Disordered and biological soft matter

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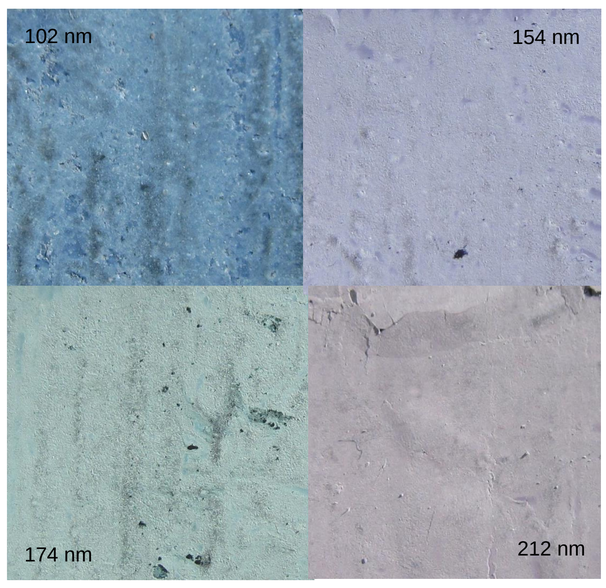
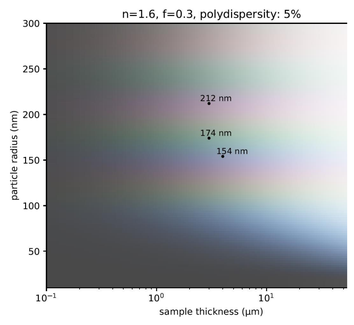
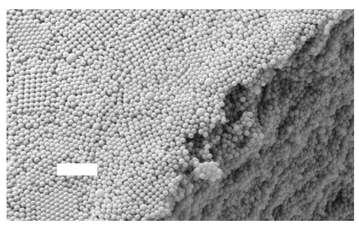
Structural colours in photonic structures

The blue of Morpho Menelaus is NOT a pigment

Colours without pigments/ theory and experiment



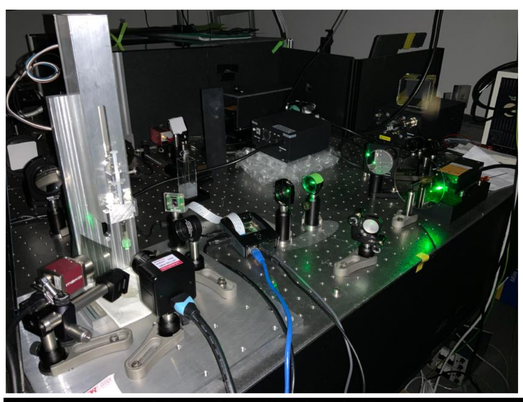


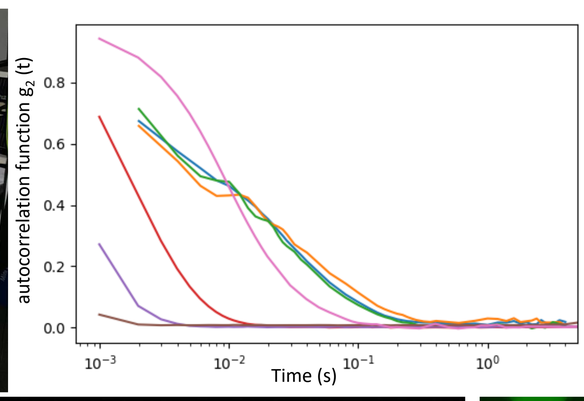


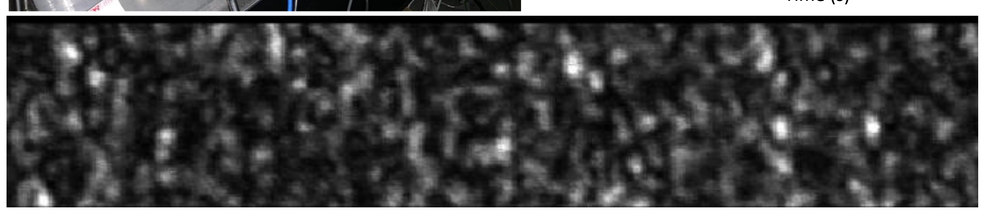
Schertel et al, Adv. Opt. Mat. (2019).

Biomedical diagnostics

Optical characterization of biological liquids – microrheology, diffusing wave spectroscopy and bacterial load

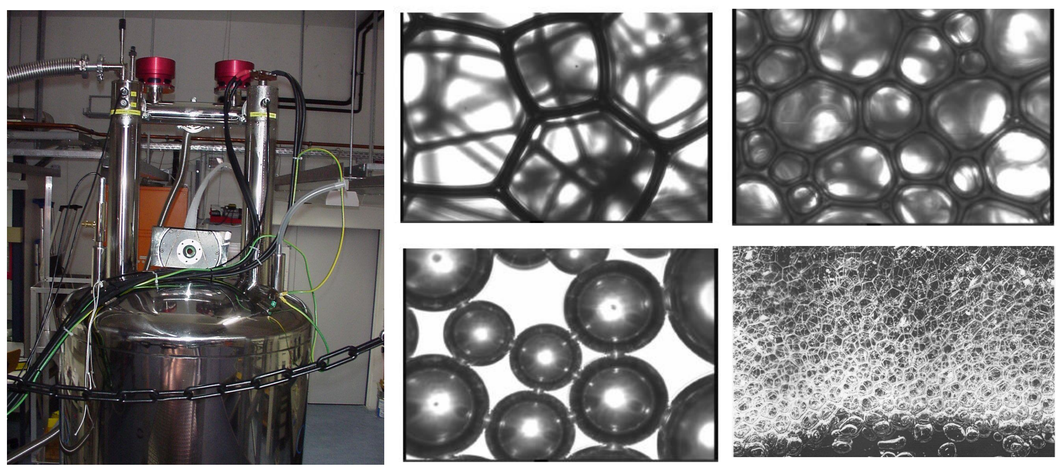






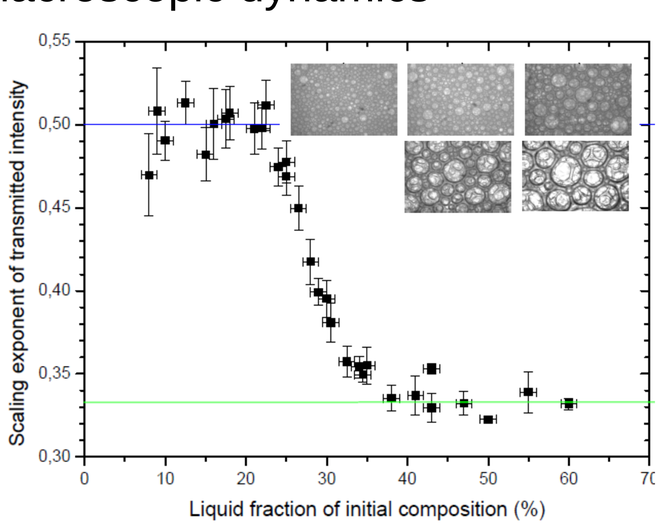
Levitated non-equilibrium systems

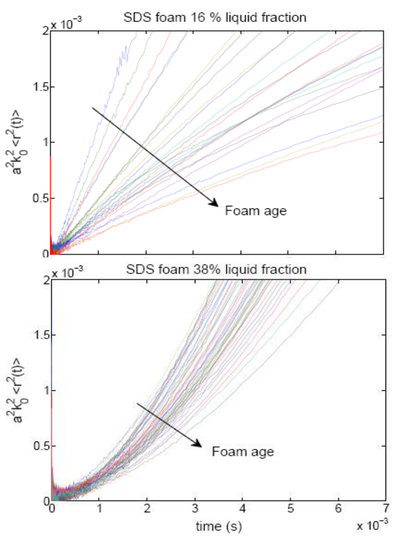
Levitating foams to study their long time coarsening behaviour at different amounts of wetness



Isert, et al, Coll. Surf. A (2015).

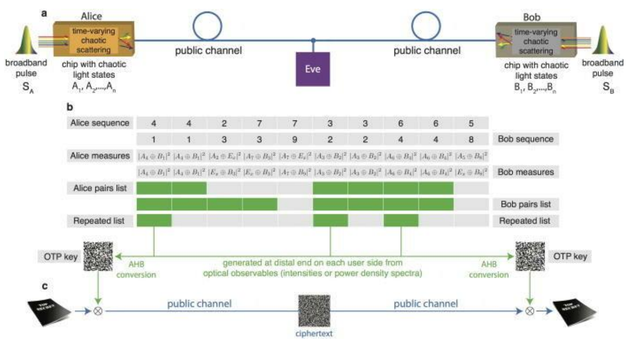
Phase transition observed in both microscopic and macroscopic dynamics

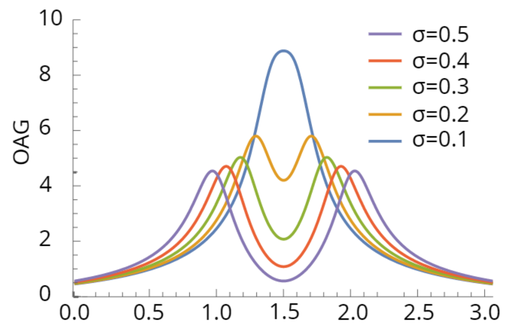


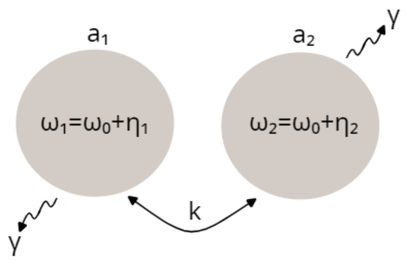


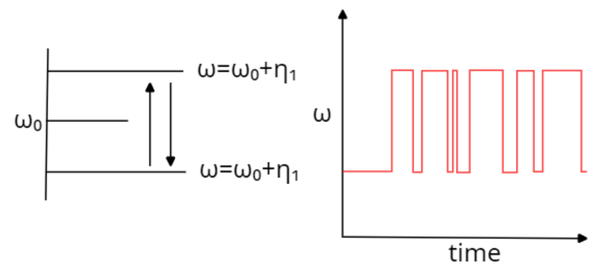
Optics in disordered media

Secure communication using disordered optical channels and stochastic resonance.





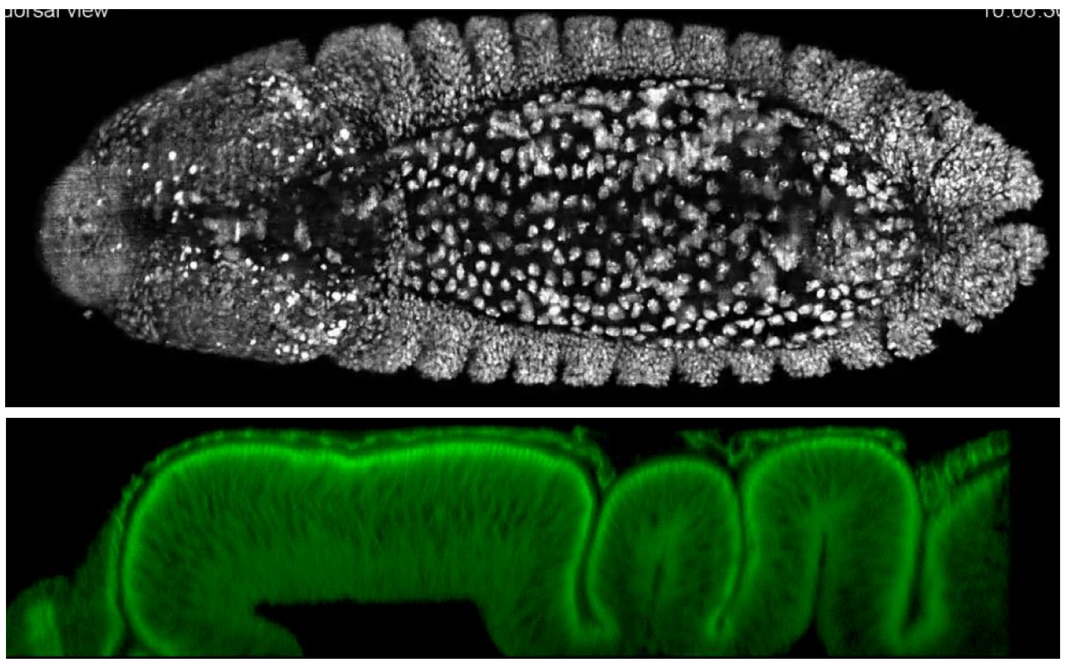




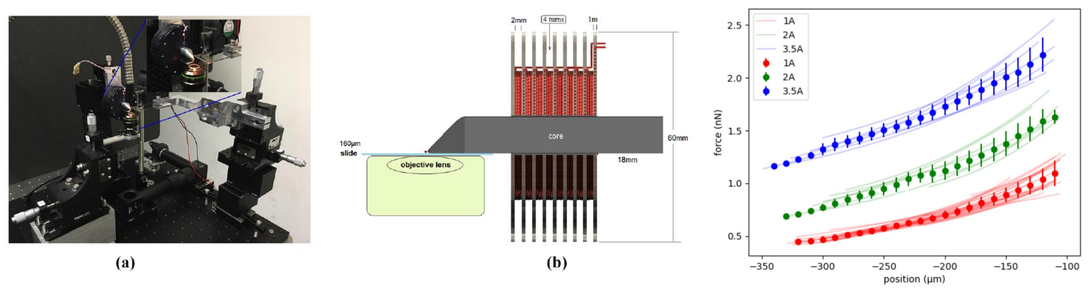
Mazzone et al, Appl. Phys. Lett. **116**, 260502 (2020)
Mazzone and Aegerter (2022).

Mechanical regulation of biological development in Drosophila

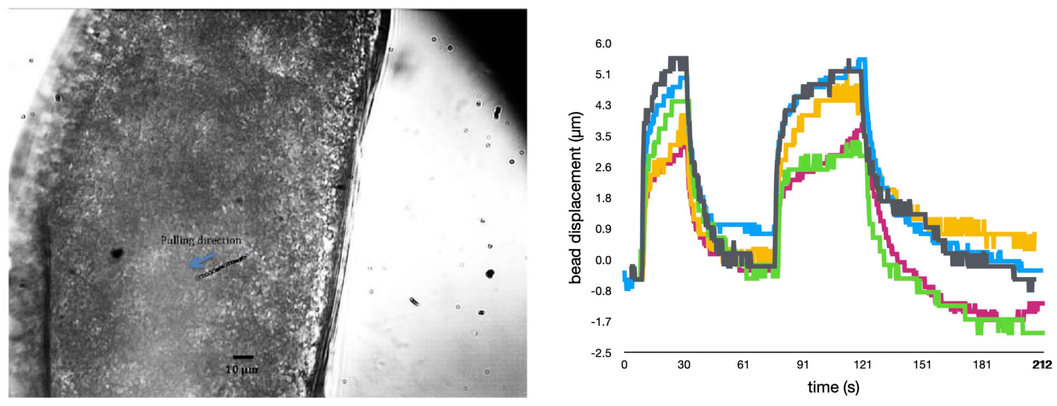
Three dimensional structure formation in embryonic and larval epithelial tissues



Measuring and applying forces on the scale of nN

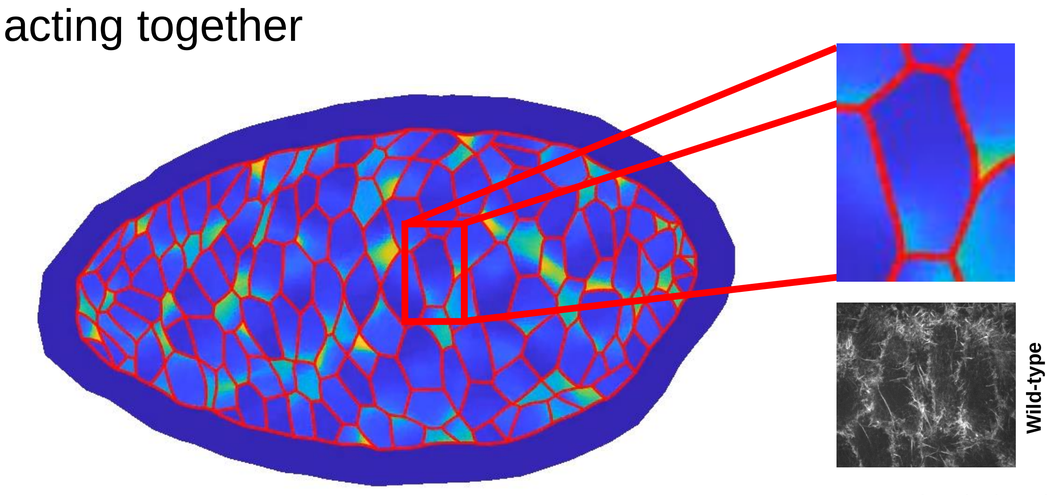


Selvaggi, et al, Rev. Sci. Instr. (2018).



Selvaggi, et al, Biophys. J. (2021).

Simulating mechanical and biochemical regulation acting together



Atzeni et al, BioArXiv. (2020).