John Oprea
Cleveland State University

Tuesday,
April 26, 2016
2:30 - 3:30 p.m.
Classroom Building 431

Mathematics, Soap Films, and (a Touch of) Biology

Why do one-celled creatures take the shapes they do? What is the mathematics of breathing? More and more, Mathematics is intruding into the realm of biology. Here we will see how mathematical notions of "shape" fit into our understanding of living things. Mathematicians have ways of measuring shape and of determining shape through optimization. This fits well with Nature's penchant for economy, so it isn't surprising (in retrospect) that soap films, which arise from surface tension's ability to shrink surface area, are a kind of analog computer for optimizing shape. This talk will examine a bit of the mathematics underlying the formation of soap films and then use soap film demonstrations to illustrate the concepts. Since audience participation is required for soap film experiments, attendees are encouraged not to wear formal attire!

University of Regina

Pacific Institute *for the* Mathematical Sciences