Preface

The present Volume is the fifth in a series of six presenting a selection from Hilbert's previously unpublished lecture notes on the foundations of mathematics and physics during the period from 1890 to 1933. Hilbert's lecture courses represent an enormous fund of learning and invention, and embrace almost every subject common in the mathematical sciences of his day, including mathematical physics. The notes therefore provide a remarkable record, sometimes almost from day to day, of the development of his foundational ideas, and show, in addition, his engagement with the work of other scientific figures of the first rank. The present Volume treats Hilbert's lectures on relativity, quantum theory and epistemology from the fall of 1915 on. During this period, Hilbert reached the height of his research investigations into the foundations of the natural sciences.

The structure of this Edition, the nature, location, and condition of the Hilbert lecture notes, their provenance, and what we have been able to reconstruct of their history, are all described in the general 'Introduction to the Edition', which is to be found at the beginning of Volume 1. That Introduction also explains in detail the criteria for the selection of the texts, the way in which they were edited, and general matters of textual policy. Those matters are uniform for the entire Edition, and we have not repeated the full account here. We do, however, include a brief description of the textual policies in section 5 of the introduction to this Volume. This section is intended to provide all the basic information necessary to a reading of the texts, above all, information concerning the policies specific to this Volume.

That these lectures are finally being published is the result of the efforts, over nearly two decades, of many individuals and institutions. The series as a whole is under the supervision of four General Editors, William Ewald, Michael Hallett, Ulrich Majer, and Wilfried Sieg, who bear the collective responsibility for editorial policy. For each individual volume, Volume Editors were designated to produce the final selection of texts and to write the scholarly apparatus; this work was carried out in consultation with the General Editors. The designated Editors for this Volume were Tilman Sauer and Ulrich Majer. It should be noted that Arne Schirrmacher worked on Hilbert's lectures on radiation theory presented in Chapter 5, and Heinz-Jürgen Schmidt worked on Hilbert's lectures on quantum theory presented in Chapter 6.

All the Editors wish to express their thanks to the Deutsche Forschungsgemeinschaft (DFG) for its generous financial support from 1993 to 2003. To edit even the mere fragment of the voluminous Hilbert *Nachlaß* that appears in these six volumes required a considerable institutional apparatus located in proximity to the archives in Göttingen. Without the assistance of the DFG, which enabled us to establish a permanent staff in Göttingen, the present Edition could never have been realized. Ulrich Majer, the General Editor who was constantly 'vor Ort', supervised the permanent staff and thus had the task of dealing with all the technical problems that an edition of this sort must inevitably face. We again acknowledge the indispensable scholarly, editorial and technical contributions to the Edition as a whole of Ralf Haubrich, Albert Krayer, Tilman Sauer and Arne Schirrmacher, all at one time full-time members of the permanent staff.

The final work for this particular Volume was made possible through the generous gift of a donor who has asked to remain anonymous. These funds made it possible for Tilman Sauer to be freed from his project duties as an editor of the *Collected Papers of Albert Einstein* for several months during the summers of 2006 and 2007 and devote himself exclusively to work on the present Volume. We wish to thank Tom Ryckman for his interest in the project and his assistance in securing this additional funding. We are also extremely grateful to Diana Kormos Buchwald, general editor of the *Collected Papers of Albert Einstein*, for her encouragement, patience and unfailing support. Her generous sharing of the office resources of the Einstein Papers Project with its sister project of the Hilbert Edition enabled Tilman Sauer to work on the Hilbert project without being exiled from home.

We thank the Institut für Wissenschaftsgeschichte at the University of Göttingen (in particular Lorraine Daston, its former director) for giving the project its first physical home and for recognizing its significance. We are also grateful to the Philosophisches Seminar at the University of Göttingen for space and support.

Numerous other institutions and individuals provided significant support for the Edition. In Göttingen, from the first, formative stages of the project, we received encouragement and advice from the late Martin Kneser, Samuel Patterson, Günther Patzig and Helmut Rohlfing. The Mathematisches Institut and the Niedersächsische Staats- und Universitätsbibliothek in Göttingen (SUB), the holders of the original Hilbert documents, granted the necessary permission for publication, for which we are deeply grateful.

The Institute for Advanced Study in Princeton, through the offices of Harry Woolf and Phillip Griffiths, provided the Editors with a collective working environment in the summer of 1997.

Carnegie Mellon University, the Georg-August-Universität Göttingen, the Universität Bern, hosted a series of conferences on Hilbert's unpublished foundational writings. The Poincaré Project at the Université Nancy 2 hosted

a conference on editing scientific papers. These meetings and conferences, in addition to their intellectual focus, provided occasion of personal encounter without which a collaboration of this sort cannot thrive. We also thank Peter Aichelburg and the Arbeitsgruppe Gravitationsphysik at the University of Vienna for generously providing office space for Tilman Sauer during the summer of 2008.

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This series of volumes was originally set up under the supervision of Ralf Haubrich, who played an essential role in the design of the overall editorial apparatus, which was subsequently greatly advanced by Albert Krayer. The preparation, organization and presentation of the two volumes on the natural sciences were largely in the hands of Tilman Sauer.

Finally, the responsible Editors of this Volume wish to thank their wives and families for their tolerance, patience, and support during the arduous and protracted tasks of the preparation and finishing of this volume.

The General Editors

William Ewald, Michael Hallett, Ulrich Majer, Wilfried Sieg

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