

Preface

Mathematics is one of the oldest and most important sciences. Mathematical knowledge is indispensable for any analytical work and understanding. In its beginnings, it was firmly linked to other sciences like astronomy and physics. Later, it partially evolved into an independent science called “pure mathematics”. Advances in science and technology, however, brought about a further development of mathematical applications. Today, mathematics is one of the basic sciences which, besides its “classical” fields of application, is present everywhere: in psychology, in sports, in the arts, in medicine, in agriculture and food technology, in gambling, in the stock exchange market, and many other areas. Within this tradition, mathematics holds a firm place in education, starting with elementary school up to university teaching with a vast variety of mathematical applications and services.

The wealth of mathematical knowledge and the methods of teaching mathematics are reflected in mathematical publications. The need to document this literature and to improve its accessibility was already recognized in the 19th century. FIZ Karlsruhe has taken on this task right from the time of its foundation, using modern information technology. Together with other European partners and the publishing house Springer, FIZ Karlsruhe offers and edits ZMATH, the world’s largest searchable bibliographical database in mathematics. The information offer is complemented by a similar database covering mathematical education, MathEduc, and the database STMA-Z focusing on statistical applications.

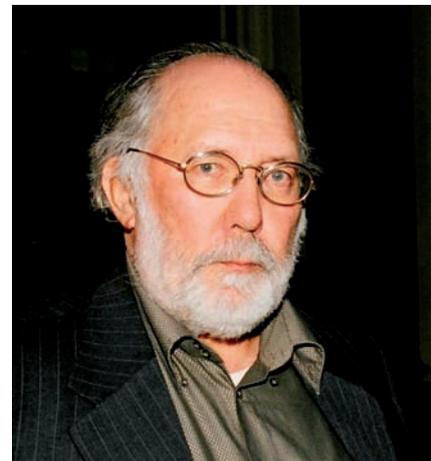
This brochure presents the service spectrum mentioned above, which also includes ELibM, the most comprehensive collection of freely accessible electronic full texts of mathematical publications. In addition, practical examples illustrate how information retrieved from databases can be used in biographical research, and for finding solutions to long-term problems and unexpected applications in mathematics.

This brochure is dedicated to Dr. Peter Luksch, former Vice President Content and Services, who retired at the end of 2007.

Sabine Brünger-Weilandt and Bernd Wegner



Sabine Brünger-Weilandt
President & CEO, FIZ Karlsruhe



Prof. Dr. Bernd Wegner
Editor in Chief, Zentralblatt MATH