

# 5th International Conference on Formal Structures for Computation and Deduction

FSCD 2020, June 29–July 6, 2020,  
Paris, France (Virtual Conference)

Edited by

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LIPICs

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*ACM Classification 2012*

Theory of computation → Models of computation; Theory of computation → Formal languages and automata theory; Theory of computation → Logic; Theory of computation → Semantics and reasoning; Software and its engineering → Language features; Software and its engineering → Formal language definitions; Software and its engineering → Formal methods

**ISBN 978-3-95977-155-9**

*Published online and open access by*

Schloss Dagstuhl – Leibniz-Zentrum für Informatik GmbH, Dagstuhl Publishing, Saarbrücken/Wadern, Germany. Online available at <https://www.dagstuhl.de/dagpub/978-3-95977-155-9>.

*Publication date*

June, 2020

*Bibliographic information published by the Deutsche Nationalbibliothek*

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <https://portal.dnb.de>.

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Digital Object Identifier: 10.4230/LIPIcs.FSCD.2020.0

**ISBN 978-3-95977-155-9**

**ISSN 1868-8969**

**<https://www.dagstuhl.de/lipics>**

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Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany

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## ■ Preface

This volume contains the proceedings of the 5th International Conference on Formal Structures for Computation and Deduction (FSCD 2020). The conference was planned to be held June 29 through July 6, 2020, in Paris, France, co-located with the 10th International Joint Conference on Automated Reasoning (IJCAR 2020). Due to the COVID-19 pandemic, FSCD 2020 was instead held virtually. The conference (<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 include closely related areas in logics and proof theory, new emerging models of computation, semantics and verification in new challenging areas.

The FSCD program featured four invited talks given by René Thiemann (University of Innsbruck), Andrew Pitts (University of Cambridge), Simona Ronchi della Rocca (Università di Torino), and Brigitte Pientka (McGill University). FSCD 2020 received 81 submissions with contributing authors from 28 countries. The program committee consisted of 35 members from 16 countries. Each submitted paper has been reviewed by at least three PC members with the help of 98 external reviewers. The reviewing process, which included a rebuttal phase, took place over eight weeks. A total of 28 regular research papers and 5 system description papers were accepted for publication and are included in these proceedings. The Program Committee awarded two FSCD 2020 Best Paper Awards by Junior Researchers: Petar Vukmirović, Alexander Bentkamp and Visa Nummelin for the paper “Efficient Full Higher-Order Unification”, and Andrej Dudenhefner for the paper “Undecidability of Semi-unification on a Napkin”. This year we also introduced the Best System Description Award by Junior Researchers, and the winner was Ankush Das for the paper “Resource-Aware Session Types with Arithmetic Refinements” (co-authored with Frank Pfenning).

In addition to the main program, 9 FSCD-associated workshops were held, also virtually:

- IWC International Workshop on Confluence
- IFIP WG 1.6 Rewriting IFIP Meeting - 23rd edition
- Linearity & TLLA Joint workshop on Linearity and Trends in Linear Logic and Applications
- UNIF International Workshop on Unification
- WPTE International Workshop on Rewriting Techniques for Program Transformations and Evaluation
- WiL2020 Women in Logic
- HoTT/UF Workshop on Homotopy Type Theory/Univalent Foundations
- GeoCat Geometric and Categorical Structures for Computation and Deduction
- TERMGRAPH International Workshop on Computing with Terms and Graphs

This volume of FSCD 2020 is published in the LIPIcs series under a Creative Commons 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 and Michael Didas for their prompt replies to any questions regarding the production of these proceedings.



On behalf of the Program Committee, I thank the many authors of submitted papers for considering FSCD as a venue for their work and all of the speakers for adapting their presentations to a virtual environment. The Program Committee and the external reviewers deserve thanks for their careful and detailed reviews 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 Committee.

The associated workshops made a big contribution to the lively scientific atmosphere of this virtual meeting. I thank the workshop organizers and local Workshop Chair, Giulio Manzonetto, for their efforts and enthusiasm in making sure that workshops continued to be an important element of FSCD. Stefano Guerrini, the Conference Chair, deserves appreciation for rearranging the overall organization of the conference and for the smooth functioning of the virtual meeting. Sandra Alves, as Publicity Chair, made a significant contribution in advertising the conference. The steering committee, led by Delia Kesner, provided excellent guidance in setting up this meeting and in ensuring that FSCD will have a bright and enduring future.

FSCD 2020 was held in-cooperation with ACM SIGLOG and ACM SIGPLAN. It was supported by Université Sorbonne Paris Nord, LIPN (Laboratoire d'Informatique de Paris Nord), IRIF (Institut de Recherche en Informatique Fondamentale), CNRS (Centre National de la Recherche Scientifique), INRIA (Institut National de Recherche en Informatique et en Automatique), Tezos, and Amazon. Finally, I thank all of the participants of the virtual conference for contributing to the success of the event in spite of the unusual circumstances that we faced this year.

Zena M. Ariola  
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