

Opening New Windows on the Cosmos:

Astronomy and Astrophysics in the History of the Max Planck Society

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Content, concept, and goals:

In the post-World War II period, the physics landscape dramatically changed. The rapid growth of the physics population as well as the related pace of specialization and information overload deeply affected the relationship between physicists and their fields of research at various levels, both conceptually and sociologically. One of the more striking phenomena occurring in the aftermath of World War II was the sudden expansion and evolution of a set of mutually related fields: cosmic ray research, multi-wavelength astronomy, physical cosmology, extra-terrestrial and solar system physics, high-energy astrophysics, and general relativity as a physical theory, fuelling the development of relativistic astrophysics. These developments took place on the background of new technological advances sparked and pushed by WWII and the Cold War in parallel with the development of high speed computers and within the new scientific dimension inaugurated by the advent of the space era. All this resulted in a close relationship between the several observational techniques and instruments typical of astronomy and astrophysics, which established connections to virtually every subfield of physics. These radical changes had deep impact on, and were reflected in, changing organizational structures for pursuing scientific research.

The historical study of the dynamics of the progressive development in astrophysical and astronomical research projects related to the institutional framework of the Max Planck Society is particularly suited to explore in detail the connection between global transformation and local factors in the shaping of scientific activities. With its foundation, the Max Planck Society (MPG) took over institutes and research traditions from its predecessor, the Kaiser Wilhelm Society, which reflected the developments from the German Empire to the Nazi dictatorship. Gradually the MPG adapted itself as a pillar of the research topography of the young Federal Republic of Germany and began to modify its agenda setting up new arenas of operation. Astrophysics was one of the most significant of these early new research fields, regarding institutional changes, personnel, equipment, and publicity. The onset of the space age, that deeply reoriented the research policy of the MPG, contributed to create the premise for a more general reorganization of the fields of astrophysics and astronomy resulting in the creation of novel dedicated institutes.

Moreover, the MPG continued and intensified this commitment throughout the years until now, enabling its scientists to participate fully in the dramatic development of the field, up to the present branching out into all fields of modern **astrophysics, astronomy and physical cosmology**. Such an observation raises questions about the co-development of astrophysics and the MPG as an important part of the national and international research system. Obviously, due to the political, military, and economic integration in the Western Bloc of the Cold War the postwar limitations of astrophysical research in the FRG transformed into new opportunities and chances. But there was also the context of the international development of the astrophysical scientific community and new technological advances. And, of course, national and regional research politics as well as personal activities and decisions inside of the MPG also had an influence on the activities of the astrophysical research groups.

In the present workshop we bring historians of science and physicists in dialogue in order to explore the relationship between scientific and institutional developments, with the aim to specify the ways in which the specific interplay of the three levels (the international scientific developments, the peculiar political situation of post-War West Germany, the personal decisions of leading actors) affected the performance of the astrophysical research inside of the MPG and its international impact.

About the Research Program History of the Max Planck Society

(<http://gmpg.mpiwg-berlin.mpg.de/en/>)

The Research Program “History of the Max Planck Society” (Geschichte der Max-Planck-Gesellschaft, GMPG) has emerged from Department I and its work in the historical epistemology of scientific institutions. Initiated by the president of the Max Planck Society (MPG) Peter Gruss the program assumed its work with the approval of president Martin Stratmann in June 2014. Jürgen Kocka (Berlin Science Center), Jürgen Renn, Carsten Reinhardt (Chemical Heritage Foundation, Philadelphia) form a board with Florian Schmaltz as research director.

The research program aims at a comprehensive analysis of the MPG history embedded in the contexts of contemporary history and history of science. The research period under investigation covers the Society’s foundation in 1948 and ends with the presidency of Hubert Markl in 2002. Concerning the former presidential commission on the history of the Kaiser Wilhelm Society in National Socialism as well as the completion of the Aufbau Ost program the investigation will be extended until 2005. The research program has a focus on the dynamic interactions of research practice and institutional history; on the changes in working methods and research objectives of the MPG; on its local and global networks and how these are embedded in science, society and politics. Given that more than 80 institutes existed in 2002 plus 20 more that have been closed since 1948, the objective is not so much to investigate the history of individual institutes as a comprehensive approach allowing us to study clusters of institutes active in the same scientific field.

To understand the fundamental and global changes in the modern world, a history of the twentieth century must acknowledge the tremendous impact of science and technology on political, economic, military, and social developments. In order to understand contemporary history of science, it is crucial to investigate Germany’s most prominent research organization: the Max Planck Society.

Despite numerous institute chronicles and anniversary editions, supplemented by a few significant historical case studies, the MPG still largely remains *terra incognita*. The ongoing research project on the history of the MPG will open new and so far neglected vistas on the contemporary history, politics, and economic development of the *Bundesrepublik Deutschland* and its international relations. Who were the key actors and networks? Where has the MPG paved the way for innovations? What were its successes and failures? How are its institutional structures connected to its scientific achievements? Does the MPG represent a *Sonderweg* in Germany?

Perceived in a self-reflexive perspective of historical epistemology, the MPG not only conducts research but becomes itself a field of research. Reflecting the massive investments in education and science in Western societies after the Sputnik crisis of 1957, historians of science are confronted with an exponential increase in information. Such big data requires innovative methodological approaches in the digital humanities to manage the vast complexity of research activities. The project is currently approaching this challenge with new tools and methods to cope with the complexity of big data by digitalizing numerous sources for full text research. In addition, bibliometric analysis will help to identify innovative research fields and the impact of MPG researchers in the sciences.