

# Preface

The 13th edition of the International Conference on Software Engineering and Formal Methods (SEFM) was held in York, UK, during September 7–11, 2015. The conference brought together researchers and practitioners from academia, industry, and government to advance the state of the art in formal methods, to facilitate their uptake in the software industry, and to encourage their integration within practical software engineering methods and tools.

Authors were invited to submit full research papers describing original research results, case studies, and tools; and short new ideas/work-in-progress papers describing new approaches, techniques, and/or tools not fully validated yet. The topics of interest included the following aspects of software engineering and formal methods:

- Formal requirement analysis, modelling, specification and design
- Abstraction and refinement
- Formal methods for probabilistic verification and synthesis
- Programming languages, program analysis, and type theory
- Formal methods for self-adaptive systems, service-oriented, and cloud computing
- Formal aspects of security and mobility
- Model checking, theorem proving, and decision procedures
- Formal methods for real-time, hybrid, and embedded/cyber-physical systems
- Formal methods for safety-critical, fault-tolerant, and secure systems
- Software architecture and coordination languages
- Software verification and validation
- Component, object, and multi-agent systems
- Formal aspects of software evolution and maintenance
- Formal methods for testing, re-engineering, and reuse
- Light-weight and scalable formal methods
- Tool integration
- Applications of formal methods, industrial case studies, and technology transfer
- Education and formal methods
- Interactive systems and human error analysis
- Formal methods for HCI
- Formal analysis of human behavior

SEFM 2015 received 96 submissions. All submitted papers underwent a rigorous review process, each paper receiving three reviews. After a careful discussion phase, the international Program Committee decided to select 17 research papers and six new ideas/work-in-progress papers. These papers cover a wide variety of topics from areas where formal methods can be applied to software engineering. They also address a broad range of application domains.

The conference featured three keynote talks, by Peter O'Hearn (University College London and Facebook, UK), Cliff Jones (Newcastle University, UK), and Edward A. Lee

(University of California at Berkeley, USA). Their talks are partially reflected through invited papers that can be found at the beginning of this volume.

Four international workshops were colocated with SEFM 2015:

- ATSE – 6th Workshop on Automating Test Case Design, Selection and Evaluation
- HOFM – Human-Oriented Formal Methods: From Readability to Automation
- MoKMaSD – 4th International Symposium on Modelling and Knowledge Management Applications: Systems and Domains
- VERY\*SCART: International Workshop on the Art of Service Composition and Formal Verification for Self-\* Systems

We would first like to thank the SEFM 2015 General Chair, Jim Woodcock, for his support with planning and running the conference. We thank our Program Committee assistant, Robert Eikermann, for his great assistance with the review process and with putting the present volume together, the local Organization Committee Simon Foster, Bob French, Simos Gerasimou, Seyyed Shah, and Chris Walker for taking care of the local arrangements, the SEFM Steering Committee for their assistance, and the Workshop Chair Domenico Bianculli for supervising the workshop organization. We are grateful to EasyChair for the support with the paper submission and reviewing process, and with the preparation of this volume. We have been able to put together an exciting technical program that would not have been possible without the excellent work of the Program Committee and their external reviewers. Finally, we would like to thank the authors of all submitted papers, our invited speakers, and all the participants of the conference in York, all of whom contributed to the success of the 2015 edition of SEFM.

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