PREFACE

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The Twentieth Target Fabrication Meeting held in Santa Fe, New Mexico, from May 20–24, 2012, was attended by more than 80 scientists, engineers, and technicians from the United States, the United Kingdom, France, and Japan, bringing together international experts on the design, development, and fabrication of inertial confinement fusion (ICF) and high-energy-density experimental targets fielded on laser and pulsed-power facilities around the world. We were delighted to have such exceptional international representation. The program included 2 invited papers, 46 contributed papers, and 41 posters, a selection of which is presented in this dedicated issue of *Fusion Science and Technology* (*FS&T*).

The well over 80 presentations that were scheduled described the technical path forged during the past 24 months toward achieving laboratory-scale thermonuclear fusion. This is a very exciting time in the target fabrication arena with the rapid progress toward the construction of the French Laser Megajoule (LMJ) and the recent completion of the U.S. Department of Energy's National Ignition Facility (NIF). The papers appear to exemplify the symbiotic relationship between experimental test facilities and experimental target design through the unprecedented levels of target precision. As such, the quality of these experiments is facilitated through technical advances in target design, development, and fabrication as demonstrated through the innovation of new ICF capsules, hohlraums, materials, assembly and metrology, characterization techniques, cryogenic fuel layers, and cryogenic support systems.

Our meeting schedule had a total of 14 sessions subdivided into 10 technical categories: NIF Ignition Campaign Status, Facility Status & Overview, Materials & Components Manufacturing, Hohlraums, Cryogenic Targets, Capsule Development & Fabrication, Aerogels & Foams, Novel Characterization Techniques, Assembly & Metrology, and Unique Shell Fabrication.

A tradition of the conference is to present the Larry Foreman Award to an individual who has made a substantive contribution toward innovation and excellence in target fabrication. The recipient this year was Dr. Bob Day, Los Alamos National Laboratory (LANL)—retired. This award recognized Dr. Day's contributions to precision engineering, materials science, and target fabrication and his outstanding leadership at LANL from the late 1990s until his retirement in 2009. During the earlier years of this time period, experiments were being conducted on several facilities, and as such the scope of activities supported by Dr. Day and his team included targets for experiments on OMEGA, Z, the Atlas machine at LANL, and the Trident Laser at LANL. In addition to targets, Dr. Day also supported key fabrication efforts in diagnostics development for the ICF program.

Special appreciation and recognition are due the conference organizer, Peggy Vigil, of LANL, and the LANL support staff for their tireless efforts in organizing and planning the venue and the meeting, which made the conference enjoyable and productive. We also thank Dr. Bob Cook for his services as the guest editor for this issue of *FS&T*. The target fabrication community is extremely fortunate to continue to have Dr. Cook involved in this special aspect of the conference. The Twentieth Target Fabrication Meeting was an outstanding forum for us to share our research and development progress, detailed in this dedicated issue of *FS&T*.