

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

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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.

ALL ARE WELCOME!