

Upcoming Seminar

Department of Materials Science and Engineering

UNT

2:30 pm – 3:30 pm March 23, 2018 at Discovery Park B-155

Materials for Additive Manufacturing

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Abstract: Critical to the selection requirements for Additive Manufacturing (AM) is the need for appropriate materials. Materials requirements for AM include the ability to produce the feedstock in a form amenable to the specific AM process, suitable processing of the material by AM, capability to be acceptably post-processed to enhance geometry and properties, and manifestation of necessary performance characteristics in service. As AM has matured, specific classes of material have become associated with specific AM processes and applications. Following a brief review of the development of AM, this presentation covers this information for each of the seven categories of ISO/ASTM AM categories. Polymers, metals, ceramics and composites are considered. Service properties of AM parts are described. Some anticipated future developments in AM will be presented.

About the speaker:

Dr. David L. Bourell is the Temple Foundation Professor of Mechanical Engineering at The University of Texas at Austin. He is currently Director of the Laboratory for Freeform Fabrication. Dr. Bourell's areas of research include particulate processing with emphasis on sintering kinetics and densification, and materials issues associated with Laser Sintering (LS). Professor Bourell is a leading expert in advanced materials for Laser Sintering, having worked in this area since 1988. Dave was the lead author on the original materials patent for LS technology. Issuing in 1990, this patent has been cited by over 200 other patents, and it represents the original intellectual property for mixed and coated powders for LS, including binders. Since 1995, he has chaired the organizing committee for the Annual International Solid Freeform Fabrication Symposium – An Additive Manufacturing Conference. This meeting is a leading research conference on additive manufacturing and is the oldest, continuously running conference on AM in the world. He holds 9 primary patents dealing with materials innovations in LS dating back to 1990 and has published 250 papers in journals, conference proceedings and book chapters. He is a founding member of the ASTM F42 Technical Committee on Additive Manufacturing and currently serves on the ten-member ASTM/ISO Joint Group 51 on Terminology for AM. Dr. Bourell is a Fellow of ASM International and TMS, and he is also a lifetime member of TMS. In 2009, he received the TMS Materials Processing and Manufacturing Division Distinguished Scientist/Engineer Award. In 2017, he received the Society of Manufacturing Engineers Albert M. Sargent Progress Award for “significant accomplishments in the field of manufacturing processes”.

