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To Kurt-R. Biermann,

the father of the historiography of Berlin mathematics.

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Preface

This little book is conceived as a service to mathematicians attending the 1998 International Congress of Mathematicians in Berlin. It presents a comprehensive, condensed overview of mathematical activity in Berlin, from Leibniz almost to the present day (without, however, including biographies of living mathematicians). Since many towering figures in mathematical history worked in Berlin, most of the chapters of this book are concise biographies. These are held together by a few survey articles presenting the overall development of entire periods of scientific life at Berlin.

Overlaps between various chapters and differences in style between the chapters were inevitable, but sometimes this provided opportunities to show different aspects of a single historical event – for instance, the Kronecker–Weierstrass controversy.

The book aims at readability rather than scholarly completeness. There are no footnotes, only references to the individual bibliographies of each chapter. Still, we do hope that the texts brought together here, and written by the various authors for this volume, constitute a solid introduction to the history of Berlin mathematics.

One cannot write about this history without constantly paying tribute to the fundamental and extensive work of Kurt-R. Biermann. This work is most visible in (although not at all exhausted by) his book *Die Mathematik und ihre Dozenten an der Berliner Universität 1810–1933, Stationen auf dem Wege eines mathematischen Zentrums von Weltgeltung*, Akademie Verlag, Berlin 1988, which is the standard reference for the subject, and at least a latent reference for all chapters of this book. We dedicate our book to Kurt-R. Biermann, the father of the historiography of Berlin mathematics.

The table of contents will guide the reader in detail. Let us simply indicate here the main periods of mathematical development in Berlin:

The Academy, 1700–1810. Leibniz was the initiator and first president of the Berlin Academy. Afterwards Euler worked there for 25, and Lagrange for 21 years.

First decades of the University, 1810–appr. 1850. This period began with the opening of the University. The budding mathematical life was strongly marked by non-mathematicians such as Alexander von Humboldt and A.L. Crelle. Outstanding mathematicians at the time were Abel, Dirichlet, Eisenstein, Jacobi, and Steiner.

The Golden Age, appr. 1850–1891. The outstanding period in the history of mathematics in Berlin is embodied by the triumvirate Kummer, Weierstrass, and Kronecker. Young mathematicians came to Berlin from everywhere to study here. For the first time, the mathematical courses were structured in systematic cycles, allowing students to take all the basic courses in a few years.

Interim, 1892–1918. A period of relative decline during which Göttingen clearly took the lead. Important figures for this period were L. Fuchs, F.G. Frobenius, F. Schottky, H.A. Schwarz, and the young E. Landau as a lecturer.

A new start, 1918–1932. E. Schmidt, I. Schur, L. Bieberbach (before taking the Nazi turn) and R. von Mises created a stimulating mathematical center.

The Nazi period, 1933–1945. Berlin mathematics under Hitler was marked by a radical politization of the discipline, the so-called Deutsche *Mathematik*, a Nazi movement (and a journal) whose Berlin exponents included, in particular, L. Bieberbach, O. Teichmüller, and T. Vahlen.

Post–World War II, 1945–1953. During the first years of the Cold War, a strong center of pure mathematics briefly flourished at the university in (East) Berlin, around E. Schmidt, H.L. Schmid and H. Hasse.

Separate histories, 1948–1990. During the existence of the German Democratic Republic the development at the university and the academy in East Berlin was increasingly independent of the evolution at the *Freie Universität* and the *Technische Hochschule* in the western part of the city.

Since the reunification, 1990. Hopes for a new mathematical flowering continue despite financial difficulties.

One topic that is only very incompletely covered in this book is the history of mathematical journals that were founded in or directed from Berlin. In particular, review journals played an important role in the mathematical life of this city: Berlin is the birthplace of the first mathematical review journal, the *Jahrbuch*, and the offices of the *Zentralblatt* were transferred here in 1940 and amalgamated with those for the *Jahrbuch*. Below is the list of mathematical journals that were founded in Berlin:

Journal für die reine und angewandte Mathematik ("*Crelle*"), founded in 1826
Jahrbuch für die Fortschritte der Mathematik, 1870–1942
Sitzungsberichte der Berliner Mathematischen Gesellschaft, founded in 1901
Mathematische Zeitschrift, founded in 1918
Zeitschrift für angewandte Mathematik und Mechanik, founded in 1921
Schriften des Mathematischen Instituts und des Instituts für angewandte Mathematik der Universität Berlin, 1932–1940/41
Deutsche Mathematik, 1936–1943
Mathematische Nachrichten, founded in 1948
Zeitschrift für mathematische Logik und Grundlagen der Mathematik, founded in 1955
Biometrische Zeitschrift, founded in 1959
Annals of Global Analysis and Geometry, founded in 1983.

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We hope that this small volume will interest readers in the mathematical past and present of the German capital, and continue to serve as a reliable introduction to further reading beyond the 1998 ICM.

Berlin, March 1998 The Editors