

5th International Conference on Formal Structures for Computation and Deduction

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

Edited by

Zena M. Ariola



Editors

Zena M. Ariola

University of Oregon, Eugene, Oregon, USA
ariola@cs.uoregon.edu

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■ Contents

Preface	
<i>Zena M. Ariola</i>	0:ix–0:x
Steering Committee	
.....	0:xi
Program Committee	
.....	0:xiii
External Reviewers	
.....	0:xv
Authors	
.....	0:xvii–0:xix

Invited Talks

Solvability in a Probabilistic Setting	
<i>Simona Ronchi Della Rocca, Ugo Dal Lago, and Claudia Faggian</i>	1:1–1:17
A Modal Analysis of Metaprogramming, Revisited	
<i>Brigitte Pientka</i>	2:1–2:3
Quotients in Dependent Type Theory	
<i>Andrew M. Pitts</i>	3:1–3:2
Certifying the Weighted Path Order	
<i>René Thiemann, Jonas Schöpf, Christian Sternagel, and Akihisa Yamada</i>	4:1–4:20

Regular Papers

Efficient Full Higher-Order Unification	
<i>Petar Vukmirović, Alexander Bentkamp, and Visa Nummelin</i>	5:1–5:17
Comprehension and Quotient Structures in the Language of 2-Categories	
<i>Paul-André Melliès and Nicolas Rolland</i>	6:1–6:18
A Complete Normal-Form Bisimilarity for Algebraic Effects and Handlers	
<i>Dariusz Biernacki, Sergueï Lenglet, and Piotr Polesiuk</i>	7:1–7:22
Pomsets with Boxes: Protection, Separation, and Locality in Concurrent Kleene Algebra	
<i>Paul Brunet and David Pym</i>	8:1–8:16
Undecidability of Semi-Unification on a Napkin	
<i>Andrej Dudenhefner</i>	9:1–9:16
Conditional Bisimilarity for Reactive Systems	
<i>Mathias Hülsbusch, Barbara König, Sebastian Küpper, and Lars Stollenow</i>	10:1–10:19

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A Fast Decision Procedure For Uniqueness of Normal Forms w.r.t. Conversion of Shallow Term Rewriting Systems <i>Masaomi Yamaguchi and Takahito Aoto</i>	11:1–11:23
Modules over Monads and Operational Semantics <i>André Hirschowitz, Tom Hirschowitz, and Ambroise Lafont</i>	12:1–12:23
Type Safety of Rewrite Rules in Dependent Types <i>Frédéric Blanqui</i>	13:1–13:14
Refining Constructive Hybrid Games <i>Rose Bohrer and André Platzer</i>	14:1–14:19
Data-Flow Analyses as Effects and Graded Monads <i>Andrej Ivašković, Alan Mycroft, and Dominic Orchard</i>	15:1–15:23
A Profunctorial Scott Semantics <i>Zeinab Galal</i>	16:1–16:18
String Diagrams for Optics <i>Guillaume Boisseau</i>	17:1–17:18
A Reflection on Continuation-Composing Style <i>Dariusz Biernacki, Mateusz Pyzik, and Filip Sieczkowski</i>	18:1–18:17
A Probabilistic Higher-Order Fixpoint Logic <i>Yo Mitani, Naoki Kobayashi, and Takeshi Tsukada</i>	19:1–19:22
Adaptive Non-Linear Pattern Matching Automata <i>Rick Erkens and Maurice Laveaux</i>	20:1–20:21
On Average-Case Hardness of Higher-Order Model Checking <i>Yoshiki Nakamura, Kazuyuki Asada, Naoki Kobayashi, Ryoma Sin'ya, and Takeshi Tsukada</i>	21:1–21:23
Size-Preserving Translations from Order- $(n + 1)$ Word Grammars to Order- n Tree Grammars <i>Kazuyuki Asada and Naoki Kobayashi</i>	22:1–22:22
A Syntax for Mutual Inductive Families <i>Ambrus Kaposi and Jakob von Raumer</i>	23:1–23:21
Towards Constructive Hybrid Semantics <i>Tim Lukas Diezel and Sergey Goncharov</i>	24:1–24:19
A Gentzen-Style Monadic Translation of Gödel's System T <i>Chuangjie Xu</i>	25:1–25:17
Unital Anti-Unification: Type and Algorithms <i>David M. Cerna and Temur Kutsia</i>	26:1–26:20
Symbolic Execution Game Semantics <i>Yu-Yang Lin and Nikos Tzevelekos</i>	27:1–27:24
Strongly Normalizing Higher-Order Relational Queries <i>Wilmer Ricciotti and James Cheney</i>	28:1–28:22

Semi-Axiomatic Sequent Calculus <i>Henry DeYoung, Frank Pfenning, and Klaas Pruiksma</i>	29:1–29:22
Constraint Solving over Multiple Similarity Relations <i>Besik Dundua, Temur Kutsia, Mircea Marin, and Cleopatra Pau</i>	30:1–30:19
Encoding Agda Programs Using Rewriting <i>Guillaume Genestier</i>	31:1–31:17
The Difference λ -Calculus: A Language for Difference Categories <i>Mario Alvarez-Picallo and C.-H. Luke Ong</i>	32:1–32:21

System Descriptions

Rast: Resource-Aware Session Types with Arithmetic Refinements <i>Ankush Das and Frank Pfenning</i>	33:1–33:17
Hierarchy Builder: Algebraic hierarchies Made Easy in Coq with Elpi <i>Cyril Cohen, Kazuhiko Sakaguchi, and Enrico Tassi</i>	34:1–34:21
The New Rewriting Engine of Dedukti <i>Gabriel Hondet and Frédéric Blanqui</i>	35:1–35:16
WANDA – a Higher Order Termination Tool <i>Cynthia Kop</i>	36:1–36:19
A Type Checker for a Logical Framework with Union and Intersection Types <i>Claude Stolze and Luigi Liquori</i>	37:1–37:24

■ 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
Program Chair of FSCD 2020

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■ List of Authors


Mario Alvarez-Picallo  (32)
University of Oxford, UK


Takahito Aoto  (11)
Niigata University, Niigata, Japan

Kazuyuki Asada  (21, 22)
Tohoku University, Sendai, Japan


Alexander Bentkamp  (5)
Vrije Universiteit Amsterdam, The Netherlands

Dariusz Biernacki  (7, 18)
University of Wrocław, Poland


Frédéric Blanqui  (13, 35)
Université Paris-Saclay, ENS Paris-Saclay,
CNRS, Inria, France; Laboratoire Spécification
et Vérification, Cachan, France

Rose Bohrer  (14)
Carnegie Mellon University, Pittsburgh, PA,
USA

Guillaume Boisseau  (17)
University of Oxford, UK


Paul Brunet  (8)
University College London, UK;
paul.brunet-zamansky.fr

David M. Cerna (26)
Johannes Kepler University Linz, Austria

James Cheney  (28)
Laboratory for Foundations of Computer
Science, University of Edinburgh, UK


Cyril Cohen (34)
Université Côte d'Azur, Inria, Sophia Antipolis,
France

Ugo Dal Lago (1)
Dipartimento di Informatica, Università di
Bologna, Italy

Ankush Das  (33)
Carnegie Mellon University, Pittsburgh, PA,
USA

Henry DeYoung (29)
Computer Science Department, Carnegie Mellon
University, Pittsburgh, PA, USA

Tim Lukas Diezel (24)
FAU Erlangen-Nürnberg, Germany

Andrej Dudenhefner  (9)
Saarland University, Saarbrücken, Germany


Besik Dundua (30)
FBT, International Black Sea University, Tbilisi,
Georgia; VIAM, Ivane Javakishvili Tbilisi State
University, Georgia

Rick Erkens (20)
Eindhoven University of Technology, The
Netherlands

Claudia Faggian (1)
Université de Paris, IRIF, CNRS, France

Zeinab Galal (16)
Université de Paris, IRIF, CNRS, Paris, France

Guillaume Genestier (31)
Université Paris-Saclay, ENS Paris-Saclay, Inria,
CNRS, LSV, France; MINES ParisTech, PSL
University, France


Sergey Goncharov  (24)
FAU Erlangen-Nürnberg, Germany

André Hirschowitz (12)
Université Côte d'Azur, CNRS, Nice, France


Tom Hirschowitz (12)
Univ. Grenoble Alpes, Univ. Savoie Mont Blanc,
CNRS, LAMA, 73000 Chambéry, France


Gabriel Hondet (35)
Université Paris-Saclay, ENS Paris-Saclay,
CNRS, Inria, Laboratoire Spécification et
Vérification, Gif-sur-Yvette, France

Mathias Hülsbusch (10)
Universität Duisburg-Essen, Germany

Andrej Ivašković  (15)
Department of Computer Science and
Technology, University of Cambridge, UK

Ambrus Kaposi  (23)
Eötvös Loránd University, Budapest, Hungary

Naoki Kobayashi  (19, 21, 22)
The University of Tokyo, Japan

Cynthia Kop  (36)
Radboud University, The Netherlands

Temur Kutsia (26, 30)
Johannes Kepler University Linz, Austria

Barbara König (10)
Universität Duisburg-Essen, Germany


Sebastian Küpper (10)
FernUniversität in Hagen, Germany

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- Ambroise Lafont (12)
University of New South Wales, Sydney,
Australia
- Maurice Laveaux  (20)
Eindhoven University of Technology, The
Netherlands
- Sergueï Lenglet  (7)
Université de Lorraine, Nancy, France
- Yu-Yang Lin (27)
Queen Mary University of London, UK
- Luigi Liquori (37)
Université Côte d'Azur, Nice, France; Inria
Sophia Antipolis - Méditerranée, France
- Mircea Marin (30)
West University of Timișoara, Romania
- Paul-André Melliès  (6)
CNRS, Institut de Recherche en Informatique
Fondamentale (IRIF), Université de Paris,
France
- Yo Mitani (19)
The University of Tokyo, Japan
- Alan Mycroft  (15)
Department of Computer Science and
Technology, University of Cambridge, UK
- Yoshiki Nakamura  (21)
Tokyo Institute of Technology, Japan
- Visa Nummelin  (5)
Vrije Universiteit Amsterdam, The Netherlands
- C.-H. Luke Ong  (32)
University of Oxford, UK
- Dominic Orchard  (15)
School of Computing, University of Kent, UK
- Cleopatra Pau (30)
Johannes Kepler University, Research Institute
for Symbolic Computation, Linz, Austria
- Frank Pfenning (29, 33)
Computer Science Department, Carnegie Mellon
University, Pittsburgh, PA, USA
- Brigitte Pientka  (2)
McGill University, Montreal, QC, Canada
- Andrew M. Pitts  (3)
Department of Computer Science & Technology,
University of Cambridge, UK
- André Platzer  (14)
Carnegie Mellon University, Pittsburgh, PA,
USA; Technische Universität München,
Germany
- Piotr Polesiuk  (7)
University of Wrocław, Poland
- Klaas Pruiksma (29)
Computer Science Department, Carnegie Mellon
University, Pittsburgh, PA, USA
- David Pym  (8)
University College London, UK;
www.cantab.net/users/david.pym/
- Mateusz Pyzik  (18)
Institute of Computer Science, University
Wrocław, Poland
- Wilmer Ricciotti  (28)
Laboratory for Foundations of Computer
Science, University of Edinburgh, UK
- Nicolas Rolland (6)
Institut de Recherche en Informatique
Fondamentale (IRIF), Université de Paris,
France
- Simona Ronchi Della Rocca (1)
Dipartimento di Informatica, Università di
Torino, Italy
- Kazuhiko Sakaguchi (34)
University of Tsukuba, Japan
- Jonas Schöpf  (4)
University of Innsbruck, Austria
- Filip Sieczkowski  (18)
Institute of Computer Science, University
Wrocław, Poland
- Ryoma Sin'ya  (21)
Akita University, Japan
- Christian Sternagel  (4)
DVT, Innsbruck, Austria
- Lars Stoltenow (10)
Universität Duisburg-Essen, Germany
- Claude Stolze (37)
IRIF, Université de Paris, France
- Enrico Tassi (34)
Université Côte d'Azur, Inria, Sophia Antipolis,
France
- René Thiemann  (4)
University of Innsbruck, Austria


Takeshi Tsukada  (19, 21)
The University of Tokyo, Japan


Nikos Tzevelekos (27)
Queen Mary University of London, UK

Jakob von Raumer  (23)
University of Nottingham, UK

Petar Vukmirović  (5)
Vrije Universiteit Amsterdam, The Netherlands

Chuangjie Xu  (25)
Ludwig-Maximilians-Universität München,
Germany

Akihisa Yamada  (4)
National Institute of Advanced Industrial
Science and Technology, Tokyo, Japan

Masaomi Yamaguchi  (11)
Tohoku University, Sendai, Japan

