

Foreword

This issue of *Nuclear Technology* is one of two special issues that contain papers documenting information initially presented at the Tenth International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-10) that was held in October 2003 in Seoul, Korea. This meeting was sponsored by the Korean Nuclear Society and the American Nuclear Society (ANS) with many cosponsoring organizations from the international community. The meeting provided a forum for thermal-hydraulics specialists to exchange information, present results from new work, review the state of the art, and discuss future directions and needs for further development of nuclear power plant design, analysis, and operation. At this very successful conference, there were over 317 papers presented by researchers representing 29 countries and covering a breadth of topics related to nuclear reactor thermal hydraulics and safety.

The papers included in these two special issues were initially selected by NURETH-10 session chairs and then screened by representatives from the technical program committee to obtain papers that describe key developments in thermal hydraulics from around the world. The authors were then invited to update their NURETH-10 papers and submit them for additional peer review for these special editions. The fact that many of these papers were initially presented in NURETH-10 keynote lectures and plenary sessions attests to the caliber of the authors contributing to these special issues.

As noted, this is the first of two issues of *Nuclear Technology* containing noteworthy papers presented at NURETH-10. In this first issue, there are papers describing new developments in a host of thermal-hydraulic phenomena, such as two-phase flow, condensation, critical heat flux, steam generator tube rupture, and pressurized thermal shock. Papers also discuss new methods for modeling, new types of instrumentation, and new data for assessing models. It is worth noting that the NURETH-10 paper by Prasser et al. was selected in 2004 as the best paper by the ANS Thermal-Hydraulics Division Honors and Awards Committee. The paper by Groeneveld et al. contains results that were initially presented at a NURETH-10 keynote lecture.

In the second issue of *Nuclear Technology* devoted to NURETH-10, papers discuss topics such as in-vessel retention through the use of external reactor vessel cooling or an enhanced in-vessel core catcher, new developments in modeling advanced pressurized water reactors and liquid-metal reactors, and new challenges in computational thermal hydraulics. The paper by Yadigaroglu and Lakehal documents information presented at a NURETH-10 plenary session, and the paper by Cheung documents information presented at a NURETH-10 keynote session.

We believe that these papers provide the community an overview of key developments in thermal-hydraulics research. We hope that you will find these papers interesting and stimulating.

Special Issue Guest Editors

Soon Heung Chang
Korea Advanced Institute of Science and Technology

Won-Pil Baek
Korea Atomic Energy Research Institute

Joy Rempe
Idaho National Engineering and Environmental Laboratory