

Foreword

Nuclear Mathematical and Computational Sciences: A Century in Review – A Century Anew

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The American Nuclear Society (ANS) Mathematics and Computation Division (MCD) 2003 Topical Meeting (M&C 2003) was held in Gatlinburg, Tennessee, April 6–10, 2003. The technical program for M&C 2003 revolved around the theme of its title, “Nuclear Mathematical and Computational Sciences: A Century in Review – A Century Anew.” The “Anew” component comprised a total of 150 invited and contributed papers organized in 25 regular and special sessions on a broad variety of topics, plus a poster session and a panel session. To mark the end of the “nuclear century,” the “Review” component of the conference, the “Gelbard Review Lecture Series,” was organized in a marked departure from the standard plenary session format. It comprised seven invited lectures by world-renowned leaders in selected mature topics that are of broad interest to the ANS mathematics and computational community. The goals of the review lectures were to motivate the target area, chart its growth during the 20th century, summarize its current state of the art, and conjecture on its future challenges. The lecture series was organized by the author and Dr. Enrico Sartori of the Nuclear Energy Agency Data Bank.

The conference provided an opportunity to celebrate the life and accomplishments of a renowned figure in the ANS mathematics and computation community, Dr. Ely Gelbard, who passed away April 18, 2002. The aforementioned Review Lecture Series was dedicated to Dr. Gelbard’s memory. A luncheon was organized in honor of Dr. I. K. Abushumays, an active member of MCD who served in various capacities and offices of the division. Dr. Abushumays retired on May 1, 2002, from Bettis Atomic Power Laboratory. A dinner was held in celebration of the 40th birthday of the Radiation Safety Information Computational Center (RSICC) with speakers including Ms. Betty Maskewitz, former director of RSICC, and Dr. Alvin Weinberg, former director of Oak Ridge National Laboratory.

The first Gerald C. Pomraning Memorial Award was presented by Professor Paul Turinsky, chair of the MCD Honors and Awards Committee, posthumously to Professor Gerald Pomraning. Also, three Best Student Paper Awards were presented to Jae Chang, Texas A&M University; Allen Toreja, University of Illinois at Urbana-Champaign; and Doddy Kastanya, North Carolina State University. An RSICC Best Poster Award was presented to Dr. Thomas A. Brunner, Sandia National Laboratories.

This special issue of *Nuclear Science and Engineering (NS&E)* is dedicated to the archival publication of highlights of the conference. The process of selecting papers to be expanded for inclusion in this special issue was made difficult by the high quality of all papers published in the conference proceedings. It is hoped that this collection of selected papers covers the broadest range of interest in the community and reflects the outstanding quality of all the papers at M&C 2003.

This special issue would not have been possible without the concerted efforts of the authors, who willingly accepted the task of expanding their conference papers to bring them to a higher level of completion, and the reviewers, who provided thorough and timely reviews of the selected papers. The dedicated effort by Dr. Dan G. Cacuci, Editor of *NS&E*, and Ms. Jeanne Ryan, former editorial assistant, to bring this endeavor to completion is gratefully acknowledged.