

**DANIEL J. EPSTEIN DEPARTMENT OF
INDUSTRIAL AND SYSTEMS ENGINEERING**

EPSTEIN INSTITUTE SEMINAR • ISE 651 SEMINAR

***Printing In Vitro Biological Model for
Tissue Science and Engineering***

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ABSTRACT

For millions of years, cells have been thought of as Nature's building blocks that make living organisms what they are. Advance in engineering and life sciences has emerged an interdisciplinary field of Biofabrication in which cells and other biologics are being used as engineering and/or biological building blocks to invent novel manufacturing processes and therapeutic products. Biofabrication encompass a wide range of engineering, physical, chemical, and biological processes with a broad application in tissue science and engineering, disease pathogenesis study, drug testing and discovery, biosensors, and cell and organ printing. This presentation will report our group's work on Biofabrication, focusing on cell printing of *in vitro* model for regenerative medicine and drug testing. Recent development of cell printing as an emerging field, the enabling cell printing techniques and the development of engineering model for predicting printing-induced cell damage will be presented. Examples of bioprinting of cells as tissue model for drug metabolism studies will be given. Challenges and opportunities of Biofabrication to modern design and manufacturing will also be discussed.

**TUESDAY, MARCH 6, 2012
ANDRUS GERONTOLOGY BLDG (GER) ROOM 309
3:30 – 4:50 PM**

Biography:



Dr. Wei Sun

Dr. Wei Sun is appointed Albert Soffa Chair Professor of Mechanical Engineering, Drexel University; and 1000plan Chair Professor and Director of Biomanufacturing Engineering Research Institute, Tsinghua University, Beijing, China. Dr. Sun's research has been focused on Biofabrication, Computer-Aided Tissue Engineering, CAD/CAM, and Additive Manufacturing. His research has been sponsored by National Science Foundation (NSF), Defense Advanced Research Projects Agency (DARPA), National Aeronautics and Space Administration (NASA), National Institute of Standard and Technology (NIST), Army Research Laboratory (ARL), Johnson & Johnson (J&J), as well as the Chinese NSF and Chinese Ministry of Science and Technology. He has published over 300 journal and conference papers and abstracts, and conducted over 150 invited national and international presentations. He is currently an elected President for International Society of Biofabrication, and serving Editor-in-Chief for international journal Biofabrication.