



Einladung zum Vortrag

“The influence of geometry on shape changing soft matter”

John Dunlop

Morphophysics Group, Department of the Chemistry and Physics of Materials,
University of Salzburg

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Ort: Christian-Doppler-Hörsaal
9. Boltzmannngasse 5, 3. Stock

Abstract:

Biological materials change shape and volume over time. This allows organisms for example, to form new tissue during growth and morphogenesis, as well as to repair and remodel old tissues. In addition, such shape changes can also lead to useful motion or force generation (actuation) that may even still function in the dead organism, as seen in the well-known example of the pine cone that releases its seeds upon drying. Both growth and actuation of tissues are mediated by the physical constraints of the surrounding environment and the architecture or microstructure of the underlying tissue. We explore the role of these geometric constraints by combining theoretical approaches with physical models made using advanced 3D printing technology, that can be tested either in cell-culture or in mechanical testing. This presentation will give an overview of this approach, highlighted by one example on growth and another on swelling driven shape changes. In addition to learning about the fundamental biophysics of morphogenesis, it is hoped the ideas stemming from such research can be used to design new materials for medicine and soft-robotics.

**Im Rahmen des Vortrages findet eine Lehrprobe zum Thema
„Brownian Motion: Theory and Experiment“ statt.**