COMMENTS

The staff of *Fusion Technology* (*FT*) is pleased to publish a second proceedings from the series of Topical Meetings on Tritium Technology in Fission, Fusion and Isotopic Applications. As Carole Burnham and William Holtslander state in the Preface of this issue, this Third Topical meeting extended the tradition of high-quality presentations enjoyed by the prior meetings in this series. As Carole and Bill point out, not only has the attendance steadily grown at these meetings, but a very strong international participation has developed.

In addition to technical matters, Toronto provided an excellent location for associated social events. I cannot help but note the "international" tennis tourney since I was fortunate enough to be on the winning team! The Tritium Cup that the Canadian hosts designed for this event starts what should be a most enjoyable tradition for these meetings.

Another international aspect of this meeting that deserves note is the strong support given by nuclear societies from Canada, the United States, Europe, and Japan. Indeed, the growing recognition of the importance of tritium to nuclear power worldwide is becoming increasingly evident. As the meeting title implies, tritium is a significant aspect of both fission and fusion systems and has also found other independent applications. Examples of the latter covered in meeting presentations include tritium labeling of chemical compounds, radioluminescent lights, and nuclear batteries. Tritium also plays a key role in thermonuclear weapons technology. However, the dominant aspect of tritium technology covered at the topical meeting series involves fusion technology. Indeed, the significance of tritium in fusion development has been highlighted by several recent events, namely, (a) the impact of the limitation of the tritium inventory on the Tokamak Fusion Test Reactor (TFTR) site at Princeton, New Jersey, to 5 g; (b) increased emphasis on fusion safety and environmental impact due to the ESECOM report in the United States (see *FT*, **13**, 7, 1988) and the Sweet Report in Europe (see *Science*, **241**, 154, 1988); (c) studies of ways to supply tritium for next-step devices such as the Next European Torus or International Thermonuclear Experimental Reactor (see *FT*, **14**, 1, 1988); and (d) questions about the possibility of "early" introduction of D-^{3}He reactors (see *FT*, **10**, 167, 1988, and **11**, 436, 1987). Presentations at the Third Topical made clear that remarkable progress has been achieved in tritium technology. The following examples, chosen somewhat at random, will illustrate this point.

Relative to tritium production and processing, the Darlington and Chalk River Tritium Removal Facilities have been commissioned. Steady operation has continued at Savannah River, and the Tritium Systems Test Assembly facility at Los Alamos is entering a fifth year of operation, having completed a milestone test using 100 g of tritium.

Much has been added to our knowledge of tritium transport and associated safety issues. Planned releases of small quantities of HT and HTO have

been carried out and carefully studied. Indeed, much information was obtained from an unplanned release on July 31, 1987, at Savannah River involving 168 000 Ci of HT and 4700 Ci of HTO. An important global cycling model has been developed that includes probabilistic estimates for accidental release. New studies have been completed on tritium diffusion through a variety of materials such as vanadium alloys, zirconium, and hafnium. Studies of storage techniques via absorption in uranium alloys and zeolites have continued.

Papers presented at the meeting also demonstrated strong progress in the development of equipment for tritium handling and monitoring. Along this line, it is of interest that techniques and equipment have been developed to remove tritium after each deuterium-tritium pulse in TFTR in order to stay below the 5-g limit noted earlier.

In closing, I want to enthusiastically thank Carole Burnham (Meeting Chair), G. Phillips (Publications Chair), H. F. Anderson (Vice Chair), and the many other staff who helped us so much at Toronto. A special recognition is due to the technical program committee and its co-chairs, Mike Rogers and William Holtslander. They coordinated the most demanding and difficult task of reviewing the papers for publication in *FT*. A number of participants of the meeting served as reviewers. Some papers were available in advance, but others had to be handled during and after the meeting. The diligence of the reviewers was essential to maintain the high quality demanded for publication in *FT*, and many thanks must be given to them for carrying out this vital job. Also, special thanks go to Chris Stalker, *FT* editorial assistant, for the hard work that she put in, both during and after the meeting, in processing the manuscripts. The enthusiasm and encouragement provided by all of the people involved made the complex task an enjoyable one for all. I feel this publication was a real team effort.