UNBC UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Canadian Association of Physicists and UNBC Department of Physics

"Shark skin, butterfly wings, and lotus leaves: the physics of water on rough surfaces"

Dr. Kristin Poduska

Department of Physics & Physical Oceanography
Memorial University

Friday
March 24, 2017
2:30 – 3:30 PM
7-212 Lecture Theatre

Short Biography:

Kris Poduska is an experimental condensed matter physicist based at Memorial University of Newfoundland, where she has been on the faculty in the Department of Physics and Physical Oceanography since 2003. Originally from the United States, Dr. Poduska holds an undergraduate degree in physics from Carleton College (Northfield, Minnesota, USA), and a Ph.D. in physics from Cornell University. Her research is a blend between physics and chemistry, focusing on understanding structural and physical property relations in inorganic materials. The applications of the work span from technologically relevant semiconductors, to medically interesting biomaterials, to ancient archaeological materials.

Abstract:

Self-cleaning walls and anti-fogging windows sound futuristic, but this future is already here! This talk will describe the physics behind why the roughness of a surface changes the way water interacts with it. Will a drop of water bounce, roll, or stick? Will ice crystals form? The answers involve fascinating physics that focuses on controlling the balance between energies associated with solid, liquid, gas interfaces at both micrometer-range and nanometer-range length scales. Along the way, you'll also see how this physics has been informed by knowledge gained from studying intricate water-repellent surfaces from the natural world, including shark skin, butterfly wings, and lotus leaves.

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