

Preface

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The International Topical Meeting on Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications held in Avignon, France, September 12–15, 2005 (M&C 2005 Avignon), was the 21st biennial topical meeting of the Mathematics and Computation Division of the American Nuclear Society (ANS). The meeting was organized by the French Local Section of ANS and by the French Nuclear Energy Society and was sponsored by the Commissariat à l’Energie Atomique, the French National Utility (Electricité de France), AREVA/FRAMATOME-ANP, and the European Nuclear Society. The meeting was cosponsored by the Mathematics and Computation, the Reactor Physics, the Radiation Protection and Shielding, and the Material Sciences and Technology Divisions of ANS; the Directorate General Research Division of the European Commission; the Organisation for Economic Cooperation and Development/Nuclear Energy Agency; the International Atomic Energy Agency; the Korea Atomic Energy Research Institute; the Japan Atomic Energy Research Institute; the Korean Nuclear Society; the Canadian Nuclear Society; and H&S Advanced Computing Technologies, Inc.

The conference included 4 keynote presentations, 272 oral papers, and 33 posters that were presented and

discussed in 1 plenary session, 48 oral technical sessions, and 2 poster sessions. The technical program comprised 18 general technical sessions, 1 poster session, and 14 invited technical sessions. The meeting provided an international review by worldwide experts on the status and trends of research and applications in the fields of numerical simulation and physical modeling for classical and advanced nuclear concepts, including areas on high-performance computing, reactor physics, safety, and biological applications. The February and March special issues of *Nuclear Science and Engineering* (NS&E) are devoted to the publication of 28 papers originally presented at M&C 2005 Avignon. After the meeting, revised and expanded versions of these full papers were carefully reviewed prior to submission to NS&E for publication.

On behalf of the meeting’s program committee, I welcome this opportunity to publish these papers in the archival literature and to express my particular appreciation to Dan G. Cacuci, Editor of NS&E, for organizing this special issue of the journal. I particularly thank the session chairs, who selected the papers to be included in this issue; the authors for their effort in preparing the revised versions; and the reviewers for the very good work they have done in a relatively short time.