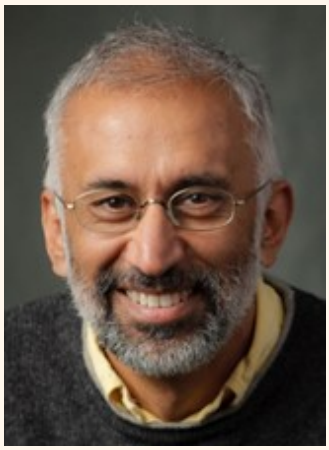
Oct 09, 2025

Time: 2:30 - 4:00 PM
Location: CBB 104

Controlling Adhesion and Friction of Soft Interfaces by Meso-Scale Structures



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ABSTRACT:

Discoveries of unique adhesive and frictional properties in biological attachment systems have, over the past two decades, demonstrated how near-surface architecture at lengths between the molecular (a few nm) and continuum (mm) scales can be used to achieve interesting and unique surface mechanical properties. This has spurred considerable research activity in design of meso-scale, near-surface architecture (typically at micron to mm length scales). This talk will present some of our group's contributions to this field, including design and understanding of film-terminated fibrillar structures for adhesion and friction enhancement, shape-complementary interfaces for controlled adhesion and friction, enhancement of elasto-hydrodynamic friction by surfaces with periodic modulation of properties, and understanding of transitions in lubricated friction of soft solids.

BIOGRAPHY:

Anand Jagota is Professor of Bioengineering and Professor of Chemical and Biomolecular Engineering, and Vice-Provost for Research at Lehigh University. His training is in Mechanical Engineering, from IIT Delhi for undergraduate studies and Cornell University for graduate work. He worked for nearly 15 years as a materials scientist at the DuPont company and moved in 2004 to Lehigh University. His research interests are in interfacial mechanical properties.