

PREFACE

The Twentieth Annual International Solid Freeform Fabrication (SFF) Symposium, held at The University of Texas in Austin on August 3-5, 2009, was attended by 123 national and international researchers from 9 countries. Papers addressed SFF issues in computer software, machine design, materials synthesis and processing, and integrated manufacturing. The diverse domestic and foreign attendees included industrial users, SFF machine manufacturers, university researchers and representatives from the government. The Symposium organizers look forward to its being a continuing forum for technical exchange among the expanding body of researchers involved in SFF.

The Symposium was again organized in a manner to allow the multi-disciplinary nature of the SFF research to be presented coherently, with various sessions emphasizing process development, design tools, modeling and control, process parameter optimization, applications and materials. We believe that documenting the changing state of SFF art as represented by these Proceedings will serve both those presently involved in this fruitful technical area as well as new researchers and users entering the field.

New this year was recognizing outstanding research by a senior and junior researcher. The recipient of the first Freeform and Additive Manufacturing Excellence (FAME) Award was Phill Dickens of Loughborough University. The junior award, the International Outstanding Young Researcher in Freeform and Additive Manufacturing Award, went to Carolyn Seepersad of The University of Texas at Austin. These awards include a framed certificate, a small honorarium and a freeformed trophy. Information on the awards, including application details for 2010, is available at <http://utwired.engr.utexas.edu/lff/awards/>.

The awards were presented at a conference banquet Monday evening, August 3. As part of the celebration of the twentieth anniversary of the International Solid Freeform Fabrication Symposium, several special presentations were given. Tom Mueller of Express Pattern described the manufacture of the FAME trophies which were donated by his company. The trophy art was designed by digital artist, Sheba Grossman. She described the artwork and some of the details of its development. Finally, Harris Marcus, the founder of the SFF Symposium, made some remarks about the circumstances surrounding the first SFF Symposium held in 1990.

This year's best oral presentation was given by Christopher Williams of Virginia Tech University. Selection is based on the overall quality of the paper, the presentation and discussion at the meeting, the significance of the work and the manuscript submitted to the proceedings. The paper title was, "Design and Manufacture of Formula SAE Intake System Using Fused Deposition Modeling and Fiber-Reinforced Composite Materials" by Ryan Ilardo and Christopher B. Williams. Selected from 84 oral presentations, his presentation appears on Page 770 of this Proceedings. The best poster presentation selected from 15 posters was given by David Espalin of The University of Texas at El Paso (co-authored by K. Arcaute, D. Rodriguez, F. Medina, M. Posner, R. Wicker). The paper title was, "Fused Deposition Modeling of Polymethylmethacrylate for Use in Patient-Specific Reconstructive Surgery", and the paper starts on Page 569.

The proceedings papers are stored individually on the flashdrive in pdf format by primary author last name. The Table of Contents file has links to all the papers. We have sequentially numbered the pages of the papers to facilitate citation.

The editors would like to extend a warm "Thank You" to Rosalie Foster for her detailed handling of the logistics of the meeting and the Proceedings, as well as her excellent performance as registrar

and problem solver during the meeting. We would like to thank the Organizing Committee, the session chairs, the attendees for their enthusiastic contributions, and the speakers both for their significant contribution to the meeting and for the relatively prompt delivery of the manuscripts comprising this volume. We look forward to the continued close cooperation of the SFF community in organizing the Symposium. We also want to thank the Office of Naval Research (N00014-09-1-0940) and the National Science Foundation (CMMI-0905636) for supporting this meeting financially. The meeting was co-organized by the University of Connecticut at Storrs, and the Mechanical Engineering Department, Advanced Manufacturing Center, and Laboratory for Freeform Fabrication at The University of Texas at Austin.

The editors.