# Preface

The central challenge of theoretical computer science is to deploy mathematics in ways that serve the creation of useful algorithms. In recent years there has been a growing interest in the two-dimensional framework of parameterized complexity, where, in addition to the overall input size, one also considers a parameter, with a focus on how these two dimensions interact in problem complexity.

This book presents the proceedings of the 1st International Workshop on Parameterized and Exact Computation (IWPEC 2004, `http://www.iwpec.org`), which took place in Bergen, Norway, on September 14–16, 2004. The workshop was organized as part of ALGO 2004. There were seven previous workshops on the theory and applications of parameterized complexity. The first was organized at the Institute for the Mathematical Sciences in Chennai, India, in September, 2000. The second was held at Dagstuhl Castle, Germany, in July, 2001. In December, 2002, a workshop on parameterized complexity was held in conjunction with the FST-TCS meeting in Kanpur, India. A second Dagstuhl workshop on parameterized complexity was held in July, 2003. Another workshop on the subject was held in Ottawa, Canada, in August, 2003, in conjunction with the WADS 2003 meeting. There have also been two Barbados workshops on applications of parameterized complexity.

In response to the IWPEC 2004 call for papers, 47 papers were submitted, and from these the program committee selected 25 for presentation at the workshop. In addition, invited lectures were accepted by the distinguished researchers Michael Langston and Gerhard Woeginger.

This first instantiation of a biennial workshop series on the theory and applications of parameterized complexity got its name in recognition of the overlap of the two research programs of *parameterized complexity* and *worst-case exponential complexity analysis*, which share the same formal framework, with an explicitly declared parameter of interest. There have been exciting synergies between these two programs, and this first workshop in the IWPEC series attempts to bring these research communities together.

The second workshop in this series is tentatively scheduled for the Gold Coast of Queensland, Australia, in July, 2006. An exact computation implementation challenge is being organized as a part of this second workshop. Details of the competition will be posted at `http://www.iwpec.org`.

On behalf of the program committee, we would like to express our appreciation to the invited speakers and to all authors who submitted papers. We also thank the external referees who helped with the process. We thank the program committee for excellent and thoughtful analysis of the submissions, and the organizers of ALGO 2004 in Bergen. We thank especially the tireless Frank Dehne for his efforts in almost all things relating to this conference and for co-editing these proceedings.

<div align="right">Rod Downey and Mike Fellows, July 2004</div>

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