Preface

Computational Science is becoming a vital part of many scientific investigations, affecting researchers and practitioners in areas ranging from aerospace and automotive, to chemistry, electronics, geosciences, to mathematics, and physics. Due to the sheer size of many challenges in computational science, the use of high performance computing, parallel processing, and sophisticated algorithms, is inevitable.

These two volumes (Lecture Notes in Computer Science volumes 2073 and 2074) contain the proceedings of The 2001 International Conference on Computational Science (ICCS 2001), held in San Francisco, California, USA between May 27 to May 31, 2001. These two volumes consist of more than 230 contributed and invited papers presented at the meeting. The papers presented here reflect the aims of the program committee to bring together researchers and scientists from mathematics and computer science as basic computing disciplines, researchers from various application areas who are pioneering advanced application of computational methods to sciences such as physics, chemistry, life sciences, and engineering, arts and humanitarian fields, along with software developers and vendors, to discuss problems and solutions in the area, to identify new issues, and to shape future directions for research, as well as to help industrial users apply various advanced computational techniques.

This Conference was a forum and brought together researchers and scientists from mathematics and computer science as basic computing disciplines, researchers from various application areas who are pioneering advanced application of computational methods to sciences such as physics, chemistry, life sciences, and engineering, arts and humanitarian fields, along with software developers and vendors, to discuss problems and solutions in the area, to identify new issues, and to shape future directions for research, as well as to help industrial users apply various advanced computational techniques. The Conference also aimed to outline a variety of large-scale problems requiring interdisciplinary approach and vast computational efforts, and to promote interdisciplinary collaboration.

The Conference was organized by the Department of Computer Science at California State University at Chico, the School of Computer Science at The Queen's University of Belfast, the High Performance Computing and Communication group from the Department of Computer Science, The University of Reading, and the Innovative Computing Laboratory at the University of Tennessee. This is the first such meeting and we expect a series of annual conferences in Computational Science.

The conference included 4 tutorials, 12 invited talks and over 230 contributed oral presentations. The 4 tutorials were Cluster Computing given by Stephen L. Scott, Linear Algebra with Recursive Algorithms (LAWRA) given by Jerzy Waśniewski, Monte Carlo Numerical Methods given by Vassil Alexandrov and Kenneth Tan, and Problem Solving Environments given by David Walker. The drawing up of the interesting program was due to invaluable suggestions of the members of the ICCS2001 Program Committee. Each contributed paper was refereed by at least two referees. We are deeply indebted to the members of the

program committee and all people in the community who have helped us form a successful program. Thanks also to Charmaine Birchmore, James Pascoe, Robin Wolff, and Oliver Otto whose help were invaluable.

We would like to thank our sponsors and partner organizations, for providing us with the support that were beyond our expectations. The conference was sponsored by Sun Microsystems (USA), IBM (UK), FECIT (Fujitsu European Center for Information Technology) Ltd. (UK), American Mathematical Society (USA), Pacific Institute for the Mathematical Sciences (Canada), Springer-Verlag GmbH, California State University at Chico (USA), The Queen's University of Belfast (UK), and The University of Reading (UK).

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May 2001   Vassil N. Alexandrov
                                                               Jack J. Dongarra
                                                              Benjoe A. Juliano
                                                               Reneé S. Renner
                                                             C. J. Kenneth Tan

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The 2001 International Conference on Computational Science was organized jointly by the Department of Computer Science (The University of Reading), Department of Computer Science (University of Tennesse) and the School of Computer Science (The Queen's University of Belfast).

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