THE INSTITUTE FOR MOLECULAR ENGINEERING

Seminar Series

SPEAKER

Randy Ewoldt

Assistant Professor, University of Illinois

Molecular features inferred from macroscopic rheology: asymptotically-nonlinear LAOStrain (large-amplitude oscillatory shear strain)

Here, we develop a paradigm for using low-dimensional, asymptotically-nonlinear rheology to better understand soft materials. The experimental technique is based on oscillatory simple shear deformation. After describing the theory, I will demonstrate the utility of the framework with two case studies. In both cases, experimental measurements present novel rheological signatures that have not been predicted by existing constitutive models. The work has implications for (i) conceptual understanding of nonlinear mechanical responses, (ii) constitutive model selection, and (iii) inverse problems to probe microstructural and molecular features of structurally-complex soft materials.

Thursday, July 10th

10 AM GCIS W301

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