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Fundamentals of Computation Theory

17th International Symposium, FCT 2009
Wrocław, Poland, September 2-4, 2009
Proceedings

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Preface

The Symposium on Fundamentals of Computation Theory was established in 1977 for researchers interested in all aspects of theoretical computer science, in particular in algorithms, complexity, and formal and logical methods. It is a biennial conference, which has previously been held in Poznań (1977), Wendisch-Rietz (1979), Szeged (1981), Borgholm (1983), Cottbus (1985), Kazan (1987), Szeged (1989), Gosen-Berlin (1991), Szeged (1993), Dresden (1995), Kraków (1997), Iași (1999), Riga (2001), Malmö (2003), Lübeck (2005) and Budapest (2007).

The 17th International Symposium on Fundamentals of Computation Theory (FCT 2009) was held in Wrocław, September 2–4, 2009, and was organized jointly by the Institute of Mathematics and Computer Science of Wrocław University of Technology and the Institute of Computer Science, University of Wrocław. The conference was held at Wrocław University of Technology.

The suggested topics of FCT 2009 included, but were not limited to:

Algorithms: algorithm design and optimization; combinatorics and analysis of algorithms; computational complexity; approximation, randomized, and heuristic methods; parallel and distributed computing; circuits and Boolean functions; online algorithms; machine learning and artificial intelligence; computational geometry; computational algebra

Formal methods: automata and formal languages; computability and nonstandard computing models; algebraic and categorical methods; logics and model checking; principles of programming languages; program analysis and transformation; specification, refinement and verification; type systems; concurrency theory; database theory, semi-structured data and finite model theory; models of reactive, hybrid and stochastic systems

Emerging fields: security and cryptography; ad hoc and mobile systems; quantum computation; computational biology; high-performance computing; algorithmic game theory

The Program Committee invited lectures from Martin Dietzfelbinger (Ilmenau), Thomas A. Henzinger (Lausanne), and Moti Yung (New York) and, from the 67 submissions, selected 29 papers for presentation at the conference and inclusion in the proceedings. This volume contains the texts or the abstracts of the invited lectures and the texts of the accepted papers.

We would like to thank the members of the Program Committee for the evaluation of the submissions and their subreferees for their excellent cooperation

in this work. We are grateful to the contributors to the conference, in particular to the invited speakers for their willingness to present interesting new developments.

September 2009

Mirosław Kutylowski
Witold Charatonik
Maciej Gębala

In Memoriam Prof. Dr. math. Ingo Wegener (1950–2008)

Ingo Wegener passed away on November 26, 2008, at the age of 57. This is a great loss for theoretical computer science in Europe, far beyond the field of complexity theory and efficient algorithms, which was his scientific home.

Ingo Wegener studied mathematics in Bielefeld until 1976, when he received his “Diplom.” He earned his PhD in 1978, and obtained his “Habilitation” in 1981. For a while he was an associate professor in Frankfurt, until he was appointed professor at the University of Dortmund in 1987, for the field of “Efficient Algorithms and Complexity.” This position he held until his death.

In the course of his career of more than 30 years, Ingo Wegener made substantial contributions to several, rather different, research fields. He started with contributions to search problems, documented in his first book. The second stage can be characterized by “The Complexity of Boolean Functions” (the title of his important monograph of 1987). Ingo Wegener made important contributions to the area of binary decision diagrams, a central method for representing and manipulating Boolean functions, again leading up to a monograph of the subject that made the state of the art in the field easily accessible. Starting in the late 1990s, he initiated the study of metaheuristics like evolutionary algorithms, genetic algorithms, and simulated annealing with the methods of complexity theory and algorithm analysis, leading to a deeper understanding of the behavior of such strategies.

Apart from his own scientific contributions Ingo Wegener also was a gifted and devoted teacher, and an excellent science organizer.

The commemorative talk will pay tribute to Ingo Wegener as a great researcher, a devoted academic teacher, and a dear colleague, who is missed by many.

Martin Dietzfelbinger

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