

Groups and Computation II

Larry Finkelstein, *Northwestern University, Boston, MA*, and William M. Kantor, *University of Oregon, Eugene*, Editors

The workshop "Groups and Computations" took place at the Center for Discrete Mathematics and Theoretical Computer Science (DIMACS) at Rutgers University in June 1995. This and an earlier workshop (see *Groups and Computation*, Finkelstein and Kantor © 1993, American Mathematical Society) held in October 1991, were aimed at bringing theory and practice within the broad area of computation with groups. The primary goal of the previous workshop was to foster a dialogue between researchers studying the computational complexity of group algorithms and those engaged in the development of practical software. It was expected that this would lead to a deeper understanding of the mathematical issues underlying group computation and that this understanding would lead, in turn, to faster algorithms. Comments and subsequent work indicated that this goal had been achieved beyond expectations. The second workshop was designed to continue the program in three directions.

The scientific program consisted of invited lectures and research announcements, as well as informal discussions and software demonstrations. The eight invited lectures discussed randomization, permutation groups, matrix groups, software systems, fast Fourier transforms and their applications to signal processing and data analysis, computations with finitely presented groups, and implementation and complexity questions. As in the previous workshop, speakers ranged from established researchers to graduate students.

DIMACS Series in Discrete Mathematics and Theoretical Computer Science, Volume 28, 1997, 382 pages, Hard cover; ISBN 0-8218-0516-9; List \$99; Individual member \$63; order code: DIMACS/28NA

Spectral Graph Theory

Fan R. K. Chung, *University of Pennsylvania, Philadelphia*

This monograph is an introductory text of expository and theoretical nature in introducing a thousand words about graphs. The stories will be told—how the spectral methods fundamentally pervade a graph, how spectral graph theory links the discrete sciences to the continuous ones through geometric, analytic and algebraic techniques, and how through eigenvalues, theory and applications in communications and computer science come together in a vibrant harmony.

—from the Preface

Beautifully written and elegantly presented, this book is based on 10 lectures given at the CBMS workshop on spectral graph theory in June 1994 at Penn State University. Chung's well-written exposition can be likened to a conversation with a good teacher—one who not only gives you the facts, but tells you what is really going on, why it is worth doing, and how it is related to familiar ideas in other areas. The monograph is a gem for the nonexpert who is interested in reading about this vibrant area of mathematics.

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Funding for the Fulbright Program is provided by the United States Information Agency, on behalf of the U.S. government, and by cooperating governments and host institutions abroad.

For further information and application materials, contact the USIA Fulbright Senior Scholar Program, Council for International Exchange of Scholars, 3007 Tilden Street, NW, Suite 5M, Box GNEWS, Washington, DC 20008-3009; telephone 202-686-7877; World Wide Web <http://www.cies.org>. Requests for mailing of application materials only may be sent by e-mail to cies1@ciesnet.cies.org.

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