

Preface

The 17th International Workshop on Descriptive Complexity of Formal Systems (DCFS 2015) was held in Waterloo, Ontario, Canada, during June 25–27, 2015. It was organized by the David R. Cheriton School of Computer Science at the University of Waterloo.

The subject of the workshop was descriptive complexity. Roughly speaking, this field is concerned with the size of objects in various mathematical models of computation, such as finite automata, pushdown automata, and Turing machines. Descriptive complexity serves as a theoretical representation of physical realizations, such as the engineering complexity of computer software and hardware. It also models similar complexity phenomena in other areas of computer science, including unconventional computing and bioinformatics.

The DCFS workshop series is a result of merging together two workshop series: *Descriptive Complexity of Automata, Grammars and Related Structures* (DCAGRS) and *Formal Descriptions and Software Reliability* (FDSR). These precursor workshops were DCAGRS 1999 in Magdeburg, Germany, DCAGRS 2000 in London, Ontario, Canada, and DCAGRS 2001 in Vienna, Austria, as well as FDSR 1998 in Paderborn, Germany, FDSR 1999 in Boca Raton, Florida, USA, and FDSR 2000 in San Jose, California, USA. These workshops were merged in DCFS 2002 in London, Ontario, Canada, which is regarded as the 4th DCFS. Since then, DCFS workshops were held in Budapest, Hungary (2003), in London, Ontario, Canada (2004), in Como, Italy (2005), in Las Cruces, New Mexico, USA (2006), in Nový Smokovec, Slovakia (2007), in Charlottetown, Canada (2008), in Magdeburg, Germany (2009), in Saskatoon, Canada (2010), in Limburg, Germany (2011), in Braga, Portugal (2012), in London, Ontario, Canada (2013), and in Turku, Finland (2014).

In 2015, the DCFS workshop was held for the first time in Waterloo, Ontario. There were 29 submissions, with authors from Austria, Canada, Estonia, Germany, Italy, Japan, Korea, Latvia, The Netherlands, Poland, Portugal, The Russian Federation, Slovakia, Switzerland, UK, and USA.

Of the 29 submissions, 23 were accepted for presentation at the conference (79.3 % acceptance rate). These papers were selected from the submissions by the Program Committee on the basis of at least three reviews per submission.

This volume contains extended abstracts of the two invited talks and 23 contributed talks presented at the workshop.

This workshop is a result of the combined efforts of many people, to whom we wish to express our gratitude. In particular, we are indebted to our invited speakers—Rajeev Alur and Thomas Colcombet—and to all the speakers and participants of the workshop. We are grateful to all our Program Committee members and to all reviewers for their work in selecting the workshop program, which was carried out using the EasyChair conference management system. We also thank the staff of the University of Waterloo for administrative assistance.

We gratefully acknowledge the financial support from our sponsor, the Fields Institute for Research in Mathematical Sciences (www.fields.utoronto.ca). Their support was crucial to pay for the invited speakers and to support the travel of junior researchers. This conference was an official event of the International Federation for Information Processing and IFIP Working Group 1.2 (Descriptive Complexity). Finally, we wish to thank the editorial team at Springer, specifically Alfred Hofmann and Anna Kramer, for their efficient production of this volume.

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