4th International Conference on Formal Structures for Computation and Deduction

FSCD 2019, June 24–30, 2019, Dortmund, Germany

Edited by

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Preface

The 4th International Conference on Formal Structures for Computation and Deduction (FSCD 2019) was held June 24–30, 2019 in Dortmund, Germany. FSCD (http://fscd-conference.org/) covers all aspects of formal structures for computation and deduction, from theoretical foundations to applications. Building on two communities, RTA (Rewriting Techniques and Applications) and TLCA (Typed Lambda Calculi and Applications), FSCD embraces their core topics and broadens their scope to closely related areas in logics and proof theory, new emerging models of computation (e.g. homotopy type theory or quantum computing), semantics and verification in new challenging areas (e.g. blockchain protocols or deep learning algorithms). The FSCD program featured four invited talks given by Beniamino Accattoli (Inria, Paris, France), Amy Felty (University of Ottawa, Canada), Sarah Winkler (University of Innsbruck, Austria) and Hongseok Yang (KAIST, South Korea). FSCD 2019 received 69 submissions with contributing authors from 18 countries. The program committee consisted of 32 members from 18 countries. Each submitted paper has been reviewed by at least three PC members with the help of 105 external reviewers. The reviewing process, which included a rebuttal phase, took place over a period of eight weeks. A total of 30 papers, 29 regular research papers and one system description paper, were accepted for publication and are included in these proceedings.

The Program Committee awarded two FSCD 2019 Best Paper Awards for Junior Researchers: Mirai Ikebuchi for the paper "A Lower Bound of The Number of Rewrite Rules Obtained by Homological Methods", and Jonathan Sterling, Carlo Angiuli and Daniel Gratzer for the paper "Cubical Syntax for Reflection-Free Extensional Equality". Mirai Ikebuchi is a graduate student and Jonathan Sterling, Carlo Angiuli and Daniel Gratzer are all PhD students.

In addition to the main program, 7 FSCD-associated workshops were planned on days before and mostly after the conference:

- 8th International Workshop on Confluence, IWC 2019,
- 10th Workshop on Higher Order Rewriting, HOR 2019,
- IFIP Working Group 1.6: Rewriting IFIP Meeting 2019 - 22nd edition,
- 3d Workshop on Trends in Linear Logic and Applications, TLLA 2019,
- 6th International Workshop on Rewriting Techniques for Program Transformations and Evaluation, WPTE 2019,
- 33nd International Workshop on Unification, UNIF 2019,
- 5th International Workshop on Structures and Deduction, SD 2019.

This volume of the proceedings of FSCD 2019 is published in the LIPIcs series under a Creative Common license: online access is free to all papers and authors retain rights over their contributions. We thank the Leibniz Center for Informatics at Schloss Dagstuhl, in particular Michael Wagner for his efficient and reactive support during the production of these proceedings.

Many people have helped to make FSCD 2019 a successful meeting. On behalf of the Program Committee, I thank the many authors of submitted papers for considering FSCD as a venue for their work and the invited speakers who have agreed to speak at this meeting. The Program Committee and the external reviewers deserve big thanks for their careful review and evaluation of the submitted papers. (The members of the Program Committee and the list of external reviewers can be found on the following pages.) The EasyChair conference management system has been a useful tool in all phases of the work of the Program

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Committee. The associated workshops have made a big contribution to the lively scientific atmosphere of this meeting and I thank the workshop organizers for their efforts in bringing their meetings to Dortmund and the local Workshop Chair, Boris Düdder, for making the workshops run smoothly. Jakob Rehof, the Conference Chair for FSCD 2019, deserves a very warm thanks for the over all organisation of FSCD 2019, for the smooth functioning of the meeting and for producing the web site. Sandra Alves, as Publicity Chair, made a great contribution in advertising the Conference. The steering committee, lead by Delia Kesner, provided valuable guidance in setting up this meeting and in ensuring that FSCD will have a bright and enduring future. Finally, I thank all participants of the conference for creating a lively and interesting event.

On behalf of the FSCD community, I would like to thank the City of Dortmund, the TU Dortmund University, and the U-Tower for providing the venue of FSCD 2019. I furthermore would like to thank MAXIMAGO, the Friends of the TU Dortmund, and the Alumni of the Faculty of Informatics (aido) for supporting FSCD 2019. The Center of Excellence Logistics & IT (Leistungszentrum Logistik und IT), is gratefully acknowledged as scientific partner of FSCD 2019.

Herman Geuvers
Program Chair of FSCD 2019

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