

SPECIAL PHYSICAL MATH SEMINAR

Driven interfacial hydrodynamics, and some physics-informed machine learning



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ABSTRACT:

In this talk I will present a few topics of recent interest that centre around the theme of “driven interfacial hydrodynamics”: fluid mechanical systems in which droplets and particles are self-propelled through interaction with the environment. This body of work began several years ago right here at MIT in the Applied Math Laboratory and intersects closely with several areas of soft- and active-matter physics. I will also present some very recent work on using differentiable physics (a branch of physics-informed machine learning) to determine constitutive relations for highly plasticised metals.

This talk will contain elements of fluid dynamics, experimental mechanics, dynamical systems, statistical physics, and machine learning.

THURSDAY, DECEMBER 11, 2025

2:30 PM – 3:30 PM

Building 2, Room 255

Note the exceptional date and room