



Undergraduate Colloquium Series

Mathematics and Soap Films

Prof. John Oprea
Department of Mathematics
Cleveland State University

Friday, November 16,
4:00 - 5:00 PM, MSB 115



Abstract: Why do one-celled creatures take the shape they do? Why do red-blood cells have their characteristic shape? More and more, in biology as well as other sciences, the notion of "shape" is becoming important. 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 power to shrink surface area, are a kind of analog computers for the mathematics of minimizing surface area. This talk, which is directed at undergraduates, will consist of three parts: soap film demonstrations (which will set stage for); a bit of mathematics and; computer experimentation and illustration. Since audience participation is required for soap film experiments, attendees are encouraged not to wear their best attire!

About the speaker: Dr. John Oprea is a Professor of Mathematics at Cleveland State University. He is the author of a number of math books including *The Mathematics of Soap Films: Explorations with Maple*.