

# Department of Molecular Medicine Special Seminar

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**“Surface dynamics in living systems”**

**1 – 2 pm Monday, 15 May 2023**

LG03, Wallace Wurth, UNSW Sydney



Spontaneous generation of patterns and structures occurs in many living systems and is linked to biological form and function. Such processes often take place on domains which themselves evolve in time, and they can be guided by or coupled to geometrical features. Using different biophysical examples, I will discuss how geometry affects spatial organization in cellular and multicellular systems. In particular, I will show recent work on the mechanics of embryo-uterus interactions during implantation [1], the spontaneous rotation of cell-cell interfaces in developing sensory cells [2], and the patterning of feather follicles [3].

[1] Bondarenko et al. bioRxiv (2022) <https://doi.org/10.1101/2022.06.13.495767>

[2] Erzberger et al. Nat. Phys. (2020) <https://doi.org/10.1038/s41567-020-0894-9>

[3] Palmquist et al. Cell (2022) <https://doi.org/10.1016/j.cell.2022.04.023>

**Bio:** Anna Erzberger obtained a PhD in theoretical physics working on the active hydrodynamics of the cytoskeleton during cell migration and cytokinesis at the Max Planck Institute for the Physics of Complex Systems, Dresden. In 2016, she moved to the Rockefeller University, New York, where she worked on the theoretical principles of self-organization during the development and regeneration of mechanosensory organs as a Feodor-Lynen postdoctoral fellow in the group of A.J. Hudspeth. Since December 2020, Anna leads a theoretical physics group in the Cell Biology and Biophysics unit at the EMBL Heidelberg and became an affiliated junior group leader in the Department of Physics and Astronomy of the Heidelberg University in 2021. Her group uses different approaches from theoretical physics to identify general principles of biological organization and function across scales.

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