

BDR SEMINAR (Kobe & online hybrid)

Mechanobiology Seminar Series presents

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Thursday, June 13, 2024

11:00-12:00

1F Auditorium, DB Building C, Kobe / Broadcast online via Zoom

Zoom meeting URL will be announced on the event day by e-mail.

※This seminar is open only to BDR members.

Geometry-driven organisation in living matter

Summary

The spontaneous generation of patterns and structures occurs in many living systems and is linked to biological form and function [1]. Such processes often take place on domains which themselves evolve in time, and they can be guided by or coupled to geometrical features. The role of shape and geometry in the self-organisation of functional structures however is not understood. I will introduce a new approach for studying shape fluctuations in active, living matter [2], and present two biophysical examples that illustrate how geometry directs spatial organization at different scales. I will discuss how boundary geometry controls a topological defect transition that guides lumen nucleation in embryonic development [3], and how shape can act as a form of memory in cell-cell signaling [4].

[1] Rombouts et al. doi.org/10.15252/embr.202357739 (2023)

[2] Belousov et al. arxiv:2306.04443 (accepted in PRL)

[3] Guruciaga et al. arXiv:2403.08710 (2024)

[4] Dullweber et al. arXiv:2402.08664v2 (2024)



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