

Preface

The *IBM Journal of Research and Development* has presented several special issues on the work of the Mathematical Sciences Department at the IBM Thomas J. Watson Research Center. The present issue coincides with the Department's 40th anniversary. The included papers reflect both our legacy and our future directions.

The Mathematical Sciences Department has the opportunity to play a small but important role in a wide range of scientific and business activities within IBM, ranging from the design of products to methods for planning and operating business units. In these projects, which typically include colleagues from within and outside the Research Division, we contribute analysis, models, algorithms, and sometimes software. These interactions, and the knowledge we acquire of how mathematics can be broadly used within IBM, influence the direction of our work.

Through our involvement with universities and professional societies, we participate in the broader community of practitioners and researchers in fields related to the mathematical sciences. We provide insight on how mathematics can be used in new and emerging businesses, on the role of mathematics in the evolution of technology, and on scientific and mathematical computation. In addition, in cooperation with colleagues we continue to advance basic knowledge in the mathematical sciences.

The papers in this issue reflect only a portion of our current activity. Interested readers can find examples of our work in e-commerce in the *IBM Systems Journal*, Volume 41, Number 3, 2002, and can learn more about the Department by visiting our Web site, <http://www.research.ibm.com/math/>.

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