FLUIDS & THERMAL SCIENCES

Seminar

"Confined Swimmers and Autonomous Flyers"

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9:00 a.m.
B&H Room 190

Abstract:
I will discuss two problems in fluid mechanics inspired by biological systems. The first problem considers active particles, such as motile cells and self-propelled colloids, confined in microfluidic channels. I will show and analyze flow-mediated transitions in the emergent global patterns, including the development of phonons and density shock waves. The second problem is inspired from bird flight and seed dispersal by wind. I will discuss the stability of flight in oscillatory flows and the role of wing flexibility in enhancing or hindering flight performance. I will conclude by commenting on the relevance of these models in guiding the design of novel mechanisms for microfluidic particle manipulation and soft robotic flyers.

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