Department of Physics
UCF
PHYSICS COLLOQUIUM

Speaker: Dr. Michael Feig, Michigan State University,

Inside biomolecular condensates via computer simulations

Friday, October 2, 2026 1:30 pm, PSB 160/161

Zoom: https://ucf.zoom.us/j/97271704305?pwd=jBv3TPzoBmLhXsBCie7tABxPBBMjCb.1
Meeting ID: 972 7170 4305 Passcode: 430

Abstract: Biomolecular condensates organize biological macromolecules inside cells in a dynamic fashion as a function of concentration, composition, and environmental factors. Results from computational studies are presented that provide detailed insights into the driving forces of condensate formation and the behavior of biomolecules inside condensates.

Intrinsically disordered peptides play a central role in forming such condensates and a focus will be on the methodological challenges and recent advances on modeling intrinsically disordered peptide systems in the context of condensate formation at different levels of resolution from coarse-grained representations to fully atomistic simulations.

Simulation results are further discussed in the context of experimental data to arrive at an integrated structural and dynamic view of the molecular nature of condensates.

BIO: Diplom Physics Technical University of Berlin Ph D Chemistry (Chemical Physics) University of Houston Postdoc Scripps Research Institute La Jolla, CA Faculty at Michigan State U. since 2003, Dept of Biochemistry and Molecular Biology

Research interests in computational biophysics:
- Effects of cellular crowding
- Biomolecular condensates
- Protein-nucleic acid interactions
- Prediction of protein structures (ensembles)
- Development and application of classical simulation methods for biological macromolecules
- Development of generative modeling frameworks (AI/ML)