



CEITEC
BRNO UNIVERSITY
OF TECHNOLOGY

ADVANCED MATERIALS AND NANOTECHNOLOGY

SEMINAR SERIES 2018

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3D Bioprinting: The Intersection of Engineering and Medicine

JUNE, 05
Tuesday, 10:00

Seminar room S2.02
CEITEC BUT, Purkynova 123

Recent breakthroughs in soft matter additive manufacturing have created meaningful opportunities for Engineering, Science, and Medicine to work together on important health topics. At the frontier of the healthcare industry today is the need for customized treatments tailored to the individual. This talk will present research efforts at the University of Florida to design, fabricate, instrument, and control complex systems made from either animate or inanimate soft matter for personalized organ, tissue, and tumor surrogates. We envision that this approach will in the future contribute to generating optimal personalized therapeutic strategies for the patient. The overall program goals are to develop a scalable approach to engineer complex 3-dimensional soft-matter systems, and to develop the foundational principles around the design, realization, and use of these systems. Based on our recent discovery and demonstrations of writing in a liquid like solid enables the free-form fabrication of any 3D geometries made from soft materials, including: hydrogels, silicone, and living cells. The significant engineering challenges in this research cross numerous boundaries and disciplines to tackle barriers that include linking experiments and computation; managing transport in 3D cell culture; and breaking the speed vs. precision barrier in fabrication.