Physics Colloquium

Prof. Aurelia Honerkamp-Smith
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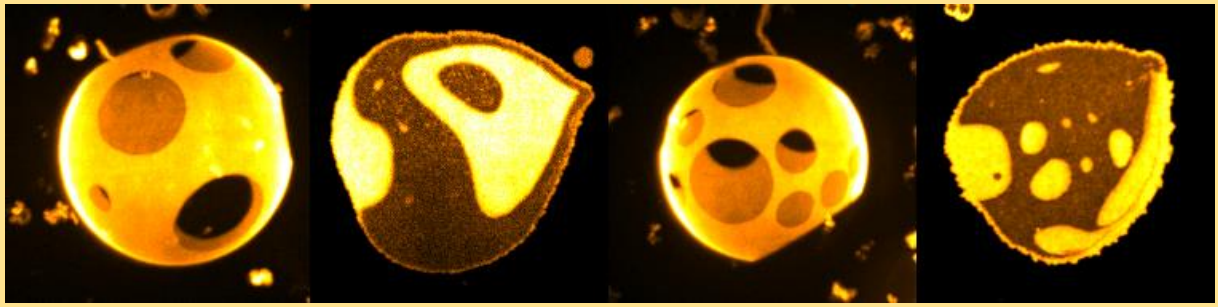
“Sliding, expanding, and compressing: how membranes respond to fluid flow”

A remarkable feature of lipid membranes is their fluidity, which allows them to self-heal, bend, and flow. Understanding how membrane lipids and proteins move in response to flow will help us work out how cells respond to flow in order to regulate important biological functions such as blood pressure, bone density, and neural growth. Unsupported membranes circulate in response to flows in the water surrounding them, but cell plasma membranes are reinforced by a cytoskeletal network of protein filaments which alters lipid and protein mobility. We use supported model membranes, microfluidics and microscopy to investigate flow transport of membrane-linked proteins and modification of lipid properties.



Aurelia earned her Ph.D. from the University of Washington in Seattle, where she investigated static and critical dynamics in lipid membranes with Sarah Keller in the Department of Chemistry. Her discoveries were recognized by the national 2010 Anna Louise Hoffman Award for Outstanding Achievement in Graduate Research. As an Oppenheimer Fellow at the University of Cambridge, she imaged the flow of fluid, lipid membranes, and cell sheets by conventional fluorescence microscopy techniques and by building a light sheet microscope in the laboratory of Ray Goldstein in the Department of Applied Mathematics and Theoretical Physics. She joined the faculty of Lehigh University in 2016.

Thursday, February 24, in LL 316 at 4:25 PM

For Zoom participation, please see information below:

Meeting ID: 972 1274 7894

Passcode: 631869