Graduate Mathematics Seminar

Modeling of thin liquid films flowing down a cylindrical fiber - experiments and applications.

Dr. Claudia Falcon
University of California Los Angeles

Abstract: Recent experiments of thin films flowing down a vertical fiber with varying nozzle diameters present a wealth of new dynamics that illustrate the need for more advanced theory. Determining the regime transitions from absolute (Rayleigh-Plateau) instability is useful in the design of heat and mass exchangers for applications that include cooling systems and desalination. We present a lubrication model that includes slip boundary conditions, nonlinear curvature terms, and a film stabilization term. This theory is compared with the observed velocity and stability of traveling droplets in the experiments.

When: Monday, September 9, 2019, 6:00 – 7:00 pm
Where: CSUCI, Sierra Hall 2411