

PREFACE

The Fifteenth Solid Freeform Fabrication (SFF) Symposium, held at The University of Texas in Austin on August 2-4, 2004, was attended by over 120 national and international researchers from sixteen 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.

This proceedings includes an edited transcript of a panel discussion held Tuesday afternoon at the meeting. Moderated by Harris Marcus of the University of Connecticut at Storrs, the panel topic was on the broader impacts of solid freeform fabrication. Panel members include David Alexander (Pratt and Whitney), Clinton Atwood (Sandia National Laboratory), Phill Dickens (Loughborough University, UK), and Kent Firestone (University of Texas at Austin).

This year's best oral presentation was given by **Jean-Pierre Kruth of the Katholieke Universiteit Leuven, Belgium**. 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, "Binding Mechanisms in Selective Laser Sintering and Selective Laser Melting". Selected from almost 70 oral presentations, his presentation appears on Page 44 of this Proceedings. The best poster presentation selected from 19 posters was given by **Vito Gervasi of the Milwaukee School of Engineering**. The paper title was, "Geometry and Procedure for Benchmarking SFF and Hybrid Fabrication Process Resolution" and appears on Page 493.

The proceedings papers are stored individually on the CD in pdf format by primary author last name, and Adobe® Acrobat® Reader™ installers for the Macintosh (OS 10.x) and PC (Windows XP) are included which may be used to view and search the pdf files. The Table of Contents file has links to all the papers. We have sequentially numbered the pages of the papers to facilitate citation. Some versions of Reader™ do not have search capabilities which are necessary to keyword search the SFF Symposium Proceedings. If you have problems with searching, you might consider installing the version of Reader™ from the CD. The Adobe website (<http://www.adobe.com/>) also has other versions of Acrobat Reader which may be downloaded free of charge.

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 are grateful to Bryan Blackmur and Cindy Pflughoft who helped with Proceedings production. 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 (N00014-04-1-0567) and the National Science Foundation (DMI 0412255) for supporting this meeting financially. The meeting was co-organized by the University of Connecticut at Storrs, and the Mechanical Engineering Department, Laboratory for Freeform Fabrication and the Texas Materials Institute at The University of Texas at Austin.

The editors.