Preface

This volume contains the proceedings of SOS 2007, the *Fourth Workshop on Structural Operational Semantics*, held on the 9th of July 2007 in Wrocław, Poland, as a affiliated workshop of LICS 2007, the *Twenty-Second Annual IEEE Symposium on Logic in Computer Science*, and ICALP 2007, the *34th International Colloquium on Automata, Languages and Programming.*

Structural operational semantics (SOS) provides a framework for giving operational semantics to programming and specification languages. A growing number of programming languages from commercial and academic spheres have been given usable semantic descriptions by means of structural operational semantics. Because of its intuitive appeal and flexibility, structural operational semantics has found considerable application in the study of the semantics of concurrent processes. Moreover, it is becoming a viable alternative to denotational semantics in the static analysis of programs, and in proving compiler correctness.

Recently, structural operational semantics has been successfully applied as a formal tool to establish results that hold for classes of process description languages. This has allowed for the generalisation of well-known results in the field of process algebra, and for the development of a meta-theory for process calculi based on the realization that many of the results in this field only depend upon general semantic properties of language constructs.

The SOS workshop series aims at being a forum for researchers, students and practitioners interested in new developments, and directions for future investigation, in the field of structural operational semantics. One of the specific goals of the series is to establish synergies between the concurrency and programming language communities working on the theory and practice of SOS. It also aims at widening the knowledge of SOS among postgraduate students and young researchers worldwide.

The first SOS workshop took place on the 30th of August 2004 in London (UK) as a satellite event of CONCUR 2004, the *Fifteenth International Conference on Concurrency Theory*, and marked the publication of two special volumes (60–61) of the *Journal of Logic and Algebraic Programming* devoted to SOS; the proceedings appeared as ENTCS volume 128, issue 1. The second SOS workshop took place on the 10th of July 2005 in Lisbon (Portugal) as a satellite event of ICALP 2005, the *The 32nd International Colloquium on Automata, Languages and Programming*; its proceedings appeared as ENTCS volume 156, issue 1, and a special issue of *The-*

oretical Computer Science based on selected papers appeared in 2007. The third SOS Workshop occurred on the 26th of August 2006 in Bonn as a satellite workshop of CONCUR 2006, the *Seventeenth International Conference on Concurrency Theory*, and its proceedings appeared as ENTCS volume 175, issue 1. A special issue of *Information and Computation* on Structural Operational Semantics inspired by SOS 2006 is in preparation.

Programme committee:
- Luca Aceto (Aalborg, DK; Reykjavík, IS)
- Rocco De Nicola (Florence, IT)
- Rob van Glabbeek (NICTA, AU, co-chair)
- Reiko Heckel (Leicester, UK)
- Matthew Hennessy (Sussex, UK, co-chair)
- Bartek Klin (Warsaw, PL)
- Ugo Montanari (Pisa, IT)
- MohammadReza Mousavi (Eindhoven, NL)
- Prakash Panangaden (Montreal, CA)
- Grigore Rosu (Urbana-Champaign IL, USA)
- Simone Tini (Insubria, I)
- Shoji Yuen (Nagoya, JP)

The submitted papers were carefully refereed by the programme committee assisted by outside referees, whose help is gratefully acknowledged. The papers chosen for presentation, together with the invited talk by Pawel Sobocinski, gave rise to a very interesting workshop, demonstrating the vitality of current research into Structural Operational Semantics. The authors were then invited to revise the preliminary version of their papers, taking into account the comments and discussions during the workshop. This volume is the result of these revisions.

Invited speaker:
Pawel Sobocinski (Southampton, UK) addressed SOS 2007 on *A well-behaved LTS for the Pi-calculus*.

Publication:
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Organisation:
We are grateful to Marcin Bieńkowski for taking care of the local organisation, and for mediating in the printing of a preliminary version of these proceedings, distributed at the workshop. Support from National ICT Australia and the University of Sussex is also gratefully acknowledged.

Rob van Glabbeek (National ICT Australia)   *August 2007*
Matthew Hennessy (University of Sussex)