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Algebraic Biology

Third International Conference, AB 2008
Castle of Hagenberg, Austria, July 31–August 2, 2008
Proceedings

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Preface

This volume contains the proceedings of the Third International Conference on Algebraic Biology (AB 2008). Jointly organized by the National Institute of Advanced Industrial Science and Technology (AIST), Tokyo, and the Research Institute for Symbolic Computation (RISC), Hagenberg, Austria, it was held from July 31 to August 2, 2008 in the Castle of Hagenberg.

Algebraic biology is an interdisciplinary forum for research on all aspects of applying symbolic computation in biology. The first conference on algebraic biology (AB 2005) was held November 28–30, 2005 in Tokyo, the second during July 2–4, 2007 in Hagenberg. The AB conference series is intended as a bridge between life sciences and symbolic computation: On the one hand, new insights in biology are found by powerful symbolic methods; on the other hand, biological problems suggest new algebraic structures and algorithms. While this profile has been established in the previous proceedings, the papers in the present volume demonstrate the continuous growth of algebraic biology.

We received 27 submissions from 14 countries (Australia, Austria, Canada, China, Colombia, France, Germany, Italy, Japan, Norway, Russia, Switzerland, UK, USA), and 14 papers were accepted for publication. Each submission was assigned to at least three Program Committee members, who carefully reviewed the papers, in many cases with the help of external referees. The reviews were discussed by the Program Committee for one week via the EasyChair conference management system.

Since the last conference, life sciences tutorials and symbolic computation tutorials have been organized as additional platforms for stimulating exchange between the communities. The idea of life sciences tutorials is to explain important problems of the area and survey past/current approaches by mathematical methods. Conversely, the goal of symbolic computation tutorials is to present the most important and successful methods in symbolic computation to experts in biology. This year we had three life sciences and three symbolic computation tutorials; three tutorial speakers submitted papers.

Furthermore, a new session—short communications with posters—was introduced for encouraging the presentation of interesting but “not-yet-polished” ideas, in particular unconventional proposals carrying the potential of creating new links between biology and symbolic computation. Despite the late announcement, six communications were submitted from five countries (Austria, France, Japan, Ukraine, USA), and five communications were accepted through a peer-viewing procedure by Program Committee members. The extended abstracts were distributed in a special booklet at the conference.

We are pleased to continue our collaboration with Springer, who agreed to publish the proceedings of AB 2007 and AB 2008 in the *Lecture Notes in Computer Science* series.

The AB Steering Committee and the organizers of the conference are grateful to the following sponsors: Austrian Grid, National Institute of Advanced Industrial Science and Technology, Radon Institute for Computational and Applied Mathematics (RICAM), RISC Software GmbH, Special Research Program SFB F013 of the Austrian Science Fund (FWF), and the Upper Austrian Government.

Our thanks are also due to all the members of the Program Committee, to the invited and tutorial speakers, to the external reviewers, and to all those who contributed to a successful and enjoyable conference.

August 2008

Bruno Buchberger
Katsuhisa Horimoto
Reinhard Laubenbacher
Bud Mishra
Georg Regensburger
Markus Rosenkranz
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