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# Fundamentals of Computation Theory

FCT '85

Cottbus, GDR, September 9–13, 1985

Edited by Lothar Budach

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PREFACE

This volume constitutes of the proceedings of the 1985 International Conference on Fundamentals of Computation Theory held in Cottbus, German Democratic Republic, September 9-13, 1985. The conference is the fifth in the series of FCT-CONFERENCES organized every odd year.

Computation theory has its origins and motivations in mathematical logic and the foundations of mathematics as well as in the increase of practical importance of computations on discrete or finite mathematical structures caused by the possibility of using modern computers for the solution of highly complex practical problems.

Many problems of computation theory represent an enormous challenge by their simplicity and deepness. They represent the principle motivation for the development of the theory and provoke the use of methods of classical mathematical theories such as mathematical logic, algebra, number theory, combinatorics, and algebraic topology. This has promoted Computation Theory and its Fundamentals as an important discipline on the border between computer science and mathematics.

The papers of this volume were invited adresses or were selected at the Program Committee Meeting in Berlin on March 20 - 23, 1985 from a total of 114 papers submitted on response to the Committee's Call for Papers, on the basis of both quality and relevance to areas of current interest. The contents of these proceedings have not been formally refereed. The authors are fully responsible.

The committee wishes to thank all who submitted papers for consideration. The program of the conference, including invited lectures and selected contributions, falls into the following four categories:

* A. Theory of Machines, Computations, and Languages
* B. Algebraic, Arithmetical, and Combinatorical Methods in Computation Theory
* C. Efficient Algorithms, Computational Geometry
* D. Computability, Complexity.

The conference was organized by the Department of Mathematics of Humboldt-University (Berlin) and the Weierstrass Institute of Mathematics of the Academy of Sciences of the German Democratic Republic. The International Program Committee consisted of:

K.R.Apt (Paris), G.Ausiello (Rome), J.Berstel (Paris), E.Boerger (Dortmund), W.Brauer (Hamburg), M.Broy (Passau), L.Budach (Berlin),

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I had the pleasure to chair this committee and I wish to express my sincere appreciation to all members for their kind cooperation in preparing the scientific program. My thanks go to all referees for the FCT 85 (see the separate page) for their efforts and time they invested in reading the submitted papers.

I wish to express my sincere gratitude to the Organizing secretary of the conference H.Antelmann who has been a true source of support and encouragement in arranging the conference.

I am deeply indepted to E.Petters and Ch.Jacob for their kind cooperation and speedy service in preparing the technical arrangements of the conference and manuscripts of this volume.

I also wish to thank all those persons of Humboldt-University and the Academy of Science - too numerous to name - who contributed their help in arranging the conference.

Finally I would like to thank I.Mayer and S.Watson from Springer-Verlag for their assistance and excellent cooperation on the edition of the present volume.

June 1985 Lothar Budach

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