WORKSHOP #5

Understanding 3-D Printing of Soft Matter at the Molecular Level

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The field of additive manufacturing has come a very long way since its inception nearly a decade ago. This workshop would highlight the current status of the field and the role that CFN-NSLS in-situ and ex-situ characterization has made in increasing our understanding of the science and ability to engineer materials and predict outcome.

Start Time (ET)	Title	Speaker (Affiliation)
10:00 – 10:30 a.m.	*Plenary:* Modeling the Behavior of Soft Matter Across Energy Domains and Length Scales	Anna Balazs University of Pittsburgh
10:30 – 10:55 a.m.	Leveraging Jammed Microgels to Shape Complex Fluids: One Method for 3D Printing with Cells, Gels, Elastomers, and Colloids	Thomas E. Angelini University of Florida
10:55 – 11:20 a.m.	An Integrated Biomanufacturing Platform for Organs-on-chip Models and Vascularized Human Tissues	Sebastien Uzel Harvard University
11:20 – 11:50 a.m.	*Plenary:* Flow-induced Alignment of Polymers in Extrusion-based Additive Manufacturing	Anthony Kotula NIST
11:50 – 12:15 p.m.	In-situ X-ray Study of Crystallization Dynamics in Polypropylene Composites	Yuval Shmueli Technion, Haifa Israel
12:15 – 12:45 p.m.	*Plenary:* Synthesis and Photochemically-triggered 3D Printing of Degradable ABA-triblock Polyester Elastomers	Matthew Becker Duke University
12:45 – 1:00 1:00--- 1:15 PM.	*Post-Doc/Graduate Student talks* Controlling Filament Shape Defects in Embedded 3D Printing Application of the Core-Shell Model for Strengthening Polymer Filament Interfaces	Leanne M Friedrich NIST Yu-Chung Lin Stony Brook University
1:15 – 1:45 p.m.	*Plenary:* Organic and Hybrid Nanostructures for Applications in Solar Cells Investigated with Advanced Scattering Techniques	Peter Müller-Buschbaum Technical University of Münich
1:45 – 2:00 p.m.	Combination of 3D Printing and ALD for Dentin Fabrication from Dental Pulp Stem Cell Culture	Kuan-Che Feng Stony Brook University