

Seminar über Biomedizinische Photonik

Referent/in: Prof. Dr. Gladys Massiera, Laboratoire Charles Coulomb, Université Montpellier

Titel: Biophysical approach of the mucociliary function of bronchial epithelium:
mucus rheology and coordination of cilia beating

The mucociliary function of the bronchial epithelium ensures the continuous clearance of our airways. Mucus is a visco-elastic gel trapping dust and pathogens present in the inhaled air and thus acts as a protective barrier on top of the airway tissue. Its transport is a key element to ensure an efficient clearance of the respiratory system. It relies on two main elements: mucus rheology and cilia beating coordination which generates mucus transport. Our biophysical approach consists in understanding how mucus flows performing rheology at different length scales, and in understanding how cilia coordinate by analyzing the beating of cilia from high-speed videomicroscopy. The resulting mucus transport is also analyzed. As an experimental model, we use ALI (Air-liquid interface) cultures of bronchial epithelium. Our experimental results will be compared to theoretical models from statistical physics developed to describe cilia synchrony.

Zeit: Mittwoch, 18. Mai 2022, 10:15

Ort: Room A97, ExWi, Sidlerstrasse 5, 3012 Bern
Zoom-Link:
<https://ethz.zoom.us/j/64851454165>
Meeting-ID: 648 5145 4165