

Lecture Notes in Computer Science

Edited by G. Goos and J. Hartmanis

372

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Automata, Languages and Programming

16th International Colloquium
Stresa, Italy, July 11–15, 1989
Proceedings



Springer-Verlag

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CR Subject Classification (1987): C.1, E.1, F, G.2, I.1, I.2.3

ISBN 3-540-51371-X Springer-Verlag Berlin Heidelberg New York
ISBN 0-387-51371-X Springer-Verlag New York Berlin Heidelberg

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Printed in Germany

Printing and binding: Druckhaus Beltz, Hemsbach/Bergstr.
2145/3140-543210 – Printed on acid-free paper

FOREWORD

ICALP is the Annual European Summer Conference on Theoretical Computer Science sponsored by the European Association for Theoretical Computer Science (EATCS).

ICALP stands for International Colloquium on Automata, Languages and Programming, but this conference series intends to cover all important areas of theoretical computer science such as: computability, automata theory, formal language theory, analysis of algorithms, computational complexity, mathematical aspects of programming language definition, logic and semantics of programming languages, foundation of logic programming, theorem proving, software specification, computational geometry, data types and data structures, theory of data bases and knowledge based systems, cryptography, VLSI structures, parallel and distributed computing, models of concurrency and robotics.

Previous colloquia were held in Tampere (1988), Karlsruhe (1987), Rennes (1986), Nauplion (1985), Antwerp (1984), Barcelona (1983), Aarhus (1982), Haifa (1981), Amsterdam (1980), Graz (1979), Udine (1978), Turku (1977), Edinburgh (1976), Saarbrücken (1974) and Paris (1972). ICALP 90 will be held in Great Britain, from July 16 to July 20, 1990, in Warwick.

ICALP 89 has been organized by the University of Torino (Italy). The conference is held in a very attractive location; Stresa, a small town on Lago Maggiore.

188 extended abstracts and draft papers were submitted to ICALP 89. The time schedule of the conference allowed for the acceptance of only 45 of these. Therefore the selection was very difficult and many good papers had to be rejected. Every paper was sent to 5 program committee members who again often asked competent referees for assistance. The final selection meeting of the program committee took place in Torino, on February 6,7 1989. The Program Committee (selection meeting participants underlined) consisted of:

G.Ausiello, Rome (co-chairman)

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We would like to express our gratitude to all the members of the Program Committee, and in particular to those who did the final selection, and to all the referees who assisted them (they are

listed on page V). Moreover we would like to thank very much all those who submitted papers to this ICALP Conference.

The program of ICALP 89 offered six invited talks which are included in this volume. The Program Committee thanks the invited lecturers

C. Böhm (Univ. di Roma "La Sapienza")

H. Ehrig (Univ. Berlin)

Z. Galil (Columbia Univ./Tel Aviv Univ.)

S. Micali (M.I.T.)

D. Perrin (Univ. Paris VII)

J.C. Reynolds (C.M.U.)

for having accepted the invitation.

Moreover we would like to thank the members of the Organizing Committee, which consisted of: F.Barbanera, P.Giannini, E.Giovannetti, F.Honsell, G.Lolli, S.Ronchi Della Rocca (chairman), B.Venneri.

We gratefully acknowledge all the institutions and corporations which supported this conference:

Apollo Computer SpA, Banca Popolare di Intra, Centro Ricerche FIAT, CNR (Comitato Scienze Matematiche, Comitato Scienze e Tecnologia dell'Informazione, Comitato Scienze di Ingegneria e Architettura), CSELT SpA, Delphi SpA, DGXIII-ESPRIT-Basic Research Actions, Dipartimento di Informatica dell'Università di Torino, Enidata SpA, FIAT SpA, Hewlett Packard Italiana SpA, IBM Italia, Istituto Bancario San Paolo di Torino, Regione Piemonte-Assessorato alla Cultura, Springer-Verlag, Tecciel SpA, Unione Industriale di Torino, Università di Roma "La Sapienza", Università di Torino.

Lastly we would like to mention the excellent cooperation with Springer-Verlag.

Torino, April 1989

G. Ausiello
M. Dezani-Ciancaglini
S. Ronchi Della Rocca

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