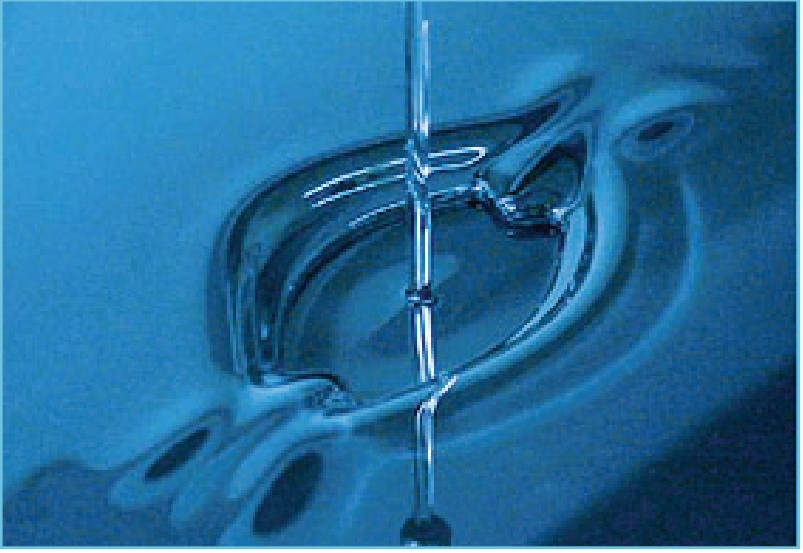

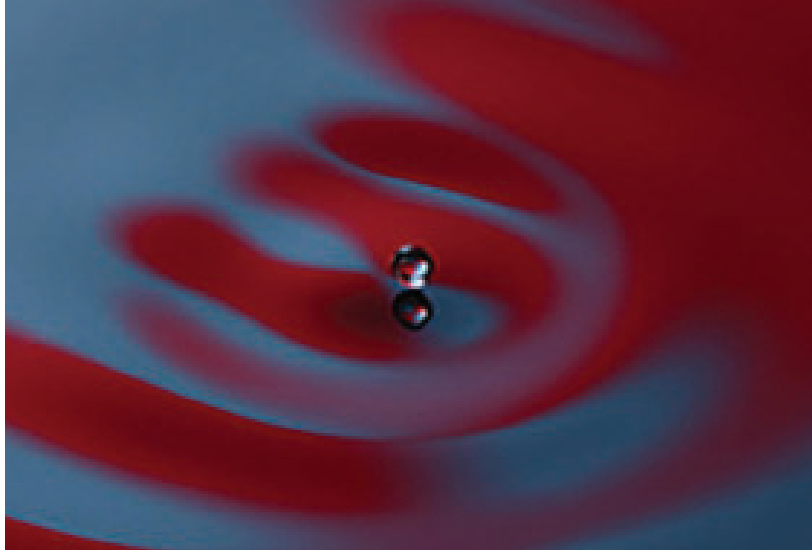

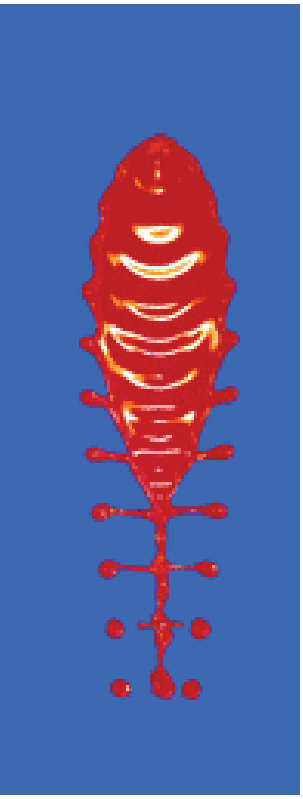

Fall 2022

18.357 INTERFACIAL PHENOMENA

INSTRUCTOR: John W. M. Bush

LECTURES: MW 2-3:30 pm, Room 2-135

Prereq: 18.354, 18.355, 12.800, 2.25, or permission of Instructor

We consider fluid systems dominated by the infl uence of interfacial tension. The roles of curvature pressure and Marangoni stress are elucidated in a variety of situations. Particular attention will be given to the dynamics of drops and bubbles, soap fi lms and minimal surfaces, wetting phenomena, water-repellency, surfactants, Marangoni fl ows, capillary origami and contact line dynamics. Theoretical developments will be accompanied by classroom demonstrations. The role of surface tension in biology will be highlighted, as will be hydrodynamic quantum analogs.

For further information, please contact Professor Bush at bush@math.mit.edu or consult his webpage: http://www-math.mit.edu/~bush/