess the scholarly production of this institute, and thus the contribution of the MPG to the development of this scholarly field? This approach may also offer a perspective on the reasons for and consequences of the MPIG's closure in 2006, which lies outside the temporal framework of this study and will not be treated in the GMPG Research Program. But this issue cannot be ignored entirely because it influenced the image of the institute in retrospect, and the problems of closing an institute represent a general theme for any history of the MPG.

As with most of the MPIs of the early years, the MPIG was not an entirely new founding but rather a "re-establishment" of a previously existing KWI. There was much consensus, but the process of establishing the MPIG in the mid 1950s was not free of conflict. Some of the objections were based on arguments stressing the existence or simultaneous emergence of institutes (like the Munich Institute for Contemporary History) which would also pursue research in the field of history and were seen to be competing for the same financial resources. But the MPIG

benefited from two factors that at once supplemented and, as it were, doubled each other: 1. All of those involved regarded the historian Hermann Heimpel as an ideal founding director. He was an outstanding figure both as a medievalist and as a historical thinker and author – today one would speak of a "historical intellectual" (Gangolf Hübinger). 2. Heimpel was full professor in Göttingen, which as an old university town was particularly well suited for such an institute. The presence of the MPG and its administration there also promised a comparatively uncomplicated and cost-effective establishment. In any case, until he retired from the university, Heimpel retained his position as a university professor and received from the MPG only a sort of expense allowance.

The basic structure of the institute (its building, the library, an autonomous publication series, a basic staff of scholarly and non-scholarly personnel) emerged under the direction of Heimpel, whose approach was particularly close to that of a "Harnack director," and was then built upon in the period that followed. Whereas the research and publication projects on the Middle Ages bore a striking similarity to traditional institutes – legitimized by representatives of these specializations on the scholarly advisory committee –, within just a few years the institute's department for Modern History proved to be a driving force of scholarly innovation. In 1961, partly due to winning the German émigré Dietrich Gerhard, who was teaching at Washington University in Saint Louis, as head of department and later Scientific Member of the MPG, the institute opened up to questions critical of the tradition and to international contacts in a way that was rather atypical at the time. Gerhard's successor, Rudolf Vierhaus, took this momentum and built up an area of research on early-modern estates and 18th century Enlightenment. In 1971, after Heimpel retired, Vierhaus was appointed as one of the – now – two directors of the institute, alongside the medievalist Josef Fleckenstein, which gave him the opportunity to recruit new staff to strengthen the institute's department of Modern History and to set out in new directions that soon led to highly-regarded international conferences and publications. Particularly noteworthy are: the institute's early contributions to the use of advanced quantifying methods in the wake of the increasing availability of computing; programmatic and exemplary breakthroughs in the fields of everyday history and then historical anthropology; and well-regarded results in early modern economic and social history with micro-historical approaches. Whereas the institute pursued research on both medieval and modern history, as a result of decisions made when it was founded, for a long time it kept its distance from research on more recent history and hence from studies of the prehistory of the MPG during its National Socialist phase. Whereas the institute had initially been founded primarily as an institute for research on German history, it gradually expanded its research perspectives and cooperative projects to become transnational. In part due to its active visiting scholar program, especially from the 1970s, it became a hub in an international and transnational network of scholars on German history.

The scientific and intellectual opening up of the institute, which under its directors Fleckenstein and Otto Gerhard Oexle also involved the medieval department, was accompagnied by lifely debates and controversies. The debates were not restricted to research methods and subject matters. Rather, in addition, they concerned priorities in recruiting employees and financ-

ing the infrastructure (e.g., the introduction of the computer for research purposes beginning in the late 1970s), redesigning work contracts, the relationship of the scholarly employees and the directors, and the role of the advisory committee. In all these respects, the institute did not act alone but rather – as will be shown in detail – with the direction and advice, but sometimes also the resistance, of the MPG, as represented by the responsible organs, committees, and "Institutsbetreuer." The MPG tended to measure the MPIG against the Society as a whole, whereas conversely the directors of the institute emphasized not only their formal autonomy but also the intellectual peculiarities of historical research. Some of them, especially Heimpel, Vierhaus, and Fleckenstein, played an active role on the committees of the MPG as supporters of initiatives and as moderators, for example, concerning the expansion of the MPG's international connections. At the latest from 1996 onwards, when the MPIG was threatened with closure, competition with other institutes and with the natural sciences in general seems to have become increasingly intense and was addressed (and criticized) programmatically by Oexle in many essays as an opposition of "Kantian"-based cultural sciences versus "scientistic" natural sciences.

One unique achievement of the MPIG to which we dedicate particular attention and which can be studied using the example of the MPIG's contribution to the internationalization of the MPG and to scholarship on German history is the Mission Historique Française en Allemagne (MHFA), a small French institute of history, the first France ever founded in Germany. Although legally and financially independent, the MHFA was a permanent guest of the MPIG, using its rooms and library as needed, and the directors and employees of both institutes cooperated all the time, almost as if they belonged to a common institute. Members of the MHFA even took part as guests in the meetings of the advisory council of the MPIG. Since its founding in 1977, this "Mission" in Göttingen evolved so successfully (and largely without conflict) and met with so much international approval that it contributed to the reputation of the MPIG as a place where German and international scholars could meet. Over time the MHFA become a "model" that influenced the later founding of the British Centre for Historical Research in Germany (1998), the Polska Misja Historyczna (2002), and the Representación Histórica Española en Alemania (2004), which were also granted guest status at the MPIG.

3.5.2 Preliminary Results and Further Steps

The structure, activities, and products of the MPIG were deeply influenced by the principles, guide-lines, conditions, and resources of the MPG. Comparing the MPIG to other places of historical research in Germany, one cannot overlook the elevated position of the MPI director or directors and their considerable latitude for decisions and actions. Supported and protected by the powerful multi-disciplinary organization to which they belonged, and sometimes inspired by the multi-disciplinary environment of this organization, they could initiate, steer, and support, or at least tolerate and back up, basic and often innovative research in some distance to the mainstream of the profession and its dominant conventions. In comparison one cannot overlook the relatively rich resources and good infrastructure the MPIG could enjoy (its own library,

subsidies for travel and publishing costs, IT). These were important conditions of the remarkable scholarly success and the high international recognition the MPIG was able to achieve and enjoy, particularly from the 1970s onward. While the MPIG had been founded as an institute for research and research services in German history, it soon transcended the national boundaries with respect to its programs, networks, and institutional connections. It contributed to the inter- and transnationalization of German historical research when this was not yet the rule in the profession at large. No doubt, this was facilitated and supported by the general Max Planck networks and policies while it also contributed to the increasing internationalization of the MPG. Clearly, orientations towards the West were dominant first, but supplemented by contacts to the more eastern parts of Europe at least since the 1980s. This corresponded to the changing orientations of the Federal Republic of Germany in general.

Archival research and evaluation of the literature are largely completed; a thorough study of the lines sketched here is underway. Special attention will be paid to the relationship between the MPIG and the MPG. The history of the MPIG will be used to shed light on the history of the MPG as a whole. Selective additional source studies may be necessary. First preliminary results have been published in the preprint mentioned above. The results of the case study will be integrated in the synthesis volume which will present the findings of the GMPG Research Program as a whole, and presumably later in a short monograph.

4. Research Infrastructure

4.1 Introduction

The research infrastructure, comprising a repository of digitized archival records, databases, servers, and analysis tools, is the central backbone of all scholarly activities of the GMPG Research Program. It is designed to allow direct interactive use for the scholars and to provide optimal support for their research work. Such an infrastructure is not readily available from commercial vendors or services of the MPG. Therefore, since its start, the research program has had to develop and implement its own research infrastructure.

A number of challenges have had to be met in connection with the research of contemporary history, e.g., access to archival sources and their digitization. These challenges and their solutions have been leading the way for much of the development of the individual elements of the comprehensive research infrastructure. For the archival records kept by the MPG, in particular, archival regulations, personal rights, and copyright law issues had to be taken into account by finding corresponding technical solutions for special access and digitization policies.

To make the resources of the archival legacy of the MPG accessible to research, special digitization strategies were developed, building on the long-standing experience with digitizing cultural heritage at the MPIWG. These strategies aim at making a critical mass of digitized archival records available (see section 2 of this chapter).

At the same time, databases handling scholarly metadata and digital records of various kinds had to be developed as well as internal network and server structures, to safely store, access, and maintain sensitive data. Furthermore, from the perspective of the necessary long-term storage of and access to the research data generated by the research program's activities, a concept for the secure archiving and accessing of research data (Archival Cultural Heritage Online-ArCHO) is being developed in a special cooperation with the GWDG (see section 3).

By generating relevant quantities of data, the research program is advancing into the area of big data, unique for contemporary history research data. The project is methodologically informed by concepts of the digital humanities and aims at adapting and further developing these concepts in order to successfully bring cutting-edge analysis tools into the reach of scholars. First results are presented in section 4.

Finally, an outlook on future perspectives and expected outcomes is given in section 5.

4.2 Availability of Archival Materials: Digitization Strategies

The digitization of archival records proved a necessary precondition for the research program for three main reasons: First, as a strategy for dealing with a very large volume of records. Second, digital methods help in reconstructing processes documented in destroyed records from snippets which are scattered over a variety of legacies. Third, digital humanities opens up new ways and methods for contemporary historical research which can only be validated with sufficiently comprehensive corpora of data; so far, these methods have only been rudimentarily tested and employed in humanities research. With the large-scale digitization of records, the research program enters a new methodological age in contemporary historical research: it puts novel research methods and tools to the test and sets a cornerstone for a sustainable digital memory of the MPG.

To reach the aim of a comprehensive corpus of data, the actual digitization strategy was conceived in 4 modules:

MODULE 1

Database of the Physical Records Inventory at the General Administration of the MPG and at the Archives of the MPG (completed)

As a preparatory phase for the digitization campaign, the record inventories held at the AMPG in Berlin and at the registry in Munich, which have not yet been indexed in an archival manner, were electronically captured and entered into a database. This database with some 46,000 items allows for a first overview of records and gives the scholars direct search possibilities to identify relevant records. In addition, the database helps to prioritize the workflows for the digitization groups in Berlin and Munich (see Module 2) as well as for external service providers (see Modules 3 und 4). As a synergy, these data will facilitate the record management of the registry at the General Administration in the future.

MODULE 2

Mobile Digitization Groups in Berlin and Munich (ongoing)

Since 1 April 2015, two mobile digitization groups in Berlin and Munich have provided the research program flexibly with scans on demand of prioritized records from the AMPG, the registry, and from individual MPIs (e. g., IPP in Garching). They are able to respond much quicker to the scholars' evolving needs than an external provider. Experience shows that the support of these groups will continue to be needed through the entire term of the program in order to meet the ongoing scholarly demands in a timely manner. To date, 566,000 pages have been scanned and made available by the mobile digitization groups.

MODULE 3

Pilot Study for Digitization by Service Providers (completed)

The pilot study was an important milestone towards realizing the mass digitization of archival records. It allowed for defining the specification for the large-scale digitization with external service providers as planned in Module 4. Based on this, a test run of 750 records scanned by

three different providers, workflows could be established and evaluated as well as guidelines derived. The experience of the pilot study allowed for a precise concept and specifications definition as a foundation for the task management and the tender document for Module 4.

MODULE 4

Large-Scale Digitization by Service Providers (in preparation)

The further digitization of the record inventories in the registry in Munich and in the AMPG in Berlin, outsourced to service providers, will establish a unique and comprehensive corpus of documents accessible to the research program. With a volume of 20,000 digitized records that have been selected with priority by the scholars of the research program, will reach a critical mass of research data relevant to innovative digital humanities analysis methods. A cooperation with the GWDG will ensure the long-term archiving and sustainable availability of the digitization results of all four modules (see section 3). With respect to the evolving field of digital humanities, the research program is a model for the use of cutting edge research and analysis methods in the field of contemporary historical research and for the sustainable handling of digitized historical research data.

In March 2017, building on the results of the pilot study in Module 3, the specifications for an EU-wide call for tender for Module 4 were prepared together with the administration of the MPIWG and in close cooperation with the legal and purchase departments of the General Administration in Munich.

4.3 Secure Research Infrastructure: Databases, Servers, and Long-Term Access

At the start of the research program, it became clear that none of the currently available commercial or open-source solutions for handling heterogenous research data (i. e., metadata of archival records, digital objects, file photographs, and information on persons, patents, or financial data) could provide all the specific functionalities that we needed: record management, workflow support, flexible data structure, interfaces to analysis programs, and above all, support for the security regulations that we have to respect. Therefore, the research program decided to build and maintain its own research environment based on Django, a framework implemented in Python. These databases and all its functionalities were designed and implemented in close cooperation with the research scholars by Felix Lange with the support of Dirk Wintergrün. The main advantage of such an in-house solution over commercial offerings lies in a research-driven development process which allows for flexible and immediate adaptation to the evolving demands of the researchers. The databases models and all analysis functionalities are constantly being adapted to evolving research processes and questions.

4.3.1 Databases

In the last two years, the research program built four interconnected databases:

Biographical Database
Based on published prosopographic works as well as archival material, data concerning more than 4,000 persons with different kinds of affiliations with the MPG were entered by student assistants. These biographical entries are the centerpiece of a larger data collection that also contains the various institutions, commissions, and other panels of the MPG and the KWG.

Archival Database and Records Database
The enormous amount of archival records and the complex digitization workflows demand an excellent digital finding aid for archival records. The aim is to create a single data entry for every physical file that includes the current metadata given by the AMPG and to enrich these entries with digitized files and scholarly annotations. To this end, the archive's internal database is imported into the research program's infrastructure and is connected to the other database of archival records developed in Module 1. Special attention is given to keep the Archival Database and its sources permanently updated, since individual records might move from Munich to Berlin, they might be assigned new signatures within the AMPG's classification system, be split into separate records or be cassated altogether.

Patent and Financial Databases
Drawn from different sources, those two data collections facilitate analyses on specific thematic aspects. The Patent Database is a product of the consolidated imports of a MPG-specific collection kept at Max Planck Innovation, a data set provided by the central Information Service of the CPTS, as well as data drawn from Espacenet, the publicly accessible database of the European Patent Office. All data sets are (semi-)automatically linked to the entries in the Biographical Database of the research program.

In addition to this source-oriented database-suite, a Zotero-based group library was installed for the bibliographic record keeping of current literature and other items. The more than 8,000 entries reflect the scholarly information used by the scholars of the program for their work and thus constitutes a unique resource for literature searches and overviews, but also for determining the size and structure of the actual field.

4.3.2 Server Infrastructure

The digital materials the research program is working with demand a dedicated server infrastructure and an internal network to meet the high standards for the different protection levels of the legacy data. For this reason, the program maintains two separate servers and surrounding network infrastructures for the data protection security levels 2 and 3, respectively. Since the archival data as well as its legal status with respect to privacy regulations is dynamic

and volatile, specific workflows are being established to allow data to be moved from one security level to another.

Special attention has also been paid to the implementation of an access policy that differentiates between the different types of data which is derived from archival records: besides the digitized documents themselves, there are register entries, search indexes, and log-files to be taken into account. Those different data types might have to be treated differently with respect to access. For example, the title of a record, which naturally says a lot about its content, is to be treated differently from its call number or even the barcode.

Furthermore, special measures have been taken to protect the data from unwanted dissemination and yet deliver them in a fast and reliable manner to authorized users. Thus, it is not possible to download data to the hard disk, but the user can search and view the files on his or her screen. This is facilitated by a virtual desktop service that simulates a desktop and a complete software suite within the user's (real) browser, but in fact delivers only the image of a file to the screen. These functionalities are an outcome of the collaboration with the GWDG and were in a prototypical phase at the time of writing.

4.3.3 Long-Term Archiving

A constitutive part of the server and storage concept is that the research data (text, metadata, digital objects) resulting from activities of the research program will be stored at the GWDG. At the same time, the curation of these data and access administration of the different protection levels must be considered.

For scholarly evidence, it is necessary to keep the research data at least 10 years beyond the active lifetime of a project in accordance with the MPG's rules of good scientific practice. It is therefore particularly important to ensure safe access procedures, not only during the active lifetime of the research program, but also throughout the entire lifecycle of the data in a long-term archive. To solve this issue of data curation and controlled access for re-use, the research program has joined forces with the GWDG for a research endeavor "Scientific Prerequisites for Building an Infrastructure for the long-term Archiving of Research Data: Archival Cultural Heritage Online" (ArCHO).

This research cooperation has the goal of creating the scientific concepts and requirements for building a sustainable infrastructure that enables the long-term archiving of research data. The infrastructure is to allow the GWDG and other MPG computer centers to, in the future, offer a generic service for archiving digital and non-digital documents that is open to the institutes and General Administration of the MPG and can constitute one of the future bases for a MPG digital memory. The scientific conceptions require cross-disciplinary expertise combining history of science, computer science, digital humanities, and library and archive science, in order to make current research data and historical sources, like those stored in Essential Cultural

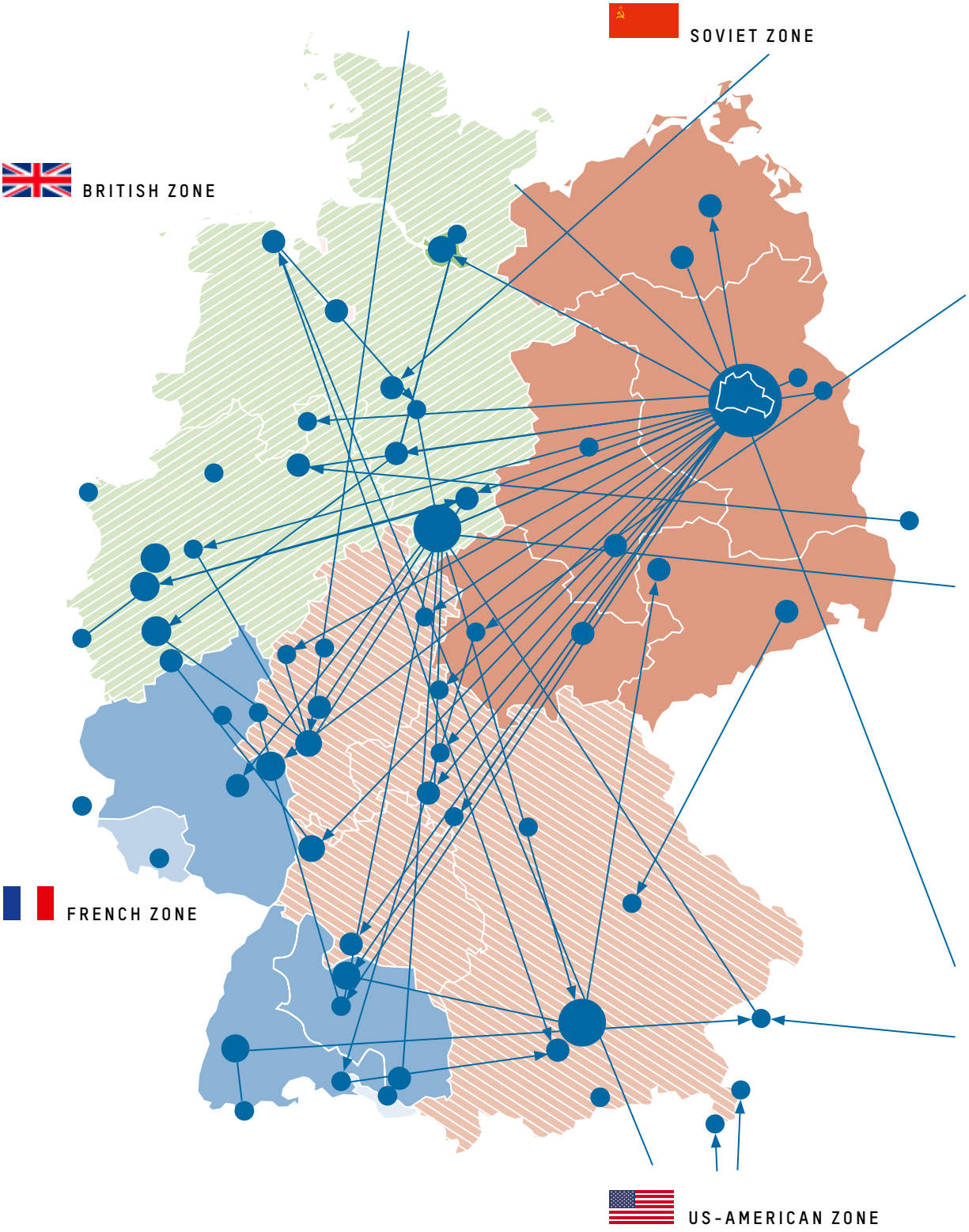
Heritage Online (ECHO), permanently available for scientific research and analysis. The research data of the project and their storage constitute a prototypical application for the development of such an infrastructure.

The cooperative project, with its focus on issues of history of science and contemporary history, makes it possible to develop parameters for a digital storage infrastructure and to indicate the ways that research data can continue to remain legally usable in the future. For this, best practices are to be developed, on the basis of which data can be captured and processed for scholarly re-use in the future. The research questions this raises imply a further set of as yet unresolved problems, with building a basic technical infrastructure and with the demands on the corresponding software, but also concerning the design of data models as well as the development of concrete workflows for digitization. In this respect, scientific curator Urs Schoepflin (GWDG eScience Group) oversees the digitization processes of the research program. The evaluation of the results is ensured in the framework of the cooperation through an interdisciplinary working group comprised of software and hardware specialists as well as humanities scholars. A prototype of ArCHO is currently being implemented.

4.4 Software Tools and Analyses on a Big Data Scale: Digital Humanities

From its start, the project has been assessing a variety of methods for collaboratively analyzing huge text corpora using digital humanities methods. The emphasis is on the development of workflows, which facilitate the integration of computer-aided research on the one hand and detailed analysis by reading the sources on the other. One central challenge is to understand the reliability of the results gained by computational methods and how these results depend on the choice of sources and the completeness of the data. In our case study, there is some lack of information caused simply by missing digitized material but also by text recognition errors. A further challenge is to quantify the influence of free parameters like varying time-slices, which can impact the results significantly. Therefore, this kind of analysis has to be compared very carefully to the established historical methods of source interpretation.

RELOCATIONS OF KAISER WILHELM INSTITUTES / MAX PLANCK INSTITUTES AT THE END OF WORLD WAR II



4.4.1 PLATIN – Locating Kaiser Wilhelm and Max Planck Institutes between 1911 and 2002

Based on the digital infrastructure of the Place and Time Navigator (PLATIN) project, a cooperative project of the MPIWG with several partner organizations, data sets of all Kaiser Wilhelm/Max Planck Institutes have been collected which comprehend data about the institute's name, which section it belonged to, the time span of its existence, and geodetic data. All KWIs and MPIs are mapped to their geographical location with the time span of their institutional existence. The PLATIN tool allows the user to visualize the historical foundation, relocation, or closure of institutes or single departments of institutes in particular time periods in animations, and virtually observe the dynamic processes for specific historical periods and turning points such as the relocation of many KWIs to West and South-West Germany from 1943 onwards because of Allied air-raids or following the unification of the GDR and the FRG in 1990, when new MPIs were founded in the East.

4.4.2 Text Search (Large-Scale OCR)

In general, all the digitized records of the research program are treated with optical character recognition (OCR) software. The (commercial) Abbyy Recognition Server was chosen after parallel tests with the open–source software Tesseract. As text and entity recognition of historical documents present a great technological challenge, further machine-learning and rule-based methods to enhance the recognition quality will be developed in the coming year. Until March 2017, more than 14,000 items comprising 2,050,000 pages have been OCRed and included in the search index. A detailed evaluation of the average error ratio has yet to be accomplished. Additionally, further functionalities and the viewer interface are being developed in close collaboration with the scholars of the program. In addition to OCR, an experimental workflow for named-entity recognition (NER), to identify personal names (e.g., of Scientific Members of the MPG) has been established. Once the recognition rate has reached an appropriate level, a semantic search functionality will be implemented that will enhance the search functionalities for institutions, places, and events, and persons from the level of simple full-text search to the more refined object-oriented searches. Such a text corpus will facilitate more advanced quantitative methods, e. g., the analysis of co-occurrences of persons in committee minutes, as a starting point for network analyses.

4.4.3 Computational Analysis – Network Analysis

For the computational analysis of available text corpora, the research program is accessing methods and tools developed by cooperation partner Manfred Laubichler and his Digital Innovation Group at Arizona State University. These methods have been tested in the context of several projects and the resulting workflows are now being applied to questions within the research program.

The astrophysics cluster has been chosen as a paradigmatic example for exploring concepts, methods, and tools of network theory and, more specifically, of social network analysis (SNA). These methods are used to investigate the evolution of the field astrophysics, astronomy and space science within the institutional framework of the MPG. This approach is based on the assumption that the application of formal methods of network theory can help to reveal and visualize historical patterns, which would otherwise be hidden within an unsurmountable amount of historical data.

The analysis has been guided by the following set of questions: Whether and to what extent the analytical category of the cluster of astrophysics and astronomy is represented in terms of topological properties of the collaboration networks of institutes, research groups, and individuals; how these topological properties changed over time; which institutions and individuals had a more prominent role in shaping the MPG involvement in astrophysics and astronomy in different historical periods; whether some inter-cluster relationships were stronger than intra-cluster ones and, in that case, whether this imbalance had any consequences on the development of the field within the MPG; how the transfer of knowledge and technology worked within the cluster and, more in general, within the MPG; how the research fields within the institutes evolved; how and why specific research agendas were established; how and why they grew within a specific institutional framework; which impact specific research agendas had on future research and on institutional configurations; whether it is possible to identify common patterns in the decision-making process within the MPG in the field of astrophysics and astronomy.

In order to deal with these interconnected questions, a group of networks has been identified and their historical evolution is currently under scrutiny. These networks are of three kinds:

- Networks of persons using different kinds of relationships (co-authorship; other kinds of collaborations; presence in the same board of directors, being mentioned in the same documents).
- Networks of institutions using different kinds of relationships (participation in the same multi-institutional projects; transfer of persons; transfer of technology; other forms of collaboration).
- Networks of scientific research. In this case the connections between different research agendas have been defined in the following way: two research agendas are related if the same person pursued both of them at the same time.

The data is retrieved from the published reports of MPG institutions, scientific publications, and digitized documents of the AMPG. As of March 2017, the digitization process is still underway. Therefore, only partial and preliminary results have been obtained.

4.5 Outlook

The digitization strategies deployed so far by the research program have turned out to be highly successful for the research work. With the results of the large-scale digitization planned in Module 4, the scope of the available materials will be substantially broadened. While at present the scope of the research questions is narrowed by the still limited amount of digitized material, it will be possible to raise the research questions with the comprehensive corpus and its unique access conditions to their full extent. At the same time, the program's research infrastructure has changed the traditional concept of accessing and working with archival records. In particular, along with the research process, the functionality of the databases will be continuously enhanced to become a research interface specially dedicated to digital scholarship in the humanities.

With the availability of a critical mass of archival materials resulting from the Module 4 digitization, the research program will be a pioneer in big data scale analyses and thus will substantially contribute to scholarship in the field of contemporary historical research. The research methods and questions as those mentioned, e.g., in section 4, can then be further tested and developed so as to significantly change the perspective on archival research as it is currently performed.

A larger text corpus will also allow for quantitative text-analytics (text-mining). Some preliminary studies on collocations and topic-mining have already been conducted and will be explored further once OCR and NER have been optimized.

With ArCHO, the program is addressing the general but yet commonly unsolved problem of the long-term archiving and access permission management of research data. It is anticipated that the solution developed will also serve other Max Planck projects with sensitive research data that need to be kept available for scholarly use beyond the term of a research project.

5. Campus

In January 2014 Birgit Kolboske, Florian Schmaltz, and Jürgen Renn explored possible accommodations for the GMPG Research Program in the making. Benchmarks in the process were (a) proximity to the AMPG owing to the inherent necessity for the researchers to access files, and (b) the idea of re-developing the historic campus of the KWI for Physics located between Harnackstraße and Boltzmannstraße. The estate and several buildings of the former KWI for Physics, its *Kältelabor* (Boltzmannstraße 16) as well as the *Behelfsbau* (Boltzmannstraße 18) had been allocated to the Freie Universität Berlin following its foundation in 1948. The building of the KWI (later MPI) for Cell Physiology, established in 1930, had been repurposed in 1975 to accommodate the historical records of the KWG and MPG in the newly founded AMPG. In 2005 the ensemble was complemented by a new building providing a home for the MPIWG.

In summer 2014 the buildings selected to house the GMPG Research Program – Boltzmannstraße 16 & 18 – had not yet been vacated by the FU Berlin. Hence the research program started its nomadic life, moving from one interim accommodation to another, from a suite of rooms in the MPIWG to shipping containers erected in the backyard of the AMPG. For two hot summers, the AMPG shared its beautiful garden with the research program, only separated by beehives. In the following 18 months extensive planning and reconstruction work took place, allowing the research program at long last to move to its final destination in July 2016.

Visible success has proven this decision right. This accomplishment would not have been possible without the most generous support by the MPIWG Administration and Information Technology Group as well as from the General Administration in Munich, especially Department III, Research Building and Infrastructure. The greatest acknowledgment obviously belongs to the architects Nicola Schüller and Benjamin Günther, who performed the amazing transformation attested to in the following pictures.

Max Planck Campus "History of Science and Archives," Berlin-Dahlem

MPG

1 Archives of the MPG (Boltzmann 14)
2 Architects (Boltzmann 12)
3 Tower for the KWG high voltage generator, today the archives of the MPG.

FU

4 School of Business and Economics, formerly KWI for Physics (Boltzmann 20)

GMPG

5 GMPG Research Group, the former "Kältelabor" (Low Temperature Lab) of the KWG (Boltzmann 16)
6 GMPG Digital Lab (Boltzmann 18)

MPIWG

7 Institute Building (Boltzmann 22)
8 Villa (Harnack 5)

Where it all began (2014/2015)

1 The "mothership" where it all began—Max Planck Institute for the History of Science.
2 One of the GMPG program's work bases—the adjacent Archives of the MPG.
3 Due to ongoing negotiations with the FU Berlin, the GMPG program moved into a container …
4 … situated behind the archive, affectionately called the "Chalet".

Photos © Kolboske

Fall 2015

Finally, the FU Berlin vacated the building Boltzmannstraße 16, and re-construction work could begin.

The former "Kältelabor" was literally gutted, all the while preserving its historical urban heritage.
Photos © Kolboske

The Gutted Interior in Spring 2016

One of the biggest challenges — laying a new floor — became a "treasure" hunt: the building's foundations …
Photos © Kolboske

… still held machinery remains from the 1930s and 1940s.

But the trouble has been worth its while

Conference room with skylights & french windows looking out to the garden.
Photos © Architekturbüro Günther GmbH

GMPG Research Group, the former "Kältelabor" (Low Temperature Lab) of the KWG, Boltzmann 16
Photo © Schönfeldt

6. Appendix

6.1 Workshops

EXPERTENGESPRÄCH

1. – 2. Oktober 2014 Harnack-Haus, Berlin

1. Oktober 2014

10:00 Auftakt im **Harnack-Haus**

10:30 **Humboldt-Zimmer**: Gesprächsrunde mit Altpräsident **Hans F. Zacher** über die Herausforderungen, denen sich die Max-Planck-Gesellschaft durch Wiedervereinigung und Aufbau Ost gegenüber sah
Gesprächspartner sind: **Jürgen Renn, Jürgen Kocka, Carsten Reinhardt, Florian Schmaltz, Jaromír Balcar, Birgit Kolboske, Thomas Steinhauser, Ulrike Thoms** und **Alexander v. Schwerin**

12:00 **Liebig-Bibliothek**: Gespräch mit **Hans F. Zacher** über die Rechtswissenschaften und insbesondere die Geschichte des Sozialrechts in der MPG
Gesprächspartner sind: **Jürgen Kocka** und **Carsten Reinhardt**

12:00 **Humboldt-Zimmer**: Gespräch mit **Renate Mayntz** und **Wolfgang Edelstein** über die Entstehungsgeschichte des MPI für Wissenschaftsgeschichte
Gesprächspartner: **Jürgen Renn, Florian Schmaltz, Jaromír Balcar, Birgit Kolboske, Thomas Steinhauser, Ulrike Thoms**

13:00 – 14:00 gemeinsames Mittagessen in der **Einstein-Lounge**

14:00 **Humboldt-Zimmer**: Gespräch mit **Wolfgang Edelstein, Renate Mayntz, Karl Ulrich Mayer, Wolfgang van den Daele** und **Peter Weingart** über Sozialwissenschaften sowie insbesondere Bildungsforschung und Gesellschaftsforschung in der Max-Planck-Gesellschaft
Gesprächspartner sind: **Jürgen Renn, Jürgen Kocka, Carsten Reinhardt, Florian Schmaltz, Jaromír Balcar, Birgit Kolboske, Thomas Steinhauser** und **Ulrike Thoms**

16:00 **Humboldt-Zimmer**: Diskussion im Plenum des Projektantrags des Forschungsprogramms unter anderem unter Berücksichtigung der bekannten Fragestellungen.

19:00 gemeinsames Abendbrot im **Harnack-Haus**

2. Oktober 2014

10:30 MPI für Wissenschaftsgeschichte: Gespräch mit **Wolfgang van den Daele, Peter Weingart** und **Hans F. Zacher** über die Strukturreform von 1972 und Demokratisierung in der MPG sowie das Starnberger Institut
Gesprächspartner: **Jürgen Renn, Jürgen Kocka, Carsten Reinhardt, Florian Schmaltz, Jaromír Balcar, Birgit Kolboske, Thomas Steinhauser, Ulrike Thoms** und **Alexander v. Schwerin**

12:30 Ausklang

1


2


3

1 Karl Ulrich Mayer, Peter Weingart, Renate Mayntz
2 Thomas Steinhauser, Hans F. Zacher, Wolfgang van den Daele, Florian Schmaltz, Jürgen Renn
3 Jaromír Balcar, Ulrike Thoms, Wolfgang Edelstein, Jürgen Kocka, Carsten Reinhardt
Photos © Kolboske

KONSTITUIERENDE SITZUNG DES INTERNATIONALEN FACHBEIRATES DES FORSCHUNGSPROGRAMMS GESCHICHTE DER MAX-PLANCK-GESELLSCHAFT

20. April 2015 Harnack-Haus der MPG, 14195 Berlin

10:30 – 11:45 **Vorstellung und Konstituierung**
Kurze Begrüßung durch **Jürgen Renn**

Einführung und Konstituierung des Fachbeirates durch **Wolfgang Schön** als Vorsitzenden des Fachbeirates und Konstituierung

Vorstellung des Forschungsprogramms und Bericht über bisherige Arbeiten:
Jürgen Renn, Carsten Reinhardt, Jürgen Kocka, Florian Schmaltz
Diskussion

11:45 – 12:00 Pause

12:00 – 16:00 **Beispiele für bisherige Arbeitsschwerpunkte:**
Berichte der Mitarbeiter und Diskussion

12:00 – 13:00 *Sozialgeschichtliche Aspekte*
Ulrike Thoms und **Birgit Kolboske**

13:00 – 14:00 Mittagessen

14:00 – 15:00 Ausgewählte Forschungsbereiche:
Festkörper- und Oberflächenforschung, sowie Lebenswissenschaften
Thomas Steinhauser und **Alexander v. Schwerin**

15:00 – 16:00 *Außenbeziehungen am Beispiel Israel und Aspekte der Finanzgeschichte*
Jürgen Renn und **Jaromír Balcar**

16:00 – 17:00 **Abschließende Sitzung des Fachbeirates**

ROUNDTABLE

Vergangenheitspolitik der Max-Planck-Gesellschaft

9. Juni 2015 MPIWG, Boltzmannstr. 22, 14195 Berlin

14:30 – 17:30

Teilnehmer und Teilnehmerinnen
PD Dr. Susanne Heim, Editionsprojekt „Judenverfolgung 1933–1945", Berlin
Prof. Dr. Norbert Frei, Lehrstuhl für Neuere und Neueste Geschichte, Friedrich-Schiller-Universität, Jena | PD Dr. med. Gerrit Hohendorf, Institut für Geschichte und Ethik der Medizin, TU München | Prof. Dr. Doris Kaufmann, Universität Bremen | Prof. Dr. Volker Roelcke, Institut für Geschichte der Medizin, Universität, Gießen | Prof. Dr. Carola Sachse, Institut für Zeitgeschichte, Universität Wien Prof. Dr. Paul Weindling, School of Humanities, Oxford Brookes University, UK

Mitarbeiter und Mitarbeiterinnen des Forschungsprogramms
Prof. Dr. Jürgen Renn, MPIWG | Prof. Dr. Carsten Reinhardt, Chemical Heritage Foundation, Philadelphia/Universität Bielefeld | Prof. Dr. Jürgen Kocka, Wissenschaftszentrum Berlin
Dr. Florian Schmaltz, GMPG | PD Dr. Jaromír Balcar, GMPG | Birgit Kolboske, GMPG
Kristina Schönfeldt, GMPG | PD Dr. Alexander v. Schwerin, GMPG | Dr. Thomas Steinhauser, GMPG | Dr. Ulrike Thoms, GMPG

Gesichtspunkte für die Diskussion

1. **Welche Analyseebenen, Kriterien und Gesichtspunkte sollten im Vordergrund stehen,** wenn es darum geht, die sich im Untersuchungszeitraum (1948 bis ca. 2002) wandelnde Haltung, das sich wandelnde Verhältnis der MPG zu ihrer Geschichte und besonders zu ihrer Vorgängerorganisation zu untersuchen? Zu blicken wird sein auf die MPG als Ganzes, aber auch auf einzelne Institute, die sich zum Teil mit ihrer Geschichte befasst haben.

   Wir denken an:
- Kontinuität bzw. Neuanfänge in institutioneller und personeller Hinsicht (Institute, Leitungspersonen, rechtliche und organisatorische Bedingungen, regionale Schwerpunkte etc.) im Übergang von KWG zu MPG
- Thematisierung der Vergangenheit unter den Gesichtspunkten Befunde, Ursachen, Verantwortung, Schuld; Beschweigen und Verdrängung vs. Erinnerung und Gedächtnis, durch wen und gegen wen, Anlässe, Anstöße von außen und innen, Formen, etc., bis hin zur Frage nach angemessener Institutionalisierung des Gedächtnisses – Phasen, Zäsuren von 1945/48

– Welche Lehren hat die MPG aus ihrer Vorgeschichte zu ziehen versucht? In ihrer Organisation, in ihren Prinzipien, in Bezug auf Ethik der Forschung? Oder anderes?
– Verantwortungsübernahme, ja oder nein, in welcher Form und aufgrund welcher Anstöße; Versuche zur Korrektur, Anstrengungen zur Wiedergewinnung vertriebener Mitarbeiter, Wiedergutmachung, Entschuldigung etc.
– Welche weiteren Dimensionen sollten betont werden?

2. Bedeutung und Auswirkung des Umgangs der MPG mit ihrer/der Vergangenheit
– wissenschaftsgeschichtlich, im Hinblick auf die Forschungsarbeit (ausgewählte Beispiele – welche?)
– im Hinblick auf Mentalitäten und Orientierung der MPG bzw. ihrer Teile
– im Hinblick auf die Stellung der MPG in Gesellschaft, Politik und Kultur der Bundesrepublik
– Wie ist dies ggf. zu ergänzen?
– Welche Vergleiche sollten angestellt werden, mit welchen anderen Institutionen?
– Wie kann man die Fragestellung nutzen, um die Geschichte der MPG als Teil der deutschen (oder europäischen) Gesellschaftsgeschichte zu verstehen?
– Wiederum sollte es um Zäsuren, Phasen, den Gesamtzeitraum gehen.

3. Forschungsstand/ Lücken des Forschungsstandes
– Welche Forschungs-Teilprojekte sollten/können im Rahmen des Forschungsprogramms angegangen werden?

4. Wie sollte das Forschungsprogramm seine eigene Arbeit in diesem lang gestreckten Prozess des Umgangs mit den Traditionen, Vorbedingungen, Lasten und Chancen der MPG aus der Zeit vor 1948 bzw. 1945 sehen?
Dabei eine Teilfrage: In welchem Format sollten wir diese Thematik behandeln?
Vermutlich: als Leitfrage in allen (oder vielen) anderen Themenkapiteln und Teiluntersuchungen sowie als Gegenstand eines darauf konzentrierten Kapitels, bzw. einer Teiluntersuchung.
Anregungen und Vorschläge sind erbeten.

Jürgen Kocka, 03. Juni 2015

WORKSHOP

Astrophysics and Astronomy in the History of the Max Planck Society

14 September 2015 MPIWG, Boltzmannstr. 22, 14195 Berlin

09:50 – 10:00 Jürgen Renn
Welcome and Introduction

10:00 – 10:30 Florian Schmaltz
The Research Program History of the MPG 1948–2002 – Scope and Perspectives

10:30 – 11:00 Thomas Steinhauser
Astronomy and Astrophysics as an important research Cluster of the Max Planck Society

11:00 – 11:30 Coffee break

11:30 – 12:00 Roberto Lalli
Research project: *The establishment and consolidation of Astrophysical research at the Max-Planck-Gesellschaft*

12:00 – 12:30 Luisa Bonolis
Research project: *Branching as a Research Strategy: The transformation and evolution from 1947 to 1991 of the Max-Planck-Institut für Physik into the present cluster of institutes for Physics, Astrophysics, Extraterrestrial Physics and Gravitational Physics*

12:30 – 13:30 Lunch break

13:30 – 14:00 Juan-Andres Leon
Research Project: *Tackling the Curse of Geography: Optical Astronomy and the Max Planck Society during the Cold War*

14:00 – 15:00 Hubert Goenner, Karl Jacobs, David Rowe, Tilman Sauer
Brief statements and discussion

15:00 – 15:30 Coffee break

15:30 – 17:00 Discussion on the research agenda

17:00 – 18:00 Discussion on the International Workshop of the GMPG Research Program on the History of Astrophysics to be held in Autumn 2016

Invited Speakers and Participants from the Research Program
PD Dr. Jaromír Balcar, GMPG | Dr. Luisa Bonolis, MPIWG | Dr. Alexander Blum, MPIWG Prof. Dr. Jean Eisenstaedt, Paris Observatory | Prof. Dr. Hubert Goenner, Göttingen University | Prof. Dr. Karl Jacobs, University of Cologne | Birgit Kolboske, GMPG Dr. Roberto Lalli, MPIWG | Dr. Juan Andres Léon, Chemical Heritage Foundation, Philadelphia/Harvard University | Prof. Dr. Jürgen Renn, MPIWG | Prof. Dr. Carsten Reinhardt, Chemical Heritage Foundation/Bielefeld University | Prof. Dr. David Rowe, Johannes Gutenberg University Mainz | Prof. Dr. Tilman Sauer, Johannes Gutenberg University Mainz | Dr. Matthias Schemmel, MPIWG | Dr. Florian Schmaltz, GMPG Kristina Schönfeldt, GMPG | PD Dr. Alexander von Schwerin, GMPG | Dr. Thomas Steinhauser, GMPG | Dr. Ulrike Thoms, GMPG

ROUNDTABLE

Zur Verknüpfung von Wissenschaftsgeschichte und Zeitgeschichte

am Beispiel der Geschichte der Max-Planck-Gesellschaft (1948–2002)

1. Dezember 2015 MPIWG, Boltzmannstr. 22, 14195 Berlin

15:00 – 18:00

Teilnehmende Gäste
Prof. Dr. Rüdiger vom Bruch, Berlin | Prof. Dr. Hans Günther Hockerts, LMU, München Prof. Dr. Gabriele Metzler, HU Berlin | Prof. Dr. Reinhardt Rürup, Berlin | Prof. Dr. Carola Sachse, Universität Wien | Prof. Dr. Helmuth Trischler, Deutsches Museum, München Prof. Dr. Andreas Wirsching, Institut für Zeitgeschichte, München

Mitarbeiter und Mitarbeiterinnen des Forschungsprogramms
Prof. Dr. Jürgen Renn, MPIWG | Prof. Dr. Carsten Reinhardt, Chemical Heritage Foundation, Philadelphia/Universität Bielefeld | Prof. Dr. Jürgen Kocka, Wissenschaftszentrum Berlin Dr. Florian Schmaltz, GMPG | PD Dr. Jaromír Balcar, GMPG | Beatrice Fromm, GMPG Birgit Kolboske, GMPG | Kristina Schönfeldt, GMPG | PD Dr. Alexander v. Schwerin, GMPG Dr. Thomas Steinhauser, GMPG | Dr. Ulrike Thoms, GMPG

Fragen und Gesichtspunkte für das Gespräch
Jürgen Kocka

Kontext und Tagesordnung

Das vom Präsidenten der MPG initiierte Forschungsprogramm „Geschichte der Max-Planck-Gesellschaft" verfolgt das Ziel, Wissenschafts- und Zeitgeschichte auf womöglich neuartige Art und Weise zu verknüpfen. Hierzu Einsichten und Perspektiven aufzugreifen ist Ziel der gemeinsamen Gesprächsrunde am 1. Dezember 2015 im Max-Planck-Institut für Wissenschaftsgeschichte.

I.
Zum gegenwärtigen Stand/Annahmen:

- Es muss davon ausgegangen werden, dass sich die allgemeine Zeit- und Wissenschaftsgeschichte trotz einiger Annäherungsversuche separat voneinander entwickelt haben und weiterentwickeln – separater als dies angesichts der großen Bedeutung der Wissenschaft für Gesellschaft, Politik und Kultur in der jüngsten Vergangenheit sinnvoll ist.
- Es scheint der Eindruck entstanden zu sein, die Wissenschaftsgeschichte habe sich als relativ selbstständige Teildisziplin entwickelt, während die großen zeithistorischen Synthesen – etwa zur Geschichte Deutschlands oder Europas im 20. Jahrhundert– nur am Rande auf die Wissenschaftsgeschichte eingehen.
  - Wie ist dieses zu erklären? Welches sind rühmliche Ausnahmen?
  - Liegen vorbildhafte Lösungen der Verknüpfung vor? Muss diese Konstellation als Herausforderung der gegenwärtigen Geschichtswissenschaft verstanden werden?

II.
Mögliche Verknüpfungen und Brückenschläge
Im Folgenden finden sich beispielhaft und selektiv Fragen und Gesichtspunkte, unausgeführte Stichworte, die dazu gedacht sind, die Diskussion anstoßen:

1. **Welche Konzepte** könnten eine engere Verknüpfung von Zeitgeschichte und Wissenschaftsgeschichte insbesondere mit Bezug auf die Geschichte der BRD, Deutschlands bzw. anderer westlicher Länder darstellen, welche Vergleiche wären möglich? Z. B. „Verwissenschaftlichung" und „Wissensgesellschaft"? Oder: „Kapitalismus" und „Kommerzialisierung"? Oder …?

2. **Welche zeitgeschichtlichen Diskurse und Fragestellungen** erfordern und ermöglichen eine enge Verknüpfung von Wissenschaftsgeschichte und Zeitgeschichte?
   Beispielsweise:

- Kontinuität und Neuanfang in Deutschland nach 1945 – Umgang mit der Vergangenheit, Vergangenheitsbearbeitung und Vergangenheitspolitik – Verdrängung vs. Lernen aus der Geschichte (auch) in der Wissenschaft?

– Wissenschaftsgeschichte im Kontext des Ost-West-Gegensatzes, des Kalten Kriegs und der deutschen Spaltung?
– Wissenschaftsgeschichte und Wiedervereinigung?
– Wissenschaftsgeschichte im wirtschaftlichen Wandel vom Wiederaufbau bis zur digitalen Revolution – Wechselverhältnisse Wirtschaft-Wissenschaft im konjunkturellen Auf und Ab– unter welchen Gesichtspunkten?
– Rolle des Staates (seiner Instanzen), der staatlichen Politik und ihrer Akteure für die Gesellschaft, die Wissenschaft (im Zeitalter des „Organisierten Kapitalismus“ und sozialen Interventionsstaates
– Föderalismusproblematik?
– umgekehrt: Wissenschaft als Einfluss auf Gesellschaft und Politik, Wissenschaft und Zivilgesellschaft, Wissenschaft als Beratung und als Interessenvertretung?
– Wissenschaft und Alltag, Bildungswesen, „Verwissenschaftlichung“ und ihre Grenzen?
– Intellectual history als Ort der Verknüpfung von Zeit- und Wissenschaftsgeschichte, u. a. Fortschrittshoffnungen und -skepsis, Wissenschaftsgläubigkeit und -skepsis
– Wissenschaften und Selbstdarstellung der Bundesrepublik? Symbolischer Gehalt von Wissenschaft?
– Wissenschaft – Frieden – Krieg – internationaler Wettbewerb – Wissenschaft und Globalisierung? Z. B. Wissenschaft als ein Medium der Globalisierung und grenzüberschreitenden Verständigung versus Wissenschaft als Ressource im internationalen Wettbewerb und Kampf?

3. Periodisierungs- und Gliederungsfragen

Wie sollte die Geschichte der Bundesrepublik 1948–2002 gegliedert werden, um wissenschaftsgeschichtlichen Veränderungen gerecht zu werden? Unterschiedliche oder identische Periodisierungen für Wissenschafts- und (sonstige) Zeitgeschichte? Hat sich das Verhältnis von Wissenschaft und Gesellschaft, Wissenschaft, Wirtschaft, Politik, und Kultur in diesem halben Jahrhundert grundsätzlich geändert? Wie stellt sich die Phase 1948–2002 in Relation zur ersten Jahrhunderthälfte, vielleicht auch in Abgrenzung zur Gegenwart dar? –Ist es legitim, von der Wissenschaft oder den Wissenschaften zu sprechen, statt scharf nach Wissenschaftsgruppen und Disziplinen zu differenzieren?

III.

Zielsetzung ist es, eine Geschichte der MPG zu schreiben

Was aber erwarten die Zeithistoriker von einer Geschichte der MPG?

IV.

Methodische Probleme

Digitalisierung. Datenschutz. Biographische Ansätze? Fallstudien?

SECOND INTERNATIONAL ADVISORY BOARD MEETING

6 April 2016 MPIWG, Boltzmannstr. 22, 14195 Berlin

10:00 – 10:15	Introduction by **Wolfgang Schön** Introduction by **Jürgen Renn**
10:15 – 10:45	Overview on Research Activities incl. Discussion, **Florian Schmaltz**
10:45 – 11:30	Report on Research Activities on Commercialization of /in Science in the MPG, **Jaromír Balcar** and **Alexander v. Schwerin** – Discussion
11:30 – 13:00	Discussion
13:00 – 14:00	Lunch, MPIWG
14:00 – 15:00	Roadmap/Milestones/Synthesis Volume, **Jürgen Renn**
	The relationship between the History of Science and Contemporary History, **Jürgen Kocka**
15:00 – 15:15	Coffee break, MPIWG
15:15 – 16:30	Concluding Discussion

WORKSHOP

The History of the Chinese Academy of Sciences and the Max Planck Society in Comparative Perspective

4 July 2016 MPIWG, Boltzmannstr. 22, 14195 Berlin

09:00–09:15 Jürgen Renn & Baichun Zhang
Introduction

09:15–09:45 Florian Schmaltz
The Research Program History of the Max Planck Society – Perspectives and Digital Methods

09:45–10:00 Discussion

10:00–10:30 Jiuchen Zhang
Soviet Scientists in the Institutes of the Chinese Academy of Sciences in the 1950s

10:30–10:45 Discussion

10:45–11:00 Coffee break

11:00–11:30 Jinhai Guo
A Historical Turning Point of the Leadership System of Chinese Academy of Sciences: A Study on the Fourth General Assembly of Academic Divisions in 1981

11:30–12:00 Discussion

12:00–13:00 Lunch break

13:00–13:30 Zhihui Zhang
From Nothing to the World's Only – The Origin and Development of large-scale Scientific Research Equipment Shock Wave Wind Tunnel in China

13:30–14:00 Discussion

14:00–14:30 Birgit Kolboske & Ulrike Thoms
Equal Opportunities in the Max Planck Society: Education, Human Development and Gender Issues

14:30 – 15:00 Discussion

15:00 – 15:30 Coffee break

15:30 – 16:00 Jaromír Balcar & Alexander v. Scherin
The Commercialization of Science Within the Max Planck Society

16:00 – 18:30 Discussion

18:30 – 20:00 Dinner at the Harnack House

20:00 – 21:00 Roundtable
Research Perspectives on the History of the CAS and the MPG including Big Data Challenge

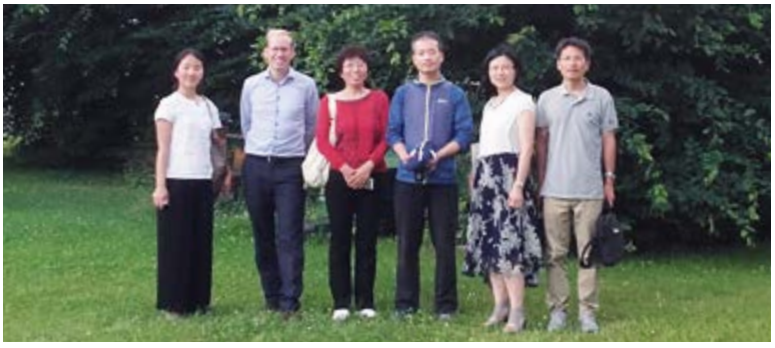
Invited Participants

Chinese Academy of Sciences, Bejing, China
Institute for the History of Natural Sciences

Prof. Dr. Baichun Zhang | Prof. Dr. Jiuchen Zhang,
Prof. Dr. Jinhai Guo, Dr. Liu Liang | Dr. Jinyan Liu | Dr. Zhihui Zhang

Participants from the GMPG Research Program and the MPI for the History of Science, Berlin

PD Dr. Jaromír Balcar | Dr. Luisa Bonolis | Prof. Dr. Angela Creager | Beatrice Fromm
Dr. Li Fuquiang | Birgit Kolboske | Felix Lange | Prof. Dr. Manfred Laubichler
Dr. Juan-Andres Leon | Prof. Dr. Carsten Reinhardt | Prof. Dr. Jürgen Renn
Dr. Florian Schmaltz | Dr. Matthias Schemmel | Urs Schoepflin GWDG | Kristina Schönfeldt
PD Dr. Alexander v. Schwerin | Dr. Thomas Steinhauser | Dr. Ulrike Thoms
Dirk Wintergrün



CAS-GMPG Workshop
4 July 2016, Berlin
CAS guests in the garden shared by the archive of the MPG and the GMPG Research Program in Berlin-Dahlem. From left to right: Jinyan Liu, Alexander v. Schwerin, Jiuchen Zhang, Liu Liang, Zhihui Zhang, Jinhai Guo.

WORKSHOP

Opening New Windows on the Cosmos: Astronomy and Astrophysics in the History of the Max Planck Society

6 – 8 September 2016 MPIWG, Boltzmannstr. 22, 14195 Berlin

Tuesday, 6 September 2016

Session 1: International and General Aspects

15:00 – 15:15 Welcome and Introduction

15:15 – 16:00 **Malcolm Longair**, Cavendish Laboratory, University of Cambridge, UK
Astronomy, Astrophysics and Cosmology since 1945 to 2002 – an Overview

16:00 – 16:30 Coffee break

16:30 – 17:15 **Virginia Trimble**, University of California, Irvine
Stars over Berlin

17:15 – 18:00 **Konstantin Ivanov**, Russian Academy of Sciences, Moscow
Soviet Astrophysics after WW II

20:00 – 21:00 Dinner

21:00 – 22:00 Introduction to the Research Program History of the Max Planck Society

Wednesday, 7 September 2016

Session 1: International and General Aspects (continued)

09:00 – 09:45 Robert W. Smith, University of Alberta, Edmonton
Post-War American Astronomy: Some Key Developments

Session 2: Germany and its Max Planck Institutes in the International Arena

09:45 – 10:30 **John Krige**, Georgia Institute of Technology, Atlanta
Why did the Ford Foundation Provide Financial Support for the European Southern Laboratory in the Late 1950s?

10:30 – 11:00 Coffee break

11:00 – 11:45 **Juan-Andres Leon**, Research Program History of the Max Planck Society
MPG Observatories in Spain, Chile and Southern Africa

11:45 – 12:30 **Roberto Lalli**, Max Planck Institute for the History of Science, Berlin
Institutions, Actors and Connections: A Network Analysis of Astrophysical and Astronomical Research at the MPG

12:30 – 13:30 Lunch break

Session 3: The Max Planck Institutes in their Regional Contexts

13:30 – 14:15 **Dietrich Lemke**, Max Planck Institute for Astronomy, Heidelberg
MPIA Heidelberg - Origins, Foundation, Development and External Relations

14:15 – 15:00 **Jakob Staude**, Haus der Astronomie, Heidelberg
How it Came to the Haus der Astronomie: A New Centre for Education and Outreach

15:00 – 15:30 Coffee break

15:30 – 17:00 Roundtable
Astronomy and Astrophysics in the MPG from the 1960s to the 1980s
Gerhard Haerendel, Klaus Pinkau, Joachim Trümper, Heinrich Völk, Richard Wielebinski

Thursday, 8 September 2016

Session 1: The Max Planck Institutes in their Regional Contexts continued

09:00 – 09:45 **Hubert Goenner**, University of Göttingen
Some remarks on the early history of the MPI for Gravitational Physics (Albert Einstein Institute)

Session 2: Heisenberg, Biermann and Lüst as Founding Figures?

09:45 – 10:30 **Alexander Blum**, Max Planck Institute for the History of Science, Berlin
Heisenberg and Cosmic Ray Research at the MPI for Physics

10:30 – 11:00 Coffee break

11:00 – 11:45 **Luisa Bonolis**, Research Program History of the Max Planck Society
The Beginning and Early Evolution of Astrophysical Research at the Max-Planck Institutes. Aspects and Impact of the "Biermann's era"

11:45 – 12:30 **Ulf von Rauchhaupt**, Frankfurter Allgemeine Zeitung
Reimar Lüst and the Establishment of the MPI for Extraterrestrial Physics

12:30 – 13:30 Lunch break

Session 3: Outlook

13:30 – 15:00 Roundtable
Astronomy and Astrophysics in the MPG from the 1980s to the Present
Hermann Böhnhardt, Hans Böhringer, Reinhard Genzel, Till Kirsten

15:00 – 15:45 **Jürgen Renn**, MPI for the History of Science, Berlin
Concluding remarks

Invited Participants/ Speakers
Dr. Hermann Böhnhardt, MPS, Göttingen | **Prof. Dr. Hans Böhringer**, MPE, Garching
Dr. Luisa Bonolis, GMPG | **Dr. Alexander Blum**, MPIWG | **Prof. Dr. Reinhard Genzel**, MPE, Garching | **Prof. Dr. Hubert Goenner**, Institute for Theoretical Physics, University of Göttingen | **Prof. Dr. Gerhard Haerendel**, MPE, Garching | **Prof. Dr. Konstantin Ivanov**, Russian Academy of Sciences, Moscow | **Prof. Dr. John Krige**, Georgia Institute of Technology, Atlanta | **Prof. Dr. Till Kirsten**, MPI for Nuclear Physics, Heidelberg | **Dr. Roberto Lalli**, MPIWG
Prof. Dr. Dietrich Lemke, MPI for Astronomy, Heidelberg | **Dr. Juan-Andres Leon**, GMPG
Prof. Dr. Malcom Longair, Cavendish Laboratory, University of Cambridge, UK
Prof. Dr. Klaus Pinkau, IPP, Garching | **Dr. Ulf von Rauchhaupt**, FAZ, Frankfurt/Main
Prof. Dr. Jürgen Renn, MPIWG | **Prof. Dr. Robert W. Smith**, University of Alberta, Edmonton, Canada | **Dr. Jakob Staude**, MPIA, Haus der Astronomie, Heidelberg | **Dr. Thomas Steinhauser**, GMPG | **Prof. Dr. Virginia Trimble**, University of California | **Prof. Dr. Joachim Trümper**, MPE, Garching | **Prof. Dr. Heinrich Völk**, MPI for Nuclear Physics, Heidelberg | **Prof. Dr. Richard Wielebinski**, MPIfR, Bonn

Participants from the GMPG Research Program, the MPI for the History of Science and Guests
PD Dr. Jaromír Balcar, GMPG | **Beatrice Fromm**, GMPG | **Prof. Dr. Jürgen Kocka**, Berlin Social Science Centre | **Birgit Kolboske**, GMPG | **Prof. Dr. Carsten Reinhardt**, Bielefeld University
Dr. Florian Schmaltz, GMPG | **PD Dr. Alexander v. Schwerin**, GMPG | **Dr. Ulrike Thoms**, GMPG | **Kristina Schönfeldt**, GMPG | **Urs Schoepflin**, GWDG | **Lübbo v. Lindern**, Oldenburg

1 Workshop participants on the entry stairs of the MPIWG
2 Roundtable 2

3 Roundtable 1: panel discussion between chair Malcom Longair, Klaus Pinkau, Joachim Trümper, Richard Wielebinski and Gerhard Haerendel
4 Roundtable 2:
Till Kirsten, Hans Böhringer, Reinhard Genzel
Photos © MPIWG

Zeitgeschichte und Wissenschaftsgeschichte am Beispiel deutsch-israelischer Wissenschaftsbeziehungen von den 1950er bis in die 1980er Jahre

21. September 2016 Universität Hamburg

09:00 – 11:00

Abstract mit Zielen, Fragestellungen und Inhalten:
Allgemeine Zeitgeschichte und Wissenschaftsgeschichte enger zu verzahnen, ist ein wichtiges Desiderat der Forschung. Dazu soll die Sektion beitragen, am Beispiel der Geschichte der Wissenschaftsbeziehungen zwischen Israel und der Bundesrepublik sowie durch die Diskussion methodisch-theoretischer Fragen auf dieser Basis. Wie wirkten Politik, Wissenschaft und Zivilgesellschaft bei den belasteten Neuanfängen der Beziehungen zwischen der BRD und Israel seit den 1950er Jahren zusammen? Wie beeinflussten sie sich gegenseitig? Üblicherweise wird angenommen, dass die in einer internationalen Fachgemeinschaft an eigenen Grundsätzen orientierten Naturwissenschaften dabei die Rolle eines „Eisbrechers" spielten, dass sich die Politik der Wissenschaftler bediente und erst später ein Neuanfang der kulturellen und politisch-diplomatischen Beziehungen stattfand. Trifft diese Sichtweise zu? Was bedeutete die politisch-wissenschaftliche Zusammenarbeit für die Weichenstellungen, die Form und vielleicht auch die Inhalte der wissenschaftlichen Arbeit, zunächst in den Natur- und Technik-, bald auch in den Geisteswissenschaften? Wie beeinflussten sich die Entwicklungen in den Natur- und den Geisteswissenschaften gegenseitig? Die Sektion wird die Entwicklungen in beiden Bereichen miteinander vergleichen. Wie abhängig war, wie unabhängig blieb Wissenschaft? Welche Rolle spielten die Öffentlichkeit und nicht-staatliche Organisationen wie Stiftungen und die Max-Planck-Gesellschaft?

Derzeit sind Forschungen zu dieser Thematik im Gange: in Berlin (im Zusammenhang eines Forschungsprogramms zur Geschichte der MPG am MPI für Wissenschaftsgeschichte), in Frankfurt (Fritz Bauer-Institut), in Jerusalem (Franz Rosenzweig Minerva Forschungszentrum, Van Leer Institut) und Beer-Sheva (Ben-Gurion Universität). Die Sektion soll Zwischenergebnisse darstellen, miteinander in Beziehung setzen und der kritischen Diskussion öffnen.

Im ersten Beitrag (Deichmann) wird der Beginn der deutsch-israelischen Kooperationen in den Naturwissenschaften genauer untersucht. Welche Motive und Absichten standen hinter den frühen naturwissenschaftlichen Beziehungen? Die von wenigen Wissenschaftlern initiierte Kooperation, die bald politische Unterstützung fand, führte innerhalb weniger Jahre zu einer groß angelegten Zusammenarbeit. Diese basierte z. T. auf stilisierten und unzutreffenden Vorstellungen über die angebliche Distanz deutscher Wissenschaftler und von Institutionen wie

der Kaiser-Wilhelm-Gesellschaft gegenüber dem Nationalsozialismus. Die naturwissenschaftliche Zusammenarbeit entwickelte sich von einer vor allem politisch und materiell motivierten in eine inhaltlich fundierte und kooperative, bei der jede Seite gleichermaßen zur Forschung mit teilweise sehr hohem wissenschaftlichen Standard beitrug.

Im zweiten Beitrag (Steinhauser/Renn) werden verschiedene Phasen der verschiedenen bilateralen naturwissenschaftlichen Projekte vom Ende der 1950er bis in die 1980er Jahre identifiziert. Aus den ersten, institutionell und fachlich noch sehr begrenzten Anfängen entwickelte sich schrittweise ein stabiles, vielfältiges Kooperationsnetzwerk. Politische und wissenschaftliche Faktoren förderten den Erfolg oder drohten ihn zu behindern. Wie wurden die Möglichkeiten genutzt, beziehungsweise die Hindernisse beseitigt oder umgangen? Operierten die Vertreter der Naturwissenschaften tatsächlich unabhängig von allgemeinpolitischen Überlegungen und Kontakten? Blieb das Verhältnis zwischen Wissenschaft und Politik stabil oder gab es Veränderungen? Welche Rolle spielten dabei das Wissen über die Ereignisse von Gestern und der Glaube an die Möglichkeiten von Morgen?

Im Vergleich zu den Naturwissenschaften setzte die bilaterale Kooperation in den Geisteswissenschaften später ein. Im Zuge der Ausarbeitung von Richtlinien für Beziehungen mit Deutschland in den Sektoren Bildung und Kultur war es noch in den frühen 1960er Jahren zu heftigen Auseinandersetzungen in der israelischen Knesset und zur Verabschiedung von Bestimmungen gekommen, die eine Zusammenarbeit mit Deutschland auf diesem Gebiet nur in sehr beschränktem Maße zuließen. Wie konnte trotzdem spätestens zu Anfang der 1970er Jahre auch eine erhebliche deutsch-israelische Forschungskooperation in den Geisteswissenschaften zustande kommen, vor allem in den Fächern Germanistik und Geschichte? Welches waren die treibenden Kräfte und die maßgeblichen Akteure, welches die Hindernisse und Einschränkungen – mit welchem Ergebnis und mit welchen Auswirkungen, nicht nur, aber auch für die Wissenschaften und Wissenschaftler? Damit befassen sich der dritte und vierte Beitrag.

Der dritte Beitrag (Weiss/Motzkin) richtet sein Interesse auf die deutsch-israelischen Kulturbeziehungen und die Strategien der deutschen Wissenschaftspolitik. Für jede Form deutscher Auslandskulturpolitik bestand nach dem Zweiten Weltkrieg das Problem, dass die deutsche Kultur durch den Nationalsozialismus in Verruf geraten war. In Israel sprach sich die vorherrschende öffentliche Meinung gegen jede Form eines deutschen „Kulturimports“ aus. Dazu werden die Situationen an der Hebräischen Universität in Jerusalem und der Universität Haifa als konkrete Beispiele kurz skizziert, wo deutsche intellektuelle Traditionen gleichwohl stark waren. Es wird untersucht, aus welchen Gründen die Wirkung der Kooperation mit der deutschen Geschichtswissenschaft in Israel bedeutender war als die der Germanistik. Was waren die Ziele der deutschen Wissenschaftspolitik als Außenpolitik? In welchem Verhältnis standen israelischen Erwartungen und deutsche auswärtige Kulturpolitik? Hat diese die Kulturlandschaft Israels geändert und wenn ja, wie?

Der vierte Beitrag (Hestermann) beschäftigt sich mit den Bedingungen und Förderungspolitiken der staatlichen wie privaten deutschen Stiftungen, die am Aufbau der geisteswissenschaft-

lichen Kooperation mit Israel seit den späten 1960er Jahren beteiligt waren. Er geht der Frage nach, inwiefern durch die von deutscher Seite gewährte Finanzierung von Forschungen in der Germanistik und der Geschichtswissenschaft Einfluss genommen wurde auf die Entstehung wissenschaftlicher Netzwerke zwischen Israel und Deutschland. Wie wandelte sich beispielsweise die politische Agenda der Minerva-Stiftung im Lauf der Jahrzehnte? Welche Motive standen am Anfang der Förderungspolitik und von wem wurde diese maßgeblich geleitet? Inwiefern trugen die in diesem Zusammenhang mobilisierten Gelder zur Förderung von Germanistik und Geschichtswissenschaft in Israel zu einer Politisierung des wissenschaftlichen Feldes bei? Welches waren die institutionellen Hintergründe, Interessen und Erwartungen des früheren BMFT (später BMBF), des Außenministeriums, der DFG sowie des DAAD?

Ziel der Sektion ist es, über die publikumsorientierten Jubiläumsveranstaltungen des letzten Jahres hinaus eine kritische Bestandsaufnahme der Geschichte der deutsch- israelischen Wissenschaftsbeziehungen vorzunehmen, mit Schwerpunkt auf der frühen Zeit bis in die 1970er Jahre aber perspektivisch darüber hinaus. Auf dieser Grundlage sollen die grundsätzlichen Fragen diskutiert werden, die oben angeschnitten wurden. Gerade der Fall des besonderen Verhältnisses zwischen der BRD und Israel sollte einen aufschlussreichen Beitrag zur Frage der Wissenschaftsgeschichte als Zeitgeschichte liefern können.

Referentinnen und Referenten

Prof. Dr. Jürgen Kocka, GMPG/Wissenschaftszentrum, Berlin
Sektionsleitung, Einleitung, Schlussdiskussion

Prof. Dr. Ute Deichmann, Ben-Gurion University of the Negev, Beer Sheva, Israel
Der Beginn deutsch-israelischer Zusammenarbeit in den Naturwissenschaften – Motive, Erfolge, moralische Kosten und Hintergedanken

Dr. Thomas Steinhauser, GMPG, Berlin,
Prof. Dr. Jürgen Renn, MPI für Wissenschaftsgeschichte, Berlin
Wendepunkte der deutsch-israelischen Kooperation in den Naturwissenschaften

Prof. Dr. Gabriel Motzkin, Van-Leer Jerusalem Institute, Israel
Prof. Dr. Yvat Weiss, Hebrew University of Jerusalem, Israel
Wissensexport als Außenpolitik: zur Rolle der Geisteswissenschaften in den deutsch- israelischen Beziehungen

Dr. Jenny Hestermann, Fritz-Bauer-Institut, Frankfurt/Main
Fördern auf Augenhöhe? Die Rolle der Stiftungen in der deutsch-israelischen geisteswissenschaftlichen Kooperation

WORKSHOP

From Knowledge to Profit?
Scientific Institutions and the Commercialization of Science

10 – 12 October 2016 MPIWG, Boltzmannstr. 22, 14195 Berlin

Monday, 10 October 2016

14:00 – 14:15 Jürgen Renn, MPIWG & Florian Schmaltz, GMPG
Welcome

14:15 – 14:45 **Jaromír Balcar**, GMPG, **Alexander v. Schwerin**, GMPG
The Max Planck Society: An Institution of Basic Research and Commercialization

Section 1: Innovation Regimes
Chair: **Monika Dommann**, ETH Zurich

14:45 – 15:45 **Anna Guagnini**, University of Bologna
Individuals, Institutions, and the Commercialization of Academic Science: A Long-term Comparative Perspective

15:45 – 16:15 Coffee break

16:15 – 17:15 **Zhihui Zhang**, CAS, Bejing
Does Science Need to Face to National Economy? The Transformation of Scientific and Technological Research in Chinese Academy of Sciences

17:15 – 18:15 **Helmut Maier**, Ruhr-Universität Bochum
The Innovation System of the Max Planck Institute of Coal Research Ltd.

Keynote Lecture
18:30 – 19:30 **Jean-Paul Gaudillière**, CNRS, CERMES3, Paris
Commercialization or Commodification? Some Remarks About the Changing Relationship Between Academia, Industry and Markets Based on the Postwar Trajectory of Therapeutic Innovation

Tuesday, 11 October 2016

Section 2: Professionalization

Chair: **Carsten Reinhardt**, Bielefeld University

09:30 – 10:30 **Christina Diblitz**, University of Stuttgart
In Between of Service, Fundamental Research and Innovation: A 'Triple Helix' Model of the Material Producers and Scientific Service Groups in the Max Planck Society

10:30 – 11:00 Coffee break

11:00 – 12:00 **Jaromír Balcar**, GMPG
Technology Transfer in the Mode of Trial and Error: The History of Max Planck's Garching Innovation Ltd.

12:00 – 13:00 **Gabriel Galvez-Behar**, CNRS, Université Lille
The Patents of French Science: The Case of CNRS

13:00 – 14:00 Lunch break

Section 3: Institutional Identities

Chair: **Ulrike Thoms**, GMPG

14:00 – 15:00 **David Kaldewey**, University of Bonn
Changing Modes of Identity Work: Commercialization from within Academia

15:00 – 16:00 **Alexander v. Schwerin**, GMPG
Max Planck Biosciences in the 1970s and the Struggle for New Directions

16:00 – 16:30 Coffee break

Keynote
16:30 – 18:00 **Philip Mirowski**, University of Notre Dame, USA
The Advent of 'Open Science': A New Neoliberal Era?

18:30 – 19:30 Dinner, Harnack House

Roundtable, MPIWG
20:00 – 21:30 **Monika Dommann, Jean-Paul Gaudillière, Jürgen Kocka, Philip Mirowski.**
Chair: **Florian Schmaltz**

Wednesday, 12 October 2016

Section 4: Strategies of Merchandizing

Chair: **Jean-Paul Gaudillière**, CNRS, Paris

09:00 – 10:00 **Ton van Helvoort**, Independent Scholar
"Make, Buy or Ally": Unilever and the New Biotechnology During the Last Quarter of the 20th

10:00 – 11:00 **Cyrus Mody**, Maastricht University
Commercialization as Experimentation: Entangled Institutional Innovations among Santa Barbara Physicists in the 1970s

11:00 – 11:30 Coffee break

11:30 – 12:30 **Christophe Lecuyer**, UPMC Paris
Selling Innovation: The Case of Semiconductor Research at the University of California

12:30 – 13:30 **Gemma Cirac Claveras**, Institut Pierre Simon Laplace, Paris
Trading with Satellite Weather Data in the United States: Public or Commodities

13:30 – 14:30 Lunch break

Final Discussion

14:30 – 16:00 **Carsten Reinhardt**, Bielefeld University
Concluding Remarks and Discussion

Invited Speakers and Roundtable-Participants

PD Dr. Jaromír Balcar, GMPG | **Dr. Christina Diblitz**, Universität Stuttgart | **Prof. Dr. Monika Dommann**, ETH, Zürich | **Dr. Gabriel Galvez-Behar**, CNRS, Lille | **Dr. Jean-Paul Gaudillière**, CNRS, CERMES3, Paris | **Dr. Anna Guagnini**, University of Bologna | **Dr. Ton van Helvoort**, Independent Researcher, Netherlands | **Prof. Dr. David Kaldewey**, University of Bonn **Prof. Dr. Christophe Lecuyer**, UPMC Paris | **Prof. Dr. Helmut Maier**, Ruhr-Universität Bochum **Prof. Dr. Philip Mirowski**, University of Notre Dame, USA | **Prof. Dr. Cyrus Mody**, Maastricht University | **Prof. Dr. Carsten Reinhardt**, Bielefeld University | **Dr. Florian Schmaltz**, GMPG **PD Dr. Alexander v. Schwerin**, GMPG | **Dr. Ulrike Thoms**, GMPG | **Dr. Zhihui Zhang**, Chinese Academy of Sciences, Bejing, China

Participants from the GMPG Research Program and Guests

Prof. Dr. Jürgen Renn, MPIWG | **Prof. Dr. Jürgen Kocka** | Berlin Social Science Centre **Birgit Kolboske**, GMPG | **Dr. Ariane Leendertz**, MPI for the Study of Societies, Cologne

Dr. Juan Andres Léon, GMPG | Dr. Luisa Bonolis, GMPG | Beatrice Fromm, GMPG
Kristina Schönfeldt, GMPG | Urs Schoepflin, GWDG | Prof. Dr. Peter Schöttler, GMPG
Dr. Thomas Steinhauser, GMPG

ROUNDTABLE

with **Prof. Dr. Reimar Lüst**, Max Planck Institute for Meteorology, Hamburg
and Invited Experts on

Astronomy and Astrophysics in the History of the Max Planck Society
with a special focus on the
Changes in the 'cluster' of astronomy and astrophysics within the MPG

21 October 2016 Lynen Room of the Harnack House, 14195 Berlin

Program

09:30 – 09:45 Introduction
Jürgen Renn

09:45 – 10:00 Short Presentation by the GMPG Research Program

10:00 – 11:15 Roundtable Discussion I on the 1960s and 1970s

11:15 – 11:45 Coffee break

11:45 – 13:00 Roundtable Discussion II on the 1980s and beyond

13:00 – 14:00 Lunch, Harnack House

14:00 – 15:30 Concluding Discussion

Invited Experts
Prof. Dr. Immo Appenzeller, MPI for Astronomy, MPIA/Landessternwarte Königstuhl, Heidelberg | **Prof. Dr. Guinevere Kauffmann**, MPA, Garching | **Prof. Dr. Till Kirsten**, MPIK, Heidelberg | **Prof. Dr. Reimar Lüst**, MPI-M, Hamburg | **Prof. Dr. Joachim Trümper**, MPE, Garching | **Prof. Dr. Heinrich Völk**, MPIK, Heidelberg | **Prof. Dr. Simon White**, MPA, Garching

Participants from the GMPG Research Program and the MPI for the History of Science
PD Dr. Jaromír Balcar | Dr. Alexander Blum | Dr. Luisa Bonolis | Beatrice Fromm
Prof. Dr. Jürgen Kocka | Birgit Kolboske | Dr. Roberto Lalli | Dr. Juan-Andres Leon
Prof. Dr. Jürgen Renn | Prof. Dr. Carsten Reinhardt | Dr. Florian Schmaltz
Kristina Schönfeldt | PD Dr. Alexander v. Schwerin | Urs Schoepflin GWDG
Dr. Thomas Steinhauser | Dr. Ulrike Thoms

1 Simon White in discussion with panel members
Photo © Schönfeldt
2 Joachim Trümper, Jürgen Kocka, Reimar Lüst, Thomas Steinhauser, Till Kirsten, Immo Appenzeller
3 Reimar Lüst
4 A great thank you from members of the executive committee of the GMPG Research Program Florian Schmaltz, Jürgen Renn and Carsten Reinhardt
Photos © MPIWG

Geschichte der Rechtswissenschaft in der Max-Planck-Gesellschaft, 1948–2002

11. November 2016
MPI für europäische Rechtsgeschichte, Hansaallee 41, 60323 Frankfurt/Main

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11:00 – 11:05	**Stefan Vogenauer**, Frankfurt/Main Begrüßung und Einleitung
11:05 – 11:45	Input und Fragestellungen des Forschungsprojekts GMPG
11:45 – 12:15	**Felix Lange**, Berlin MPI für ausländisches öffentliches Recht und Völkerrecht Heidelberg
12:15 – 12:45	**Ulrich Magnus**, Hamburg MPI für ausländisches und internationales Privatrecht Hamburg
12:45 – 13:15	**Jan Thiessen**, Tübingen MPI für europäische Rechtsgeschichte
13:15 – 14:15	Mittagspause
14:15 – 14:45	**Diethelm Klippel**, Bayreuth MPI für Innovation und Wettbewerb München
14:45 – 15:15	**Sascha Ziemann**, Frankfurt/Main MPI für ausländisches und internationales Strafrecht Freiburg
15:15 – 15:45	**Eberhard Eichenhofer**, Jena MPI für Sozialrecht und Sozialpolitik München
15:45 – 16:15	**Margrit Seckelmann**, Speyer MPI zur Erforschung von Gemeinschaftsgütern Bonn
16:15 – 16:30	Reaktion und Kommentare der Mitglieder des Forschungsprojekts GMPG
16:30 – 16:55	Diskussion
16:55 – 17:00	**Stefan Vogenauer**, Frankfurt/ Main Schlussbemerkungen und Fahrplan für das Teilprojekt

Autor*innen:
Eberhard Eichenhofer, Universität Jena | Diethelm Klippel, Universität Bayreuth
Felix Lange, Humboldt Universität Berlin | Ulrich Magnus, Universität Hamburg
Margrit Seckelmann, Deutsches Forschungsinstitut für öffentliche Verwaltung, Speyer
Jan Thiessen, Universität Tübingen | Sascha Ziemann, Goethe Universität Frankfurt/Main

Max-Planck-Gesellschaft:
Hans-Jörg Albrecht, MPICC | Thomas Duve, MPIeR | Jürgen Kocka, GMPG | Birgit Kolboske, GMPG | Jasper Kunstreich, MPIeR | Carsten Reinhardt, GMPG | Jürgen Renn, MPIWG
Florian Schmaltz, GMPG | Michael Stolleis, MPIeR | Stefan Vogenauer, MPIeR

6.2 Lectures

Lectures listed below include all lectures by scholars and visiting scholars of the GMPG Research Program since their affiliation with the research program as well as selected lectures of the members of the executive committee.

EXECUTIVE COMMITTEE

Jürgen Renn
selected lectures

27 Jan 2017
National Academy of Science Leopoldina, Halle
Leopoldina Jahresempfang 2017
Gravitationswellen und die wechselvolle Geschichte der Relativitätstheorie

16 Jan 2017
General Administration of the Max Planck Society, Munich
Perspectives Committee Meeting Biology and Medicine Section
Impressions from the History of the BMS

06 Dec 2016
Van Leer Jerusalem Institute, Jerusalem
"Secularity and the Disciplines – a Farewell Conference for Gabriel Motzkin"
How Many Times Have the Natural Sciences Emerged?

19 Oct 2016
Max Planck Society, Berlin
Präsidialkreis der Max-Planck-Gesellschaft Berlin
Forschungsprogramm Geschichte der MPG (1948–2002)

24 Sept 2016
National Academy of Science Leopoldina, Halle
Jahresversammlung der Leopoldina
with Matthias Schemmel: *Wie oft sind die Naturwissenschaften entstanden?*

21 Sept 2016
University of Hamburg, Hamburg
51. Deutscher Historikertag Hamburg 2016 – "Glaubensfragen"
with Thomas Steinhauser: *Der Beginn deutsch-israelischer Zusammenarbeit in den Naturwissenschaften – Motive, Erfolge, moralische Kosten und Hintergedanken*

10 Sept 2016
Society of German Natural Scientists and Doctors, Greifswald
Jahresversammlung Gesellschaft Deutscher Naturforscher und Ärzte
Ammoniak: Wie eine epochale Erfindung das Leben der Menschen und die Arbeit der Chemiker verändert

07 July 2016
Max-Weber-Kolleg, Erfurt
"Towards a Global History of Ideas"
The Globalization of Knowledge in History – the Perspective of Historical Epistemology

18 June 2016
University of Vienna and Austrian Academy of Sciences, Vienna
"Ernst Mach (1838–1916) – Life, Work, and Influence," International Conference on the Occasion of the 25th Anniversary of the Institute Vienna Circle
with Manfred Laubichler: *Extended Evolution of Knowledge*

17 June 2016
University of Vienna and Austrian Academy of Sciences, Vienna
"Ernst Mach (1838–1916) – Life, Work, and Influence," International Conference on the Occasion of the 25th Anniversary of the Institute Vienna Circle
with Manfred Laubichler: *Mach's Evolutionary Conception of Knowledge*

17 June 2015
Annual Assembly of the Max Planck Society, Berlin
Section-Meeting Presentations (BMS, CPT, HSS) on the Research Program GMPG

Carsten Reinhardt
selected lectures

29 Nov 2016
Max Planck Institute for the History of Science, Berlin
"Political Epistemology. New Approaches, Methods and Topics in the History of Science"
Regulatory Politics and Material Knowledge

23 June 2016
Tembusu College of the National University of Singapore, Singapore
Society for the History of Technology (SHOT), Session Systems Thinking: "Complexity and Simplification When 'Making Things Work'"
Research Methods and Science Policy in Late-twentieth Century United States

23 – 25 Nov 2015
Munich Center for Technology in Society, Munich
"TechnoScienceSociety: Technological Reconfigurations of Science and Society," Sociology of the Sciences Yearbook Meeting
The Development of Research Methods as the Driving Force of Technoscience

31 Aug 2015
Wissenschaftsforum Chemie, Dresden
Fachgruppe Geschichte der Chemie
Chemie und Gesellschaft in den USA. Das Beispiel der Chemical Heritage Foundation

02 – 04 Mar 2015
Tokyo Institute of Technology, Tokyo
International Workshop on the History of Chemistry, Transformation of Chemistry from the 1920s to the 1960s
Physical Methods in the Twentieth Century between Disciplines and Cultures

26 Aug 2014
Centre Simão Mathias of Studies in History of Science, Sao Paulo
"CESIMA Anno XX. Crossing Oceans: Exchange of Products, Instruments, Procedures and Ideas in the History of Chemistry and Related Sciences"
Physical Methods in the Twentieth Century between Disciplines and Cultures

Jürgen Kocka
selected lectures

20 – 23 Sept 2016
University of Hamburg, Hamburg
51. Deutscher Historikertag Hamburg 2016 – "Glaubensfragen"
Sektionsleitung: Z*eitgeschichte und Wissenschaftsgeschichte am Beispiel deutsch-israelischer Sektionsleitung*
Referent: *Wissenschaftsbeziehungen von den 1950er bis in die 1980er Jahre*

RESEARCH DIRECTOR

Florian Schmaltz

08 Mar 2017
Harnack House, Berlin
Tagung des Gesamtbetriebsrates der Max-Planck-Gesellschaft
Das Forschungsprogramm Geschichte der Max-Planck-Gesellschaft (1948–2002)

03 Mar 2017
Medical University of Vienna, Vienna
"Medical Ethics in the 70 Years after the Nuremberg Code, 1947 to the Present"
with Christian Bonah: *The National Impact of the Nuremberg Code. The French Case*

03 Mar 2017
Medical University of Vienna, Vienna
"Medical Ethics in the 70 Years after the Nuremberg Code, 1947 to the Present"
Using Research Findings from the Nazi Era

28 Sept 2016
Institut des sciences de la communication du Centre national de la recherche scientifique, Université Sorbonne, Paris
"Science Diplomacy in Europe: Future Challenges and Historical Perspectives"
History of the MPG – 1948–2002 & Science Diplomacy

23 Sept 2016
Faculty of Arts, Charles University, Prague
"Scientific Changes in the Context of Political Regime Changes," 7th International Conference of the European Society for the History of Science
Transforming the Kaiser Wilhelm Gesellschaft into the Max Planck Gesellschaft: Continuities, Discontinuities and the Interdependencies of Science and Politics after the Defeat of the Nazi Regime

17 Sept 2016
Institut für Medizingeschichte und Wissenschaftsforschung, Universität zu Lübeck
99. Jahrestagung der Deutschen Gesellschaft für Geschichte der Medizin, Naturwissenschaften und Technik
Digitalisierung, Big Data und die Aufgabe der Theorie: Zur Infrastruktur, Epistemologie und Perspektiven der Digitalisierungsstrategien des Forschungsprogramms Geschichte der Max-Planck-Gesellschaft

04 July 2016
Max Planck Institute for the History of Science, Berlin
"The History of the Chinese Academy of Science and the History of the Max Planck Society in Comparative Perspective"
Research Program History of the Max Planck Society. Perspectives and Digital Methods

30 Apr 2016
Technische Universität Darmstadt
Ringvorlesung "Vergiftete Atmosphäre. Chemische Waffen und ihre Geschichte"
Forschung und Entwicklung der Nervengase Tabun, Sarin und Soman im Zweiten Weltkrieg und der Nobelpreisträger Richard Kuhn

18 Feb 2016
Institut des sciences de la communication du Centre national de la recherche scientifique, Université Sorbonne, Paris
Aeronautical Research in France During Nazi Occupation (1940–44)

27 Jan 2016
University of Bremen, Bremen
Vortrag am Tag des Gedenkens an die Opfer des Nationalsozialismus
Das Konzentrationslager Auschwitz-Monowitz. Sklavenarbeit für den I. G. Farbenkonzern

09 Nov 2015
Max Planck Institute for the History of Science, Berlin
Advisory Board Meeting
T*he Research Program History of the Max Planck Society: Scope and Perspectives*

14 Sept 2015
Max Planck Institute for the History of Science, Berlin
"Astrophysics and Astronomy in the History of the Max Planck Society"
The Research Program History of the Max Planck Society 1948–2002 – Scope and Perspectives

11 June 2015
General Administration of the Max Planck Society, Munich
"Forum am Mittag"
Forschungsprogramm Geschichte der Max-Planck-Gesellschaft: Auftakt und Perspektiven

21 May 2015
Celler Synagogue, Celle
Ausstellungseröffnung "Die I. G. Farben und das Konzentrationslager Monowitz"
Standort Auschwitz: Die I. G. Farbenindustrie und ihr Konzentrationslager Monowitz

22 Apr 2016
Harnack House of the Max Planck Society, Berlin
"100 Years of Chemical Warfare. Research, Development, Consequences"
Chemical Weapons Research in Nazi Germany on Soldiers and Concentration Camp Inmates

26 Mar 2015
Akademie der Wissenschaften zu Göttingen
"Wissenschaftsgeschichte und Nationalsozialismus. Stand und Perspektiven der Forschung"
Die Deutsche Akademie der Luftfahrtforschung 1936–1945: Hermann Görings nationalsozialistische Muster-Akademie?

05 Feb 2015
Zentrum für Zeithistorische Forschung, Potsdam
Workshop "Wissenschaftspolitik, Forschungspraxis und Ressourcenmobilisierung im NS-Herrschaftssystem" (Veranstalter Zentrum für Zeithistorische Forschung und Max-Planck-Institut für Wissenschaftsgeschichte)
Luftfahrtforschung und Ressourcenmobilisierung in den besetzten Gebieten

05 Dec 2014
Max Planck Institute for the History of Science, Berlin
"The Institutionalisation of Sciences in Early Modern Europe"
with Jürgen Renn: *Institutions and Knowledge Systems: Theoretical Perspectives*

14 Oct 2014
Max Planck Institute for Molecular Genetics, Berlin
Beratender Ausschuss für Rechenanlagen der Max-Planck-Gesellschaft
with Dirk Wintergrün: *Auf dem Weg zu Big Data: Das digitale Forschungsarchiv der MPG*

RESEARCH SCHOLARS

Jaromír Balcar

11 Oct 2016
Max Planck Institute for the History of Science, Berlin
"From Knowledge to Profit? Scientific Institutions and the Commercialization of Science"
Technology Transfer in the Mode of Trial and Error: The History of Max Planck's Garching Innovation Ltd.

15 Mar 2016
Max Planck Institute for the History of Science, Berlin
Institute's Colloquium of the Max Planck Institute for the History of Science
with Alexander v. Schwerin: *The Commercialization of Science within the Max Planck Society*

14 Nov 2015
Leibniz Institute for the History and Culture of Eastern Europe, Leipzig
"East Central Europe in the First Half of the 20th Century – Transnational Perspectives"
From Nazi War Economy to Soviet Style Centralized Planned Economy. Aspects of Business History in Czechoslovakia and East Central Europe in the Decade of Extremes (1938–1948)

06 Nov 2015
University of Düsseldorf, Düsseldorf
Arbeitskreis für kritische Unternehmens- und Industriegeschichte – Jahrestagung 2015, "Unternehmen und Wissenschaft im 19. und 20. Jahrhundert"
Technologietransfer nach trial and error: Die Max-Planck-Gesellschaft und die Gründung der Garching Instrumente GmbH

06 Nov 2015
CEVRO Institute, Prague
"Liberation, Revolution, Transformation: Central Europe in 1945 in an Interdisciplinary Perspective"
System Transformation as Consequence of the German Occupation? Czechoslovakia's Path from the Nazi War Economy to Postwar Centralized Planned Economy

20 Mar 2015
Institute for Advanced Study in the Humanities, Essen
"Societies under Occupation in World War II: Supply, Shortage, Hunger"
'Dem tschechischen Arbeiter das Fressen geben' (Reinhard Heydrich). Factory Canteens in the 'Protectorate of Bohemia and Moravia'

Birgit Kolboske

08 Mar 2017
Harnack House, Berlin
Meeting of the General Works Council of the Max Planck Society
Vorstellung des Forschungsprojekts zur Geschichte der Frauen/Wissenschaftlerinnen in der MPG sowie zur Gleichstellungspolitik in der MPG von 1988–1998

07 June 2016
Max Planck Institute for the History of Science, Berlin
Institute's Colloquium of the Max Planck Institute for the History of Science
with Ulrike Thoms: *Equal Opportunities in the Max Planck Society. Education, Human Development and Gender Issues*

20 Apr 2016
Göttingen
20. Jahrestagung der MPG-Gleichstellungsbeauftragten
Gleichstellungsaspekte in der Geschichte der MPG

Alexander v. Schwerin

28 Feb 2017
Institut für Medizingeschichte, Universität Bern
Medizinhistorisches Kolloquium
Vor 40 Jahren: Die Biotech-Industrie als Schrecken von Politik und Wissenschaft

10 – 12 Oct 2016
Max Planck Institute for the History of Science, Berlin
"From Knowledge to Profit? Scientific Institutions and the Commercialization of Science"
Max Planck Biosciences in the 1970s and the Struggle for New Directions

22 – 24 Sept 2016
Faculty of Arts, Charles University, Prague
7th International Conference of the European Society for the History of Science
From Radioisotopes to Genomes: The Biomedical Legacy of Atomic Age's Big Science Institutions

15 Sept 2016
European Hansemuseum, Lübeck
Zweites Offenes Forum der Lebenswissenschaften
Die Lebenswissenschaften in der Max-Planck-Gesellschaft

05 July 2016
Max Planck Institute for the History of Science, Berlin
"The History of the Chinese Academy of Sciences and the Max Planck Society in Comparative Perspective"
Kommerzialisierung der Wissenschaften in der Max-Planck-Gesellschaft

06 Apr 2016
Max Planck Institute for the History of Science, Berlin
Advisory Board of the Research Program "History of the Max Planck Society"
Kommerzialisierung der Wissenschaften in der Max-Planck-Gesellschaft

15 Mar 2016
Max Planck Institute for the History of Science, Berlin
Institute's Colloquium of the Max Planck Institute for the History of Science
with Jaromír Balcar: *The Commercialization of Science within the Max Planck Society*

30 Oct 2015 – 01 Nov 2015
University of Munich, Munich
"Perspectives for the History of Life Sciences: New Themes, New Sources, New Approaches"
The Life Sciences Within the Max Planck Society: A Special Case or Not?

13 Apr 2015
Technische Universität Braunschweig, Braunschweig
Antrittsvorlesung
Vom Atom zum Genom. Zur Geschichte der Lebenswissenschaften

30 Sept 2014
Technische Universität Braunschweig, Braunschweig
Die Zeitenwende der 1970er Jahre als Problem der Wissenschafts- und Körpergeschichte

Thomas Steinhauser

21 Sept 2016
University of Hamburg, Hamburg
51. Deutscher Historikertag Hamburg 2016 – "Glaubensfragen"
with Jürgen Renn: *Der Beginn deutsch-israelischer Zusammenarbeit in den Naturwissenschaften – Motive, Erfolge, moralische Kosten und Hintergedanken*

14 Sept 2015
Max Planck Institute for the History of Science, Berlin
"Astrophysics and Astronomy in the History of the Max Planck Society"
Astronomy and Astrophysics as an Important Research Cluster of the Max Planck Society

30 June 2015
Beilstein-Institut zur Förderung der Chemischen Wissenschaften, Frankfurt am Main
Abschlusskolloquium Beilstein-Stipendium
Wissenschaft und Technik in der modernen Chemie am Beispiel der Festkörperforschung

11 June 2015
Technische Universität Darmstadt
Ringvorlesung "Vergiftete Atmosphäre. Chemische Waffen und ihre Geschichte"
Zur Auswirkung chemischer Kampfstoffforschung auf den Arbeitsschutz

04 – 05 Sept 2014
Center for Interdisciplinary Research, Bielefeld
"Fachwissen und Öffentlichkeit: Expertise, Regulierungswissen, Populärwissenschaft"
The Discussions before the German Law on Chemical Substances, Expert Knowledge and the Public

Ulrike Thoms

16 – 18 Sept 2016
Institut für Medizingeschichte und Wissenschaftsgeschichte, Universität zu Lübeck
"Digitalisierung, Big Data und die Aufgabe der Theorie," 99. Jahrestagung der Deutschen Gesellschaft für Geschichte der Medizin, Naturwissenschaft und Technik
Die MPG, ihre Wissenschaft und die Öffentlichkeit. Möglichkeiten und Grenzen der Inhaltsanalyse zur Aufklärung eines komplexen Verhältnisses

07 June 2016
Max Planck Institute for the History of Science, Berlin
Institute's Colloquium of the Max Planck Institute for the History of Science
with Birgit Kolboske: *Equal Opportunities in the Max Planck Society. Education, Human Development and Gender Issues*

09 May 2016
Charles University, Prague
Forschungskolloquium des Masaryk-Instituts, des Archivs der Akademie der Wissenschaften und des Instituts der internationalen Studien der Fakultät der Sozialwissenschaften an der Karls-Universität Prag
Die Max-Planck-Gesellschaft 1948–2002 und ihre Sozialgeschichte. Perspektiven auf ein Forschungsprogramm

13 – 14 Nov 2015
University of Düsseldorf, Düsseldorf
Arbeitskreis für kritische Unternehmens- und Industriegeschichte – Jahrestagung 2015, "Unternehmen und Wissenschaft im 19. und 20. Jahrhundert"
Pharmazeutische Marktforschung als unternehmerische Strategie. Entwicklung und Professionalisierung einer neuen Branche im 20. Jahrhundert

15 Oct 2015
Inra, RITME, Paris
"Veterinary Drug Regulation. Antibiotics, Vaccines and Growth Hormones in the US and the EU"
Antibiotics, Agrobusiness and Politics in Germany in the 20th and 21st Century

24 – 27 Sept 2015
University of Copenhagen, Copenhagen
International Commission for the Research into European Food History
Food for the Elderly. Germany 1850-1950

05 – 06 Feb 2015
Zentrum für Zeithistorische Forschung, Potsdam
Fachtagung „Wissenschaftspolitik, Forschungspraxis und Ressourcenmobilisierung im NS-Herrschaftssystem“
Aus Wertlosem Wertvolles schaffen: Die Mobilisierung der Fütterungswissenschaft zur Steigerung der Nahrungsmittelproduktion im Dritten Reich

25 – 26 June 2015
Institut für Geschichte der Medizin, Robert-Bosch-Stiftung, Stuttgart
Conference „Gender, Ernährung und Gesundheit. Gegenwärtige Fragestellungen und historische Annäherungen“
Gender issues? Die Ernährung weiblicher und männlicher Strafgefangener im 19. und frühen 20. Jahrhundert

08 – 10 Oct 2014
München
60. Kongress der Deutschen Gesellschaft für Gynäkologie und Geburtshilfe e. V.
Die DGG und die Reichsarbeitsgemeinschaft Mutter

IT AND DIGITAL HUMANITIES

Felix Lange

17 Feb 2017
Universität Bern, Bern
Digital Humanities im deutschsprachigen Raum, Jahrestagung 2017
with Urs Schoepflin, Dirk Wintergrün, and Oliver Wannewetsch: *ArCHO: Eine Virtuelle Forschungsumgebung im Spannungsfeld von Open Access, Nachhaltigkeit und Datenschutz*

14 Sept 2015
Heidelberg Academy of Sciences and Humanities, Heidelberg
“Historische Semantik und Semantic Web”
Inschriften im Bezugssystem des Raumes: Kollaborative Erstellung und Auswertung multimodaler Ressourcensammlungen mit semantischen Technologien

Dirk Wintergrün

11 June 2015
Villa Vigoni, Menaggio, Italy
DARIAH Summer School
Preconditions and Tools for Digital Publications in the Humanities

23 – 28 Feb 2015
University of Graz, Graz
Digital Humanities im deutschsprachigen Raum
Methodische und Technische Herausforderung durch 'Big Data' in den Geschichtswissenschaften

2015
Göttingen Academy of Sciences and Humanities, Göttingen
Workshop zu Elektronischen Editionen
Expectation on Electronic Editions and Summary of the Workshop

06 – 09 Nov 2014
Westin Michigan Avenue Hotel, Chicago
History of Science Society Conference
Mapping Interdisciplinarity and the Expansion of Scientific Organization – A Project in the Making

14 Oct 2014
Max Planck Institute for Molecular Genetics, Berlin
Beratender Ausschuss für Rechenanlagen der Max-Planck-Gesellschaft
with Florian Schmaltz: *Auf dem Weg zu Big Data: Das digitale Forschungsarchiv der MPG*

VISITING SCHOLARS

Luisa Bonolis

22 Oct 2016
Faculty of Arts, Charles University, Prague
"Enduring Ideas, New Alliances: Social and Epistemic Factors in the Renaissance of General Relativity," 7th International Conference of the European Society for the History of Science
The Emergence of Relativistic Astrophysics in the early 1960s (invited talk)

06 – 08 Sept 2016
Max Planck Institute for the History of Science, Berlin
"Opening New Windows on the Cosmos: Astrophysics and Astronomy in the History of the Max Planck Society"
The Beginning and Early Evolution of Astrophysical Research at the Max-Planck Institutes. Aspects and Impact of the "Biermann's Era"
The Renaissance of General Relativity in Rome: Main Actors, Research Programs and Institutional Structures. XIV Marcel Grossmann Meeting (invited talk)

Juan-Andres Leon

06 – 08 Sept 2016
Max Planck Institute for the History of Science, Berlin
"Opening New Windows on the Cosmos: Astrophysics and Astronomy in the History of the Max Planck Society"
MPG Observatories in Spain, Chile and Southern Africa

4 Feb 2016
Ibero-American Institute, Prussian Cultural Heritage Foundation, Berlin
Forschungskolloquium
El conflicto entre la autonomía científica y la democracia en Alemania Occidental durante la construcción de sus observatorios astronómicos en España, Sudáfrica y Chile

14 Sept 2015
Max Planck Institute for the History of Science, Berlin
"Astrophysics and Astronomy in the History of the Max Planck Society"
Tackling the Curse of Geography: Optical Astronomy and the Max Planck Society during the Cold War

Roberto Lalli

06 – 08 Sept 2016
Max Planck Institute for the History of Science, Berlin
"Opening New Windows on the Cosmos: Astrophysics and Astronomy in the History of the Max Planck Society"
Institutions, Actors and Connections: A Network Analysis of Astrophysical and Astronomical Research at the MPG

14 Sept 2015
Max Planck Institute for the History of Science, Berlin
"Astrophysics and Astronomy in the History of the Max Planck Society"
The Establishment and Consolidation of Astrophysical Research at the Max-Planck-Gesellschaft

Manfred Laubichler

19 Dec 2016
Research Academy, University of Leipzig, Leipzig
"Scientific Methods in the Digital Age-Science meets Humanities in the Context of Modern Digital Techniques"
Detecting and Explaining Innovations in Science with Big-Data Computational Methods and Modelling

16 – 18 Sept 2016
Institut für Medizingeschichte und Wissenschaftsforschung, Universität zu Lübeck
"Digitalisierung, Big Data und die Aufgabe der Theorie," 99. Jahrestagung der Deutschen Gesellschaft für Geschichte der Medizin, Naturwissenschaft und Technik
with Erick Peirson: *Detecting and Explaining Innovations in Science with Big-Data Computational Methods and Modeling*

18 June 2016
University of Vienna and Austrian Academy of Sciences, Vienna
"Ernst Mach (1838-1916) – Life, Work, and Influence," International Conference on the Occasion of the 25th Anniversary of the Institute Vienna Circle
with Jürgen Renn: *Extended Evolution of Knowledge*

17 June 2016
University of Vienna and Austrian Academy of Sciences, Vienna
"Ernst Mach (1838–1916) – Life, Work, and Influence," International Conference on the Occasion of the 25th Anniversary of the Institute Vienna Circle
with Jürgen Renn: *Mach's Evolutionary Conception of Knowledge*

Peter Schöttler

13 Oct 2016
Goethe University Frankfurt, Frankfurt am Main
Fernand Braudel 1966: Zur Neufassung des Mittelmeerbuches im Kontext des Strukturalismus

04 Oct 2016
Université Paul Valéry, Montpellier
Qu'est-ce que le 'scientisme'? Sur l'histoire réelle d'un concept dénonciateur

27 June 2016
Centre Marc Bloch, Berlin
Podiumsdiskussion über 'Die Annales-Historiker und die deutsche Geschichtswissenschaft'

16 June 2016
German Historical Institute Paris, Paris
Podiumsdiskussion über 'Die Annales-Historiker und die deutsche Geschichtswissenschaft'

12 May 2016
European University Viadrina, Frankfurt/Oder
Lernen und Verlernen. Die Annales-Historiker und die deutsche Geschichtswissenschaft

21 Apr 2016
Humboldt University of Berlin, Berlin
Forschungscolloquium zum Nationalsozialismus, Sommersemester 2016
Die Annales-Historiker und die deutsche Geschichtswissenschaft

17 Mar 2016
Wissenschaftskolleg Berlin, Berlin
History between Explanation and Narration

17 Feb 2016
Université de Liège, Liège
"Dialogue des historiens - L'Allemagne dans les relations scientifiques internationales après 1918"
L'Allemagne dans les relations scientifiques internationales après 1918

30 Nov 2015
Institute Vienna Circle, Vienna
23. Wiener-Kreis-Vorlesung
Von Comte zu Carnap. Zur Rezeption des Wiener Kreises in Frankreich

13 Nov 2015
German Historical Institute Paris, Paris
Podiumsdiskussion

12 Nov 2015
German Historical Institute Paris, Paris
Apprendre et désapprendre de l'autre

6.3 Interviews

2 Mar 2017 — Interviewee: **Prof. Dr. William E. Seidelman**, University of Beer-Sheva, Israel
Interviewer: **Dr. Florian Schmaltz**
Other person present: **Prof. Dr. Volker Roelcke**, Giessen University
Vienna

5 – 6 Dec 2016 — Interviewee: **Dr. Eleonore Trefftz**, Emeritus Scientific Member and Head of Department at the Max Planck Institute for Astrophysics, Garching
Interviewers: **Birgit Kolboske** and **Dr. Luisa Bonolis**
Munich

20 Oct 2016 — Interviewee: **Prof. Dr. Reimar Lüst**, former President of the Max Planck Society
Interviewer: **Prof. Dr. Carsten Reinhardt, Prof. Dr. Jürgen Renn, Dr. Florian Schmaltz**
Berlin

2 Sept 2016 — Interviewee: **Dr. Dirk Hartung**, former Scientific Staff at the Max Planck Institute for Human Development, Berlin and Head of the General Workers Committee
Interviewer: **Birgit Kolboske**
Berlin

29 June 2016 — Interviewee: **Martha Roßmayer**, Head of Unit Family and Work at the General Administration of the Max Planck Society
Interviewer: **Birgit Kolboske**
MPG General Administration, Munich

23 Mar 2016 — Interviewee: **Prof. Dr. Hans Erich Bödeker**, former Research Associate at the Max Planck Institute for History, Göttingen
Interviewer: **Prof. Dr. Peter Schöttler**
Göttingen

23 Mar 2016 — Interviewee: **Dr. Sabine Krüger**, former Research Associate at the Max Planck Institute for History, Göttingen
Interviewer: **Prof. Dr. Peter Schöttler**
Göttingen

22 Mar 2016 Interviewee: **Prof. Dr. Peter Kriedte**, former Research Associate at the Max Planck Institute for History, Göttingen
Interviewer: **Prof. Dr. Peter Schöttler**
Other persons present: **Prof. Dr. Hans Medick**, Freie Universität Berlin **Prof. Dr. Alf Lüdtke**, University of Erfurt | **Prof. Dr. Jürgen Schlumbohm**, formally Max Planck Institute for History Göttingen

4 Mar 2016 Interviewee: **Prof. Dr. Etienne François**, former Director of the Mission Historique Française en Allemagne
Interviewer: **Prof. Dr. Peter Schöttler**
Berlin

8 Feb 2016 Interviewee: **Prof. Dr. Hans-Jörg Rheinberger**, Emeritus
7 Mar 2016 Director of the Max Planck Institute for the History of Science, Berlin
21 Mar 2016 Interviewer: **PD Dr. Alexander v. Schwerin**
Berlin

1 July 2015 Interviewee: **Prof. Dr. Brigitte Wittmann-Liebold**, former Head of
10 Dec 2015 Department at the Max Planck Institute for Molecular Genetics, Berlin
Interviewer: **PD Dr. Alexander v. Schwerin**
Berlin

23 Aug 2015 Interviewee: **Prof. Dr. Thomas Trautner**, Emeritus Director of the Max Planck Institute for Molecular Genetics, Berlin)
Interviewer: **PD Dr. Alexander v. Schwerin**
Berlin

23 June 2015 Interviewee: **Prof. Dr. Hans-Hilger Ropers**, Emeritus Director of the Max Planck Institute for Molecular Genetics, Berlin
Interviewer: **PD Dr. Alexander v. Schwerin**
Berlin

19 June 2015 Interviewee: **Prof. Dr. Hans Lehrach**, Emeritus Director of the Max Planck Institute for Molecular Genetics, Berlin
Interviewer: **PD Dr. Alexander v. Schwerin**
Berlin

1 Oct 2014 Interviewee: **Prof. Dr. Hans F. Zacher**, former President of the Max Planck Society
Interviewer: **Prof. Dr. Jürgen Kocka, Prof. Dr. Carsten Reinhardt**
Berlin

6.4 Preprints

1.

Thomas Steinhauser, Hanoch Gutfreund, and Jürgen Renn: "A Special Relationship: Turning Points in the History of German-Israeli Scientific Cooperation." *Ergebnisse des Forschungsprogramms Geschichte der Max-Planck-Gesellschaft*, Preprint 1. Edited by Florian Schmaltz, Jürgen Renn, Carsten Reinhardt, and Jürgen Kocka. Berlin 2017.

Abstract

A Special Relationship: Turning Points in the History of the German-Israeli Scientific Cooperation

In the relationship between West Germany and Israel the bilateral scientific cooperation is regarded as an 'icebreaker' for the troublesome development of a regular diplomatic and cultural exchange. The preprint "A Special Relationship: Turning Points in the History of German-Israeli Scientific Cooperation" sketches the evolution of bilateral scientific relations from the 1950s to the 1980s with the Max Planck Society and the Weizmann Institute of Science as leading institutions and complements earlier historical interpretations with new, broadened horizons. As a result of contingent obstacles and opportunities the path dependent formation of these bilateral relations in close mutual connection between scientific and political agendas highlights reasons for long-term changes in German and Israeli science and society. Moreover, it reveals new contexts for the development of a more conscious attitude of the MPG towards science policy.

2.

Peter Schöttler: "Das Max-Planck-Institut für Geschichte im historischen Kontext: Die Ära Heimpel." ["The Max Planck Institute for History: The Heimpel Era."] *Ergebnisse des Forschungsprogramms Geschichte der Max-Planck-Gesellschaft*, Preprint 2. Edited by Florian Schmaltz, Jürgen Renn, Carsten Reinhardt, and Jürgen Kocka. Berlin 2017.

Abstract

Das Max-Planck-Institut für Geschichte im historischen Kontext: Die Ära Heimpel

The Max Planck Institute for History, which was inaugurated on 13 July 1957 in Göttingen in the presence of Federal President Theodor Heuss, plays a special role in the history of the MPG. It was one of the first institutes for the humanities, following the institutes for international and private law and the Bibliotheca Hertziana, and also, with never more than twenty scholars, one of the smallest. Nonetheless, in its fifty years of existence it has had such substantial influence that its closure in 2006 attracted a great deal of attention, also internationally. Even today the books and papers produced by this institute continue to be emphasized as innovative and

quoted in important professional discussions. On the basis of archival material in the Archives of the MPG but also in the Federal Archive in Koblenz, the University Archive in Heidelberg, and the German Literature Archive in Marbach, the preprint gives a sketch of the origins and the evolution of the MPI for History during the 'era' of its first director, Hermann Heimpel. Beginning as a rather traditional research institute focused on German mediaeval history, preparing scholarly editions and bibliographies, the institute moved rapidly forward, the modern history department being a driving force of innovation. Especially due to the winning of Dietrich Gerhard, a German émigré teaching at Washington University in Saint Louis, as head of department and later Scientific Member of the MPG, the institute opened up to questions critical of the tradition and to international contacts in a way that was very atypical at the time. Heimpel's and Gerhard's successors, Josef Fleckenstein and Rudolf Vierhaus, took up these impulses and transformed the MPI for History into one of the most important centers of scholarly innovation in the field of historical research.

3.

Luisa Bonolis and Juan-Andres Leon: "Astronomy, Astrophysics and Space Science in the Max Planck Society: A Preliminary Synthesis." *Ergebnisse des Forschungsprogramms Geschichte der Max-Planck-Gesellschaft*, Preprint 3. Edited by Florian Schmaltz, Jürgen Renn, Carsten Reinhardt, and Jürgen Kocka. Berlin 2017. (in preparation)

Abstract

Astronomy, Astrophysics and Space Science in the Max Planck Society: A Preliminary Synthesis

This preprint presents the results of the first stage of our research on the history of cosmic science research in the Max Planck Society. It proposes a disciplinary cluster composed of distinct scientific families as analytical framework to explain the interrelationships between the many independent and geographically distributed Max Planck Institutes in the field, and introduces a narrative based on the predominant political, social, and economic forces of consecutive historical periods.

The document shows how these different zeitgeists interacted with contemporary scientific developments and interests, determining the evolution of the participating Max Planck Institutes, from their methodologies and instrumentation to their preferred forms of scientific organization and collaboration throughout the second half of the 20th century.

4.

Birgit Kolboske: "'Forschung rund um die Uhr: Notwendigkeit oder Ideologie?' Der Aufbruch der MPG in die Chancengleichheit, 1988–1998." ["Doing Research 24/7 – Imperative or Ideology? Towards Equal Opportunities in the MPG."] *Ergebnisse des Forschungsprogramms Geschichte der Max-Planck-Gesellschaft*, Preprint 4. Edited by Florian Schmaltz, Jürgen Renn, Carsten Reinhardt, and Jürgen Kocka. (in preparation)

Abstract

"Forschung rund um die Uhr: Notwendigkeit oder Ideologie?" Der Aufbruch der MPG in die Chancengleichheit, 1988–1998

How are relations of domination and inequality implemented, perpetuated – and eventually changed within an established hierarchical social system such as that of the Max Planck Society? This has been the guiding question in analyzing the early gender equality process within in the MPG from 1988 to 1998.

In the late 1980s the MPG had to address its own gender structure, which trailed notably behind, both at international and national level. The gender policy initiated in reaction to that was based upon three pillars: (a) a Senate decision in March 1995 about the "Principles for the Advancement of Women"; (b) a General Works Agreement on the "Equality of Women and Men" in 1996; and (c) the Framework for the Advancement of Women in 1998. Achieving and implementing that three-stage plan required intense negotiations despite numerous top-down measures intended to mitigate or slow down this process. In assessing and analyzing this process and identifying the key actors involved, the "Historical Equal Opportunities" portfolio in the Munich registry of the MPG provided a privileged inside perspective, thus allowing to answer questions such as: What made the MPG consider affirmative action for female scientists? What resistances and obstacles had to be met? And it showed that the biggest challenge was to trigger the process of rethinking gender stereotypes.

6.5 Publications

Includes publications of the scholars of the GMPG Research Program and visiting scholars since their affiliation with the research program as well as selected publications of the members of the executive committee.

Adloff, Frank, Ansgar von Klein and Jürgen Kocka (eds.): *Kapitalismus und Zivilgesellschaft.* Berlin: De Gruyter 2016.

Balcar, Jaromír: "Selbstbedienungsladen der reichsdeutschen Großindustrie? Die Eigentumsordnung des 'Protektorats Böhmen und Mähren' und die Verfügungsrechte des tschechischen Kapitals am Beispiel der Prager Eisen-Industrie-Gesellschaft." In: Dieter Gosewinkel, Roman Hole and Jiři Pešek (eds.): *Eigentumsregime und Eigentumskonflikte im 20. Jahrhundert. Deutschland und die Tschechoslowakei im internationalen Kontext.* Essen: Klartext, in print.

–: "'Czechization' versus 'Germanization'. Creating a National Homogeneous Economy in Czechoslovakia (1918–1945)." In: Christoph Kreutzmüller, Michael Wildt and Mosche Zimmermann (eds.): *National Economies. Volks-Wirtschaft, Racism and Economy in Europe Between the Wars (1918–1939/45).* Newcastle upon Tyne: Cambridge Scholars Publishing 2015, 239–255.

–: "Tschechoslowakei. Zwischen NS-Besatzungsherrschaft und kommunistischer Diktatur." In: Deutsches Historisches Museum (ed.): *1945. Niederlage, Befreiung, Neuanfang. Zwölf Länder Europas nach dem Zweiten Weltkrieg.* Darmstadt: Theiss 2015, 46–59.

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Blum, Alexander S., Luisa Bonolis, Roberto Lalli and Jürgen Renn: "La relatività dopo la guerra." *Le Scienze. Edizione italiana di Scientific American* 567 (2015), 48–53.

Blum, Alexander S., Kostas Gavroglu, Christian Joas and Jürgen Renn (eds.): *Shifting Paradigms. Thomas S. Kuhn and the History of Science.* Berlin: Edition Open Access 2016. http://www.edition-open-access.de/proceedings/8/index.html.

Blum, Alexander S. and Christian Joas: "From Dressed Electrons to Quasiparticles. The Emergence of Emergent Entities in Quantum Field Theory." *Studies in History and Philosophy of Modern Physics* 53 (2016), 1–8. doi:10.1016/j.shpsb.2015.10.005.

–: "The Renaissance of General Relativity. How and Why it Happened." *Annalen der Physik* 528/5 (2016), 344–349.

Blum, Alexander S., Jürgen Renn and Matthias Schemmel: "Experience and Representation in Modern Physics. The Reshaping of Space." In: Matthias Schemmel (ed.): *Spatial Thinking and External Representation. Towards a Historical Epistemology of Space.* Berlin: Edition Open Access 2016, 191–212.

Bonah, Christian and Florian Schmaltz: "From Witness to Indictee. Eugen Haagen and his Court Hearings from the Nuremberg Medical Trial (1946–47) to the Struthof Medical Trails (1952–54)." In: Paul Weindling (ed.): *From Clinic to Concentration Camp. Reassessing Nazi Medical and Racial Research, 1933–1945*, Abingdon: Routledge 2017, 293–313.

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Kocka, Jürgen: see also Adloff, Klein and Kocka.

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6.6 List of Abbreviations

AMPG: Archiv der Max-Planck-Gesellschaft / Archives of the Max Planck Society
ArCHO: Archival Cultural Heritage Online
AVA: Aerodynamische Versuchsanstalt / Aerodynamic Research Establishment
BMS: Biologisch-Medizinische Sektion / Biology and Medicine Section
CERN: Conseil Européen pour la Recherche Nucléaire / European Organization for Nuclear Research
CPTS: Chemisch-Physikalisch-Technische Sektion / Chemistry, Physics and Technology Section
GI: Garching Instruments Ltd.
GMPG: Geschichte der Max-Planck-Gesellschaft / "History of the Max Planck Society"
GWDG: Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen
HSS: Human Sciences Section / Geistes-, Sozial- und Humanwissenschaftliche Sektion
IPP: Max Planck Institute for Plasma Physics / Max-Planck-Institut für Plasmaphysik (Garching)
KWG: Kaiser-Wilhelm-Gesellschaft zur Förderung der Wissenschaften / Kaiser Wilhelm Society for the Advancement of Science
KWI: Kaiser-Wilhelm-Institut / Kaiser Wilhelm Institute
MHFA: Mission Historique Française en Allemagne
MPE: Max-Planck-Institut für Extraterrestrische Physik / Max Planck Institute for Extraterrestrial Physics (Garching)
MPG: Max-Planck-Gesellschaft / Max Planck Society
MPI: Max-Planck-Institut / Max Planck Institute
MPIA: Max-Planck-Institut für Astronomie / Max Planck Institute für Astronomy (Heidelberg)
MPICC: Max-Planck- Institut für ausländisches und internationales Strafrecht / Max Planck Institute for Foreign and International Criminal Law (Freiburg)
MPIeR: Max-Planck-Institut für europäische Rechtsgeschichte / Max Planck Institute for European Legal History (Frankfur am Main)
MPIfR: MPI für Radioastronomie / MPI for Radio Astronomy (Bonn)
MPIG: Max-Planck-Institut für Geschichte / Max Planck Institute for History
MPIK: Max-Planck-Institut für Physik / Max Planck Institute for Nuclear Physics (Heidelberg)
MPIL: Max-Planck-Institut für ausländisches Öffentliches Recht und Völkerrecht / Max Planck Institute for Comparative Public Law and International Law (Heidelberg)
MPIPRIV: Max-Planck-Institut für ausländisches und internationals Privatrecht / Max Planck Institute for Comparative and International Private Law (Hamburg)
MPIWG: Max-Planck-Institut für Wissenschaftsgeschichte / Max Planck Institute for the History of Science (Berlin)
NER: Named-Entity Recognition

OCR:	Optical Character Recognition
PLATIN:	Place and Time Navigator
SA:	Sturmabteilung
SS:	Sicherheitsstaffel
WASt:	Wehrmachtsauskunftsstelle (Deutsche Dienststelle für die Benachrichtigung der nächsten Angehörigen von Gefallenen der ehemaligen deutschen Wehrmacht)


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