

MATHEMATISCHES FORSCHUNGSINSTITUT OBERWOLFACH

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**Mini-Workshop:  
History of Mathematics in Germany, 1920 - 1960**

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ABSTRACT. The Mini-Workshop dealt with the history of mathematics in Germany between 1920 and 1960, with a particular focus on the social history of mathematics. For the period under discussion research in the history of mathematics is faced with some fundamental problems, which cannot be addressed by individuals. Consequently the Mini-Workshop's aim was to develop future perspectives and methods for research and ways to organise new research projects. Among the topics addressed during the Mini-Workshop were the international relations of mathematicians in Germany before, during and after World War II; the prosopography of mathematicians in Germany from before 1933 into the 1950s; the role of mathematics as a key technology in World War II; and the professional policies from the 1920s to the 1950s.

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**Introduction by the Organisers**

The theme of this Mini-Workshop was the social history of mathematics in Germany between – roughly – the end of World War I and 1960. The aim of the workshop was to review previous research in this field and to discuss the perspectives and desiderata of future research on the issues involved. Particular attention was given to the development of mathematics in National Socialism, including the transitions from Weimar Germany to National Socialism and the implications of this period for mathematics in the two German states after 1945. A number of earlier studies (including, in particular, Reinhard Siegmund-Schultze's *Mathematicians Fleeing from Nazi Germany*, Princeton University Press 2009, in German: 1998, and the monograph by Sanford Segal: *Mathematicians under the Nazis*,

Princeton University Press 2003) have been first steps, but much remains to be done to reach a full historical understanding of the period.

As the social and political history of science in Germany has been the focus of several major research enterprises (a research programme of the Max Planck Society on the history of its predecessor, the Kaiser Wilhelm Society, in National Socialism; a research project on the history of the German Science Foundation DFG, RFR; and a *Schwerpunktprogramm* on science, politics and society in Germany in the late 19th and 20th centuries, funded by the DFG, SPP 1143; also, to a certain extent and limited to a disciplinary basis, the research project of the German Physicists' Association (DPG) on the history of physics during the Nazi period), an effort was made to bring in expertise from these related projects. Throughout the workshop it proved very helpful to be able to compare the research problems at hand with the experiences made in other research programmes of a similar nature.

The discussions during the week were structured according to the following themes.

- A prosopography of mathematicians in Germany, and the structural implications of emigration.
- The role of mathematics as a key technology in World War II.
- International relations of mathematicians and their changes.
- The professional politics of mathematicians.

A list of historical questions for the various themes had been provided to the participants before the mini workshop.

#### *A prosopography of mathematicians in Germany*

Prosopography – i.e., the systematic collection of standardised basic biographical data about a defined sample of persons – appears to be a suitable method to investigate crucial structural changes in the personnel of German mathematics across the political changes 1933 and 1945. While the emigration of mathematicians from Germany has been carefully studied, esp. by Siegmund-Schultze, the implications of this discontinuity for the community of mathematicians in National Socialism and thereafter are not very well known. Who took over the positions of those who were forced to leave the country? In whose hands were professional functions such as editorships, leading roles in societies, etc. after 1933? At present, our knowledge about such issues is more episodic than systematic. By proper prosopographical research it will become possible to raise further questions about the long-term implications of the changes after 1933. Which career patterns after 1945 emerge for those who entered the professional system of mathematics between 1933 and 1945? Which new groups came in during the early years of the *Bundesrepublik* and the *Deutsche Demokratische Republik*? Which professional networks were established, and what was their role after the war?

A crucial issue in systematic prosopography is the construction of a questionnaire about the relevant sample of persons that is (a) sufficiently informative for answering the historical questions raised and that can (b) be answered for each individual with reasonable effort. During the workshop, a considerable amount of time was used for such a discussion. One of the results of the workshop has been a preliminary version of such a questionnaire, and a feature list for a database that might be used to make available the results of such a prosopographical survey. – It is worth stressing that systematic research of this kind has not been done, so far, for a single scientific discipline in Germany.

#### *Mathematics as a key technology in World War II*

Despite several contributions by Mehrtens, Siegmund-Schultze, Epple and Remmert, the various roles of mathematics in the German war effort have been studied only very superficially to date. The prosopographical project outlined above can provide certain basic data also in this domain, but much further work needs to be done on the actual research in various technological, scientific, medical and administrative fields. Besides aviation and various branches of ballistics, the fields of electrical engineering and radio technology merit particular attention. In all these fields, applied mathematics and what was termed *Praktische Mathematik* played a considerable role as is documented for instance in the corresponding volumes of the FIAT reviews. Crucial institutions were involved (Alwin Walther, Darmstadt; Robert Sauer, Aachen) that continued to play an important role after 1945.

During the discussions in the workshop it turned out that particular attention might be given to the area reaching from applied statistics to basic research in probability theory. This seems to be a particularly interesting area in which theoretical developments, applications in engineering and economics, and highly politicised special developments in areas such as medical and racial statistics can be traced which are revealing for the general role of mathematics in National Socialism.

#### *International relations of German mathematicians before, in, and after World War II*

After the end of World War I, an international isolation of German mathematicians – imposed by foreign science policies but also partially endorsed from within – became a crucial problem for many mathematicians in Germany. The problem was aggravated after 1933 when isolation was increasingly forced by the German side, and international contacts were severed as a consequence of emigration. On the other hand, at least some international contacts were quickly sought after the end of World War II.

During the workshop, the changing patterns of international relations of German mathematicians were taken as a means to analyse certain important features of mathematical culture in the period under discussion. Which international relations were discontinued as a consequence of emigration? Which international relations could be continued after 1933, and which were first created under National Socialism? The last topic requires, in particular, a study of scientific relations with occupied countries during the war, a study that has barely begun and requires the cooperation with historians of mathematics from the countries involved.

For the period following World War II the question of renewed contacts to those that had left Germany was discussed, as were the few cases of a successful remigration. For those mathematical fields that, in Germany, had been largely abandoned during the Nazi period, such contacts turned out to be decisive for taking up a new research activity. Moreover, it turns out that an important and historically interesting site for studying the international relations of German mathematicians is the *Mathematisches Forschungsinstitut Oberwolfach*. In particular, contacts between French and German mathematicians were organised there that helped to reintegrate mathematical research in Germany. Of particular interest was the reception of Bourbaki in Germany, where Oberwolfach functioned as a catalyst. The present digitisation project of guest books and proceedings (*Vortragsbücher, Tagungsberichte*) was intensely discussed during the meeting; it promises interesting new insights into these developments (*Oberwolfach Digital Archive*, sponsored by the German Science Foundation).

#### *Professional policies*

A further area that can also be analysed in more detail on the basis of the prosopographical research sketched above are the changing patterns of professional politics of mathematicians. Which groups of mathematicians were pursuing which agendas, and in which networks and institutions? While the history of the German Mathematical Society (DMV) has been studied in some detail (Schapacher/Kneser, Remmert), further aspects such as the role of the GAMM or of mathematical policies in the hybrid research settings of German warfare remain to be investigated. As in all other topical areas of our discussion, it turns out that essential features of the post-war situation have been determined at least partially by the developments before 1945. Of course, an important aspect of professional politics after 1945 was the ‘politics of the past’ (*Vergangenheitspolitik*), i.e., the specific ways of representing, exploiting, or downplaying the involvement of German mathematicians in the Nazi state and in German warfare.

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