Preface

Eleventh International Conference on Tritium Science and Technology

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The Eleventh International Conference on Tritium Science and Technology (Tritium 2016) was held in Charleston, South Carolina, April 17–22, 2016. Tritium 2016 successfully continued a 36-year history that began with the American Nuclear Society (ANS) topical meeting entitled Tritium Technology in Fission, Fusion and Isotopic Applications, held in 1980. Since then, meetings in the Tritium conference series have been held an additional ten times, rotating between North America, Europe, and Asia approximately every three years. These meetings have been held in Dayton, Ohio (1980 and 1985); Toronto, Canada (1988); Albuquerque, New Mexico (1991); Belgirate, Italy (1995); Tsukuba, Japan (2001); Baden-Baden, Germany (2004); Rochester, New York (2007); Nara, Japan (2010); Nice, France (2013); and now Charleston, South Carolina (2016)—a charming and historic city, where Southern hospitality and cuisine were on show for all to enjoy. Charleston was founded in 1670 and is one of the grand ladies of the American South. The area has a long history of antebellum plantations as well as Revolutionary War and Civil War–related sites and artifacts. The city has a flourishing artistic community, and its cuisine is delightful. Charleston is somewhat similar to Nice, France, where the previous Tritium conference was held, in that it retains the charms of a bygone era yet is fresh and ready for business today.

The objective of the Tritium conference series is to provide a forum to foster an exchange of information on science, technology, engineering, and general operating experiences in the safe and environmentally sound handling of tritium for fusion, fission, pharmaceuticals, and other isotopic applications. These conferences also provide opportunities to conduct both technical and nontechnical excursions. Each of these conferences has been sponsored in some measure by ANS, and apart from the very first conference, the proceedings of each has been published in the ANS scientific journal *Fusion Science and Technology*. This is the premier international conference series dedicated to "all things tritium."

Tritium 2016 was organized as a Class I ANS international topical meeting, with the U.S. Department of Energy's Savannah River National Laboratory (SRNL) as the host organization. ANS provided the organizational structure, rigor, review, and knowledgeable personnel that come from an international scientific and engineering society well experienced in organizing scientific conferences. As host organization, SRNL provided knowledgeable personnel intimately acquainted with all things tritium. SRNL is also experienced in the planning and execution of conferences as well as being very familiar with the Charleston area, both of which ensured a successful conference. The international steering committee for the Tritium conference series ensured that Tritium 2016 would provide an enriching experience similar to those previously enjoyed by attendees at other conferences in the series.

Forming a strong and diverse technical program committee (TPC) was an essential element in ensuring broad international representation in both paper submissions and attendance. The TPC's membership was composed as follows: one-third were from Asia, one-quarter were from Europe, and the remaining 40% were from North America. The TPC members were successful in encouraging researchers from around the world to submit papers: of the 246 papers submitted to the conference, about one-third were from the United States and two-thirds were of an international origin. Some attrition was to be expected; ultimately, 208 papers were presented at Tritium 2016. Withdrawals occurred for a variety of reasons, often due to a lack of funding for foreign travel. There were 134 oral presentations and 73 poster presentations, with a panel session Friday on tritium regulations and standards.

The nationally diverse TPC was also successful in that, of the 282 attendees, about one-half were from the United States and about one-half were international attendees. In all, 16 countries were represented at Tritium 2016. In organizing the sessions, the TPC took into account feedback from researchers' funding organizations that if an oral presentation was offered, attendance was likely to increase. To accommodate this, the TPC made a change from recent conferences in this series by carefully designing a series of concurrent

sessions to provide more oral presentations. This enabled the TPC to increase the number of oral presentations and, by carefully selecting topics, minimized conflicts from attendees wanting to attend both sessions. Positive feedback was received about the use of parallel sessions, and contributing speakers appreciated the longer talk times (20 minutes) that this allowed.

The ANS registration guidance provided a generously low registration fee for students, resulting in 19 registered students, who represent the future of this industry. A similar rate was also offered to entice some retirees to attend the meeting, providing a link to the past. A strong showing of 15 exhibitors enriched the technical discussions during breaks and lunches. Support provided by these exhibitors and a broad spectrum of corporate leaders, including host SRNL, enabled conference organizers to provide a generous social program to all registered conference attendees and spouses/guests. The social program included an outdoor welcome reception on Sunday evening; a beautiful dinner cruise off Charleston on Tuesday evening; a banquet on Thursday evening; lunches Monday, Tuesday, and Thursday; as well as breakfasts and breaks each day. These donations also enabled organizers to provide a generous spousal program that reflected Southern hospitality at its best. Funding for the publication of the conference program and the peer-reviewed papers in the ANS journal *Fusion Science and Technology* was provided by a generous grant from the U.S. Department of Energy, Office of Fusion Energy Sciences. We are grateful to these corporate and government leaders, who are furthering tritium science and technology.

An excursion to the U.S. Department of Energy Savannah River Site on Wednesday provided a walking tour of the world's largest nuclear waste vitrification facility, the Defense Waste Processing Facility, as well as driving tours of SRNL, the Savannah River Ecology Laboratory, the F and H canyons (radiological separations facilities), the mixed oxide fuel fabrication facility construction site, the Salt Stone Processing Facility, and more. A spousal tour was provided of historic Charleston.

Special thanks are due the organizing committee and the TPC for their efforts to ensure that Tritium 2016 was a successful conference.

The next conference in this series shall be held in Busan, South Korea, in 2019.