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Algebra and Coalgebra in Computer Science

First International Conference, CALCO 2005
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Proceedings



Springer

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Preface

In April 2004, after one year of intense debate, CMCS, the International Workshop on Coalgebraic Methods in Computer Science, and WADT, the Workshop on Algebraic Development Techniques, decided to join their forces and reputations into a new high-level biennial conference. CALCO, the Conference on Algebra and Coalgebra in Computer Science, was created to bring together researchers and practitioners to exchange new results related to foundational aspects, and both traditional and emerging uses of algebras and coalgebras in computer science. A steering committee was put together by merging those of CMCS and WADT: Jiri Adamek, Ataru Nakagawa, Michel Bidoit, José Fiadeiro (co-chair), Hans-Peter Gumm, Bart Jacobs, Hans-Jörg Kreowski, Ugo Montanari, Larry Moss, Peter Mosses, Fernando Orejas, Francesco Parisi-Presicce, John Power, Horst Reichel, Markus Roggenbach, Jan Rutten (co-chair), and Andrzej Tarlecki.

CALCO 2005 was the first instance of this new conference. The interest that it generated in the scientific community suggests that it will not be the last. Indeed, it attracted as many as 62 submissions covering a wide range of topics roughly divided into two areas:

Algebras and Coalgebras as Mathematical Objects: Automata and languages; categorical semantics; hybrid, probabilistic, and timed systems; inductive and coinductive methods; modal logics; relational systems and term rewriting.

Algebras and Coalgebras in Computer Science: Abstract data types; algebraic and coalgebraic specification; calculi and models of concurrent, distributed, mobile, and context-aware computing; formal testing and quality assurance; general systems theory and computational models (chemical, biological, etc); generative programming and model-driven development; models, correctness and (re)configuration of hardware/middleware/architectures; re-engineering techniques (program transformation); semantics of conceptual modelling methods and techniques; semantics of programming languages; validation and verification.

Every submission received three or four reviews, which were generally of excellent quality. We want to thank all reviewers, the list of which is at the end of this preface, for carrying out their task with competence and precision, but also with the enthusiasm that comes from contributing to the birth of a new conference. Decisions were made during two weeks of animated e-mail discussion. In the end, a total of 25 papers were selected, the revised versions of which can be found in this volume. We were also lucky to have invited talks by three expert researchers: Samson Abramsky, Gordon Plotkin and Vladimiro Sassone. We are very grateful to the three of them.

The technical programme of the conference was preceded by a Young Researchers Workshop, CALCO-jnr, dedicated to presentations by PhD students and by those who had completed their doctoral studies in recent years, thus following on one of the traditional features of WADT. A technical report collects contributions selected from

the presentations. CALCO-jnr was organized by Peter Mosses, John Power and Monika Seisenberger. A meeting of the IFIP WG1.3 – Foundations of System Specification – took place immediately after the conference and was hosted by Peter Mosses.

The project of hosting this first edition of CALCO was seized with both hands by a young and enthusiastic team led by Neal Harman and Markus Roggenbach from the University of Wales Swansea. The organizers would like to thank John V. Tucker and Monika Seisenberger for their invaluable advice and support, and IT Wales and the support staff, especially Sue Phillips, for making the event possible. CALCO 2005 received generous contributions from the Welsh Development Agency (WDA), IFIP, BCS-FACS, Digita and IT Wales.

Alfred Hofmann and his team at Springer lent us their support from Day –1 by agreeing to publish this volume. The work of the PC was supported by the Conference Online Service; Tiziana Margaria, Bernhard Steffen and their team deserve all our applause; it was very reassuring to feel that Martin Karusseit was available 24 hours a day, 7 days a week, but the truth is that we only needed him to sort out our own silly mistakes ...

We would like to reserve our final words of thanks to all the authors who have contributed such good quality papers to CALCO 2005.

June 2005

José Luiz Fiadeiro and Jan Rutten
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