

Biology Seminar

Speaker: **Victor Ortega-Jiménez, Ph.D.**

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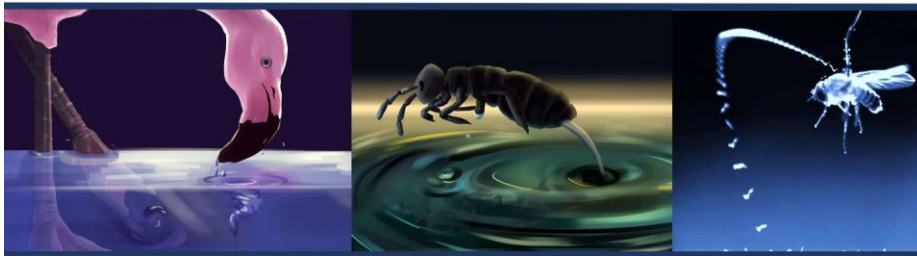
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Organismal Dynamics, Fluids and Sparks: Stories of Marvelous Beasts

Monday April 29, 2024 | 12:00PM PST | HCK 132

Stories of Marvelous Beasts

ORGANISMAL DYNAMICS, FLUIDS & SPARKS



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Most incredible animal adaptations, such as flight or filter-feeding, have been shaped by natural selection in which the fluid environment has played a fundamental role. Similarly, at submillimeter scales, some tiny organisms use other phenomena, such as electrostatics, to their biological advantage. In this seminar, I am going to focus on four stories of my recent research that show how fluids, as well as electrostatic forces outline the animal world. For the first story, I will talk about how semi-aquatic springtails, which are millimeter-sized arthropods, can skydive and consistently land on the water surface. For the second story, I will show how flamingos lift sediment particles to feed. Their chattering beak acts as an unidirectional pump inducing a vertical flow. By retracting their heads from the water they induce tornado-like vortices that effectively stir sediments. Flamingos even use their feet: by stomping they generate horizontal vortices which swirl particles directly to their beaks. The third story I will present how ripple bugs use elastocapillary actuation to enhance interfacial locomotion performance. Finally, I will show how nematodes are pulled by electrostatic forces towards their charged insect host.

Seminar Speaker Host: David Cuban

