

PREFACE

The Thirtieth Annual International Solid Freeform Fabrication (SFF) Symposium – An Additive Manufacturing Conference, held at The University of Texas in Austin on August 12-14, 2019, was attended by 701 researchers from 25 countries. The number of oral and poster presentations increased to 557 this year. The meeting was held on the Hilton Austin in the downtown area. The meeting consisted of a Monday morning plenary, 64 parallel technical sessions and a poster session.

The recipient of the International Outstanding Young Researcher in Freeform and Additive Manufacturing Award was **Dr. Xiaoyu (Rayne) Zheng** from Virginia Tech University. **Dr. Olaf Diegel** from the University of Auckland in New Zealand won the International Freeform and Additive Manufacturing Excellence (FAME) Award.

There are 197 papers in the conference proceedings. Papers marked “REVIEWED” in the title area were peer reviewed by two external reviewers. The proceedings papers are stored individually on a flash drive in pdf format by sequential order in the proceedings. The Table of Contents file and Author-Attendee file have links to all the papers. We have sequentially numbered the pages of the papers to facilitate citation. Manuscripts for this and all preceding SFF Symposia are available for free download at the conference website: <http://sffsymposium.engr.utexas.edu/archive>.

Nine materials-related papers were selected as best papers for inclusion in the journal *JOM* under the aegis of The Minerals, Metals & Materials Society (TMS). Two of these papers were substantially improved for the journal with the original also appearing in this proceedings. Seven were moved with only minor modification; these do not appear in the proceedings. The abstracts of these nine papers appear in the proceedings immediately before the first article. The special issue of *JOM* was published in the March 2020 issue of *JOM*.

A student lunch and panel discussion was provided on August 13th, 2019. A panel discussion with a focus on navigating the transition into career positions in the AM field was conducted with ample opportunities for the students to ask questions. The panel featured four recent PhD graduates working in the field of AM in academia, industry, and a national lab. The panel included, (1) Dr. David Espalin (Assistant Professor - University of Texas at El Paso and Director of Research at the W.M. Keck Center for 3D Innovation), (2) Ben Fulcher (EOS North America), (3) Dr. Brian Gierra (Principle Investigator at Lawrence Livermore National Laboratory) and (4) Dr. Joy Gockel (Assistant Professor in Mechanical and Materials Engineering at Wright State University). The luncheon was attended by approximately 200 students.

The editors would like to thank the Organizing Committee, the session chairs, the attendees for their enthusiastic participation, and the speakers both for their significant contribution to the meeting and for the relatively prompt delivery of the manuscripts comprising this volume. We are grateful to TMS conference management staff for their significant contributions to the meeting planning and proceedings production, particularly Trudi Dunlap, Jennifer Booth and Kelcy Wagner. We look forward to the continued close cooperation of the additive manufacturing community in organizing the Symposium. We also want to thank the Office of Naval Research (N00014-19-1-2678) and the National Science Foundation (CMMI-1934397) for supporting this meeting financially. The meeting was co-organized by the Mechanical Engineering Department/Lab for Freeform Fabrication under the aegis of the Advanced Manufacturing and Design Center at The University of Texas at Austin.

The 2020 SFF Symposium is set for August 17-19, 2020 at the Hilton Austin Hotel in Austin, Texas USA.

The editors.

