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Proceedings of the Third International
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Preface

The goal of the AMAST conferences is to foster algebraic methodology as a foundation for software technology, and to show that this can lead to practical mathematical alternatives to the ad-hoc approaches commonly used in software engineering and development. The first two AMAST conferences, held in May 1989 and May 1991 at the University of Iowa, were well received and encouraged the regular organization of further AMAST conferences on a biennial schedule. The third Conference on Algebraic Methodology and Software Technology was held in the campus of the University of Twente, The Netherlands, during the first week of Summer 1993. Nearly a hundred people from all continents attended the conference.

The largest interest received by the AMAST conference among the professionals extended to include the administration organizations as well. AMAST'93 was opened by the Rector of the University of Twente, followed by the Local Chairman. Their opening addresses open this proceedings, too.

The proceedings contains 8 invited papers and 32 selected communications. The selection was very strict, for 121 submissions were received. The topics of the invited papers and selected communications cover both theory and practice, and span a wide variety of algebraic and software development issues, including: algebraic metamathematics, functional programming, relation algebra, order-sorted algebra, category theory in software engineering, modular system design, real-time system specification, testing theory and applications, algebraic semantics of concurrency, process algebra, modal logics and reactive systems, design and refinement principles, object-oriented design and programming, equational and logic programming, algebraic specification in software engineering.

The AMAST goal motivates interest in showcasing software systems that have been developed, or help development, by algebraic methods, techniques and tools. This was materialized in the AMAST'93 programme by seven demonstrations of such systems. One of them relates to the communication by Eric Wagner; short descriptions of the other six systems form the closing part of this proceedings.

In addition to the proceedings, a special issue of the journal *Theoretical Computer Science* is dedicated to AMAST'93, where some of the selected communications appear in extended form.

With AMAST'93, besides research, education has taken a distinguished place within the scope of AMAST, and the first conference day, referred to as the Education Day, was devoted to the topic of mathematical education of software developers. Hans-Jörg Kreowski opened the Education Day with an invited talk on *Some tentative thoughts on teaching computer science*. A lively discussion ensued immediately after his talk. Two sessions then followed, each with an invited talk and an open, informal discussion; conclusions were drawn by Hans-Jörg Kreowski. Yuri Gurevich moderated the morning session on education in which Teodor Rus presented his interpretation of the invited talk *Mathematics of computation for (software and other) engineers* of David Parnas, prevented from attending the conference by a medical emergency. The conference expressed sympathy and best wishes for a complete recovery to David Parnas. István Németi moderated the afternoon session on education in which Jacques Printz gave an invited talk on *Mathematical training for the software developers: a practical experience*, based on his extensive professional experience in applying formalism to large software development projects. Space constraints prevent the inclusion of contributions to the Education Day in this proceedings, but the Organizing Committee is exploring avenues to make these available, possibly in refined form to a wide audience.

In continuity with the tradition of the AMAST conferences, very low registration fees were made possible by generous support from the sponsors. The main financial resources were granted by the Commission of the European Communities, within the ESPRIT Basic Research Programme, and by the US Office of Naval Research. Additional financial and organizational support was provided by the universities and institutions represented in the Organizing Committee, and by the British Department of Trade and Industry. The AMAST'93 conference was held under the auspices and with the cooperation of EATCS, ACM SIGACT and SIGSOFT, ASL, BCS FACS, and by the ESPRIT Basic Research working groups ASMICS and COMPASS.

The numerous and well-qualified offers to host future AMAST meetings testify to the interest in the AMAST goals. The fourth AMAST conference will be held at Concordia University, Montréal, Canada, on July 3–7 1995, and will be organized by V.S. Alagar. Then AMAST'96 will follow, at München University, Germany, and will be organized by Martin Wirsing. As can be inferred from this, and in view of the growing number of submissions, the AMAST conference series will become an annual event after AMAST'95. Holding these conferences more frequently will allow a wider recognition of original contributions to the AMAST goals and will give greater opportunities for success in the effort to capture the attention of the entire spread of those working in software engineering.

August 1993

M. Nivat
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