



SLAM Seminar

Seeking self-organizing principles of chick gastrulation

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Host: Jérémie Palacci

Gastrulation is a critical event in vertebrate morphogenesis, characterized by coordinated large-scale multi-cellular movements. How spatio-temporal morphological structures emerge from cellular processes in a developing organism and vary across vertebrates remains unclear. Inspired by recent experiments on the chick embryo, we derive a continuum model that couples tissue flows, stress-dependent myosin activity, and actomyosin cable orientation. Our model predicts the onset and development of observed experimental patterns of wild-type and exotic perturbations of chick gastrulation as a spontaneous instability of a uniform state. If time permits, I'll show how the model recapitulates the chick epiblast area homeostasis. Altogether, this suggests that early embryonic self-organization follows from a minimal predictive theory of active mechano-sensitive flows.

Thursday, June 21, 2022 10:00 - 11:00
Sunstone Bldg / Ground floor / Big Seminar Room B



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