



Preface

This volume contains the proceedings of RC 2009, the *Workshop on Reversible Computation*, held on 22nd March 2009 in York, United Kingdom, as a satellite event of ETAPS 2009, the *12th European Joint Conferences on Theory and Practice of Software*.

Reversible computation has a growing number of promising application areas such as the modelling of biochemical systems, program debugging and testing, database recovery, discrete event simulation, reversible algorithms, reversible specification formalisms, reversible programming languages and process algebras, and even programming languages for quantum computing. RC 2009 addresses these research areas as well as topics concerning the development of reversible computers, including reversible logic gates and networks and reversible processor architectures.

This workshop aims at being a forum for researchers and students interested in new developments, and directions for future investigation, in the field of reversible computation. One of the specific goals of the workshop is to establish cooperation among experts from a variety of fields of computer science and software engineering who are interested in reversibility. RC 2009 aims also at widening the knowledge of reversible computation among postgraduate students and young researchers from the UK and abroad.

The program committee of RC 2009 consisted of:

- Charles H. Bennett, IBM Research, USA
- Vincent Danos, University of Edinburgh, UK
- Alexis De Vos, Gent University, Belgium
- Rolf Drechsler, University of Bremen, Germany
- Zhenjiang Hu, NII, Japan
- Armando B. Matos, University of Porto, Portugal
- Kenichi Morita, Hiroshima University, Japan
- Iain Phillips, Imperial College London, UK
- Irek Ulidowski, (chair) University of Leicester, UK
- Paul Vitányi, CWI, The Netherlands

- Tetsuo Yokoyama, Nagoya University, Japan
- Paolo Zuliani, Carnegie Mellon University, USA

The submitted papers were refereed by the program committee and by several outside referees, whose help is gratefully acknowledged. Two full papers were accepted out of five submissions. In addition, the programme committee accepted four short work-in-progress papers.

The invited speakers at the conference were Alexis De Vos (Gent University, Belgium), Kenichi Morita (Hiroshima University, Japan), Tommaso Toffoli (Boston University, USA) and Tetsuo Yokoyama (Nanzan University, Japan). We are particularly grateful to them for the papers that they have written for these proceedings.

We are grateful to ENTCS for their continuing support, in particular to Mike Mislove, Managing Editor of the series.

We are very grateful to the ETAPS 2009 organisers for taking care of all the local organisation and for accommodating our requests. The Engineering and Physical Sciences Research Council (EPSRC) has sponsored the invited speakers and has partially funded participation of eight PhD students in the workshop: we gratefully acknowledge their support. Thanks are also due to the University of Leicester.

Irek Ulidowski