PHYSICAL MATHEMATICS SEMINAR

Unsteady Fragmentation

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ABSTRACT:

Understanding secondary droplet formation from fluid fragmentation is critical for industrial, environmental, and health processes including for predicting and controlling the transport of pathogen-bearing droplets created from contaminated surfaces or fluid bulks. Despite the complexity and diversity of modes of fluid fragmentation into secondary droplets, universality across geometry and fluid system emerges. Here, we discuss results from our recent experimental and theoretical investigations elucidating the role of unsteadiness in shaping a ubiquitous, yet neglected class of fluid fragmentation problems. In particular, we revisit fundamental assumptions of hydrodynamic instability and reveal how unsteadiness and multi-scale dynamics couple to select the sizes and speeds of the secondary droplets generated. The robustness and universality of our findings across unsteady fragmentation processes are discussed.

TUESDAY, DECEMBER 12, 2017
2:30 PM
Building 2, Room 142

Reception following in Building 2, Room 290
(Math Dept. Common Room)

http://math.mit.edu/seminars/pms/

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