PHYSICAL MATHEMATICS SEMINAR

Faraday instability in deformable domains

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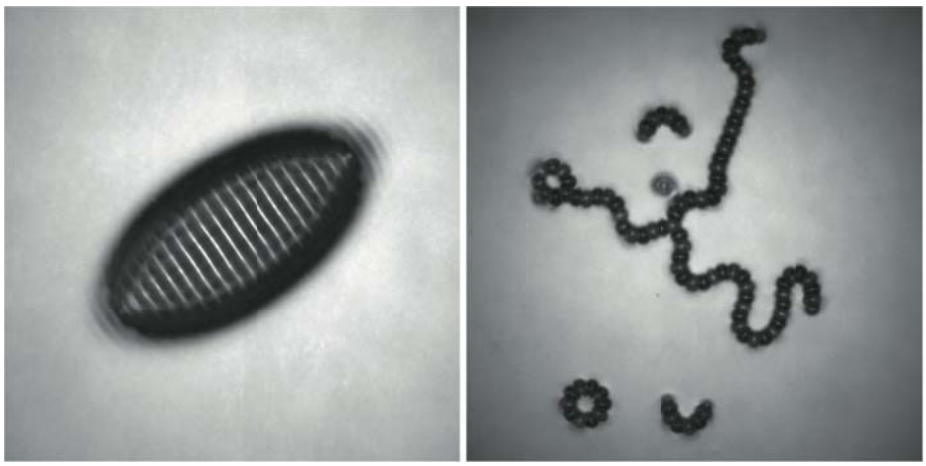
ABSTRACT:

We investigate experimentally the Faraday instability in floating liquid lenses, as an example of hydrodynamic instability that develops in a domain with flexible boundaries. We show that a mutual adaptation of the instability pattern and the domain shape occurs, as a result of the competition between the wave radiation stress and the capillary response of the lens border. Equilibrium shapes are observed and predicted as the exact solutions of a Riccati equation. The non-equilibrium behaviour leads to the breaking into smaller domains that have a complex dynamics including spontaneous propagation.



TUESDAY, FEBRUARY 25, 2014
2:30 PM
Building E17, Room 136

Reception following in Building E17, Room 401A
(Math Dept. Common Room)

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

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