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Michael Kohlhase (Ed.)

Mathematical Knowledge Management

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Revised Selected Papers

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Preface

This volume contains the proceedings of the Fourth International Conference on Mathematical Knowledge Management MKM 2005 held July 15–17, 2005 at International University Bremen, Germany. Previous conferences have been at the Research Institute for Symbolic Computation (RISC) Linz, Austria (September 2001), at Bertinoro, Italy (March 2003), and Bialowiecze, Poland (September 2004).

Mathematical knowledge management (MKM) is a field in the intersection of mathematics and computer science, providing new techniques for managing the enormous volume of mathematical knowledge available in current mathematical sources and making it available through the new developments in information technology.

The annual MKM Conference brings together mathematicians, software developers, publishing companies, math organizations, math users, and educators to exchange their views and approaches, current activities and new initiatives.

For the first time, MKM 2005 chose to have post-conference proceedings, as otherwise the submission deadline would have collided with other conferences and crimped time since MKM 2004 in September 2004. The decision also facilitated keeping the conference open to new ideas as well as keeping up the maturity of the papers necessary for inclusion into archival proceedings. With a May 15 deadline, MKM 2005 received 38 submissions. Each submission was reviewed by at least three programme committee members. The committee decided to accept 27 papers for presentation at the conference. Out of these, 26 papers were accepted for publication in the conference proceedings after re-evaluation by the Programme Committee since they included significant improvements triggered by the referee reports and the discussions at the conference.

As MKM is a small conference with a tightly knit community of authors, submissions by Programme Committee members were allowed: six submissions included committee members, but the review process was kept inaccessible to them. One submission was co-authored by the Program Chair; its review process was organized independently by Bill Farmer.

The papers in this volume cover the whole area of mathematical knowledge management. Topics range from foundations and the representational and document-structure aspects of mathematical knowledge, over process questions like authoring, migration, and consistency management by automated theorem proving to applications in eLearning and case studies.

I am grateful to Tom Hales for agreeing to give an invited talk at MKM 2005, to the Programme Committee, and the external reviewers for their excellent work and dedication to the MKM 2005 program. The work of the Programme Committee and the preparation of the proceedings were greatly simplified by Andrei Voronkov's excellent `EasyChair` system.

October 2005 Michael Kohlhase

Conference Organization

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The local organization was carried out by the Conference Chair in collaboration with Events4, a conference organization company founded and operated by IUB students.

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