FOREWORD

SPECIAL ISSUE ON THE 14TH INTERNATIONAL TOPICAL MEETING ON NUCLEAR REACTOR THERMAL HYDRAULICS

Guest Editor

JOVICA R. RIZNIC
Canadian Nuclear Safety Commission

This special issue of *Nuclear Technology* features selected papers from the 14th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-14). The history of the highly successful NURETH series of international topical meetings goes back more than 30 years; the first meeting was held in Saratoga Springs, New York, in 1980. NURETH is the only major conference series devoted solely to the advancement of knowledge in the nuclear reactor thermal hydraulics field. It is a unique opportunity for researchers and practitioners alike to present results of their work and to discuss challenges and new ideas.

Nuclear energy is faced with major challenges ranging from public perception and acceptance to nonproliferation and continued operation and enhanced safety of the existing fleet with lessons learned from the recent Fukushima Daiichi accidents. The industry itself recognizes the ultimate importance of ensuring overall safety where thermal hydraulics research and development play an important role in supporting the safe operation of nuclear power plants. Understanding the mechanisms and underlying physics as well as developing measures to prevent and/or mitigate decay of plant performances are still challenging tasks for utilities and technical support organizations. Having in mind the global nature of these nuclear technology issues, it is imperative that professional forums such as NURETH provide a global communication channel to foster the exchange of ideas and critical information and to enhance cross-fertilization of research and development activities through our professional community.

NURETH-14 was held in Toronto, Canada, from September 25–30, 2011, under the co-sponsorship of the Canadian Nuclear Society and the Thermal Hydraulics Division of the American Nuclear Society and in cooperation with the International Atomic Energy Agency and the Organisation for Economic Co-operation and Development, Nuclear Energy Agency. More than 500 leading practitioners as well as academic and industry researchers who engage in engineering and scientific work participated in the meeting. A total 632 abstracts were submitted, 588 draft papers were reviewed, and finally, 430 papers were accepted after a double-blind peer review.

The key challenge facing the NURETH-14 technical program committee (TPC), particularly after the meeting, was to revisit all manuscripts and to make recommendations of outstanding archival value papers for publication in leading scientific journals. The TPC left it to the editors of those selected journals to decide whether to publish NURETH-14 papers in regular or in topical issues. The authors were then invited to update their papers and to submit them for additional peer review for this special edition.

This topical issue of *Nuclear Technology* is one of the most comprehensive compilations of the state of the art in nuclear reactor thermal hydraulics today. This topic will continue to draw the attention of industry and academia to further ongoing research activities worldwide. Hopefully, this topical issue will succeed in filling the gaps in the current body of knowledge. In achieving this, thanks are due the contributing authors and reviewers for their time and effort to make this special issue possible as well as the members of the Organizing Committee and the TPC for their contribution to the NURETH-14 conference and to this issue. They are to be complimented for their creativity and effort as well as for their strong sense of responsibility as to the factual content. Nicholas Tsoulfanidis has been enormously supportive and thoughtful. The time and effort that Julie Wilson and DeAndrea Johnson, editorial assistants, devoted to this project were invaluable. The suggestions and support from all involved in this exciting publication endeavor are greatly appreciated.

I am confident that this topical issue is another important step in the continued, fruitful cooperation between the NURETH series of conferences and *Nuclear Technology*.