CLARK UNIVERSITY
ACTIVE MATTER GROUP
COLLOQUIUM

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"Shape and flow in biological and geophysical fluid dynamics"

ABSTRACT: Fluid dynamics textbooks are filled with examples of rigid, unyielding bodies in flows. Nonetheless, the natural world insists on giving us fascinating problems in which solid boundaries are dynamic and deformable or even disappear under the action of a fluid flow. Here, I'll talk about three examples drawn from biological and geophysical scenarios, and I'll show how we use experiments and mathematical models to strip each problem to its core elements. We'll look at "schooling" or interactions between flapping bodies, the stability of insect flight, and the sculptures formed by erosion. In each case, we'll stumble upon a surprise that comes about because of the two-way conversation between a flowing fluid and dynamic boundary.

Wednesday, September 26, 2012

4:15 pm – Room S-122, Sackler Sciences Center