

BioSyM Seminar Series 2018

Designing with Rheological Complexity

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Date : 3rd September 2018, Monday

Time : 12 pm to 1 pm

Venue : Level 5, Perseverance Room



Abstract

The dramatically shear-thinning “yield-stress fluid” is currently the most utilized non-Newtonian fluid phenomenon. These rheologically complex materials, which undergo a reversible transition from solid-like to liquid-like fluid flow, are used in many food and household products (gels, emulsions, foams), but also in unusual or emerging applications like performance magic and direct-write 3D printing. Rationally designing such rheologically complex materials requires the determination of the relationships between processing, structure, properties (rheology), and ultimately performance. We are interested in how to design these materials with different microstructural approaches, what range of rheology is possible including large extensibility, and how to determine and achieve performance objectives for applications such as direct-write printing.

Short Biography

Arif Nelson joined SMART-BioSyM in 2018 as a Postdoctoral Associate under Prof. Patrick Doyle. He obtained his doctoral degree in mechanical engineering at the University of Illinois at Urbana-Champaign in 2018. His research interests include mechanics of materials, complex fluids and rheology, materials design, and 3D printing.