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PREFACE

This volume contains papers which have been selected for presentation at the Fifth International Conference on Statistical and Scientific Databases (V SSDBM), held in Charlotte, North Carolina, April 3–5, 1990. The Conference was hosted by UNC-Charlotte and sponsored by: UNC-Charlotte; National Aeronautics and Space Administration; Statistical Office of the European Communities—EUROSTAT (Luxembourg); Ente Nazionale Energie Alternative (Italy); Statistics Sweden; Microelectronics Center of North Carolina; International Association for Statistical Computing; Department of Statistics (New Zealand); and Istituto di Analisi dei Sistemi ed Informatica del CNR (Italy).

The Conference has been organized by the Department of Computer Science of the University of North Carolina at Charlotte with the following Organizing Committee: K.-W. Chen (UNC-C); S. Chen (UNC-C); L. Groves (VUW-Wellington); R. Lejk (UNC-C); Z. Michalewicz (Conference Chairman, UNC-C); Z. Ras (UNC-C); and M. Zemankova (NSF and UT-Knoxville).

The V SSDBM continued the series of conferences started nine years ago in California (1981 and 1983), then in Europe (Luxembourg, 1986, and Rome, 1988). The purpose of this conference was to bring together database researchers, users, and system builders, working in this specific area of activity, to discuss the particular issues of interest, to propose new solutions to the problems of the area, and to extend the themes of the previous conferences, both from the theoretical and from the application point of view.

The contributed papers have been selected by the following Program Committee: S. Chen (UNC-C); R. Cubitt (EUROSTAT, Luxembourg); S. Ghosh (IBM, San Jose); H. Hinterberger (Program Co-chairman, ETH Zurich, Switzerland); J. Klensin (MIT); F. Malvestuto (ENEA, Italy); M. McLeish (Guelph, Canada); Z. Michalewicz (UNC-C); G. Ozsoyoglu (Case Western Reserve University); M. Rafanelli (IASI-CNR, Italy); D. Rotem (Program Co-chairman, Lawrence Berkeley Laboratory); Y. Sato (Tokyo, Japan); A. Shoshani (Lawrence Berkeley Laboratory); B. Sundgren (Stockholm, Sweden); P. Svenson (Stockholm, Sweden); and A. Westlake (University of London, UK). All accepted papers were reviewed by at least three, and, in many cases, by seven members of the Program Committee. Only 13 papers were accepted for presentation. These papers cover a wide area of research for statistical and scientific databases: object oriented database systems, semantic modelling, deductive mathematical databases, security of statistical databases, implementational issues for scientific databases, temporal summary table management, graphical and visual interfaces for statistical databases, query optimization, distributed databases, and economic and geographical databases.

There were also two panel sessions: the first one on *Scientific Data Management for Human Genome Applications*, chaired by A. Shoshani (Lawrence Berkeley Laboratory), the other one on *Expert Statistical Systems*, chaired by Roger Cubitt (EUROSTAT). Additionally, there was a presentation *On the NSF Scientific Database Workshop* by James C. French, Anita K. Jones, and John L. Pfaltz (Institute of Parallel Computation). The reports from the panels and the presentation will appear in the IEEE Data Engineering Bulletin.

Finally, I wish to express my thanks to Won Kim (Microelectronics and Computer Corporation); Doron Rotem (Lawrence Berkeley Laboratory); Andrew Westlake (University of London); and Maria Zemankova (NSF and UT-Knoxville), who gave invited talks at the V SSDBM. I would like also to express my appreciation to all V SSDBM sponsors, to all who submitted papers for presentation at the conference and in this proceedings, to the V SSDBM Organizing Committee, and to all of those who contributed to the symposium program—in particular to Doron Rotem (Lawrence Berkeley

Laboratory) and Hans Hinterberger (ETH Zurich) who served as program co-chairmen. In addition, I would like to thank M. Hadzikadic (UNC-C), F. Olken (Lawrence Berkeley Laboratory), L. M. Pfau (ETH Zurich, Switzerland) and A. Segev (Lawrence Berkeley Laboratory) for their help in refereeing papers. I would like to acknowledge the many useful comments I received from Arie Shoshani (Lawrence Berkeley Laboratory), Roger Cubitt (EUROSTAT), Zbigniew Ras (UNC-C), and John Klensin (MIT). My further thanks go to Hans Wössner at Springer-Verlag, without whose help the present volume could not have been completed. On a more personal level, my special thanks goes to my wife Eva for her enthusiasm and help in organizing the conference.

Charlotte, N.C., November 20th, 1989

Zbigniew Michalewicz
V SSDBM Chairman

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