Call for Papers

Workshop on

Computer-Supported Mathematical Theory Development

in the frame of

IJCAR 2004

`http://www.risc.uni-linz.ac.at/conferences/IJCAR-WS7`

July 4-5, 2004, Cork, Ireland

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Important Dates

May 2: Deadline for submission.

May 25: Notification of acceptance/rejection.

June 6: Camera-ready copy.

July 4-5: Workshop.

Submission

The workshop welcomes submissions in two categories:

- ◇ high quality research papers up to 20 pages and
- ◇ work in progress papers up to 10 pages.

Electronic submission is obligatory. See the webpage for technical submission details. Submissions undergo a standard reviewing process by the program committee.

Proceedings and Publication

Informal proceedings will be available at the venue. Proceedings will be published in the RISC-Technical-Report series and will be available online. Properly published proceedings are planned if the quality of the submissions allows.

Topics and Scope

Mathematical reasoning tools, such as computer algebra systems, theorem provers, decision procedures, etc., are increasingly employed in mathematics and engineering. Also large repositories of formalized mathematics are currently emerging. It is nevertheless the case that the actual pragmatics of mathematics is still to be characterized as mainly pen and paper based. One reason is that still no convincing systems exist that provide a sufficiently *integrated support* for the usual work phases of a mathematician, e.g. from initial conception and organization of ideas up to the final publication in a journal article.
The aim of this IJCAR workshop is to bring together people interested in the vision of fully integrated support environments for mathematics. A special focus of the workshop is on computer-support for the development of mathematical theories. Mathematical theory development describes the formulation, organization, manipulation, and maintenance of mathematical content. Support for adequate interaction with the (human) mathematician is mandatory in this context.
Thus, computer-supported mathematical theory development comprises

- ◇ the formulation of mathematical statements in a computer-processable form,
- ◇ computer-support in processing mathematical content; depending on the content, this can mean "proving", "computing", "solving", "visualizing", "checking", "simulating", "conjecturing", etc.
- ◇ the systematic organization and maintenance in and the powerful retrieval of mathematical knowledge from computer-accessible media,
- ◇ the management of change in the development of mathematical knowledge,
- ◇ the publication and presentation of mathematical material using new and/or well-established computer-based publication or presentation formats, and
- ◇ the interaction between the human mathematician and the supporting software.

We solicit submissions addressing the design and implementation of frameworks aiming at *integrated support for the entire process of theory development*. Clearly, there is still a big gap between the systems envisioned and the systems already available and this gap has to be overcome in the future. Therefore also partial solutions are welcome if their relevance for the bigger vision is illustrated.

Format of the Workshop

The workshop features presentations of systems or concepts that contribute to the successful automatization of mathematical theory development. The preferred style of contribution contains as the *main part a system-demo* that illustrates the capabilities of the proposed system in the development of (parts of) some commonly known and easy to understand mathematical theory. We invite authors of accepted papers to give extended system-demos.