Preface

Twenty-First Target Fabrication Specialists Meeting

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The Twenty-First Target Fabrication Specialists Meeting (TFM-21) was held from June 21 through 25, 2015, in Las Vegas, Nevada, just south of the historic Nevada Test Site. TFM-21 was attended by more than 100 scientists, engineers, and technical workers from the United States, the United Kingdom, France, and Japan, bringing together international experts in the design, development, and fabrication of inertial confinement fusion (ICF) and high-energy-density (HED) targets fielded on laser and pulsed-power facilities around the world. We were delighted to have such exceptional international participation. The program included 4 invited papers, 53 contributed papers, and 55 posters. A selection of these is presented in this dedicated issue of *Fusion Science and Technology* (*FS&T*).

The more than 110 presentations at TFM-21 discussed advances in target fabrication for ICF and HED made in the 24 months since the previous meeting in this series. Recent results toward achieving laboratory-scale thermonuclear fusion and support of stockpile stewardship efforts were presented. This is a very challenging and exciting time in target fabrication because three major U.S. facilities—Omega, Z, and the National Ignition Facility—all require targets with increasing quality and complexity and at higher volume, as shot rates have increased. Technical advances in target design, development, and fabrication are needed to retain the high quality required while increasing throughput. This has been accomplished by investigating and utilizing new and innovative techniques in target fabrication, including robotics and automation. The TFM-21 schedule consisted of a total of 13 sessions subdivided into 8 technical categories: Thin Films & Modeling, Assembly & Design, Materials, Capsules, Foams, Machining/Coatings & Robotics, Cryogenics, and Metrology.

A tradition of the Target Fabrication Specialists Meeting 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. Martin Hoppe of General Atomics (GA). This award recognizes Dr. Hoppe's contributions to materials science, in particular in the area of capsule development and fabrication, at GA over the past two decades after starting his career in this area at KMS Fusion. Dr. Hoppe's invention has allowed fabrication of highly uniform glass shells at different scales that are not possible with traditional drop tower techniques. His work opened the door to glass capsule use in neutron diagnostic calibration shots, which have provided required data to field critical neutron diagnostic experiments. In addition, Dr. Hoppe has been involved in various critical and indispensable aspects of capsule development and metrology over the years.

Several people deserve a special note of gratitude for helping make TFM-21 a very successful meeting. Very special appreciation and recognition are due the conference organizer, Jean Steve, of the University of Rochester, Laboratory for Laser Energetics, for her tireless efforts in making TFM-21 come about while dealing with location issues. Special thanks go to Nancy Holt, Manager Communications and Government Affairs for National Security Technologies (NSTec), and to the professional staff and management at NSTec for hosting TFM-21 and helping make the meeting a success. We thank and are grateful to Carolyn Isherwood of GA for assisting with agenda preparation and meeting logistics. We also thank Bob Cook for his service 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 important and special aspect of the conference. TFM-21 was an outstanding forum for us to share our research and development progress, detailed in this dedicated issue of *FS&T*.