An interdisciplinary approach to investigate the mechanisms and mechanics of tissue morphogenesis

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Oral contribution

In modern biology, scientists from diverse fields—including biology, physics, mathematics, computer science, and engineering—collaborate to explore the fundamental principles governing life. New tools and techniques that integrate molecular biology, photonics, and advanced light and force microscopy are now essential to push the boundaries of our understanding of how cells function both individually and collectively, leading to the emergence of complex living forms.

In this presentation, I will showcase few interdisciplinary projects currently underway in my lab, highlighting a wide spectrum of techniques (e.g., multi-view light sheet microscopy for *in toto* imaging, multi-photon manipulation and optogenetics and surface tension measurement) used to explore the mechanisms and mechanics of tissue morphogenesis during the development of an embryo.