

# SFB 960-/BZR – Kolloquium

2. Mai 2019, 14.00 Uhr  
Neubau Biologie H53



## Prof. Dr. Sandro Keller

TUK

Technische Universität Kaiserslautern  
Molekulare Biophysik

### *Polymer-Based Nanodiscs for Membrane Biophysics*

Some amphiphilic copolymers enable a fundamentally new approach for investigating membrane proteins, as they obviate the use of conventional detergents. These polymers extract proteins and surrounding lipids directly from cellular membranes to form nanosized discs, where the polymer wraps around a lipid-bilayer patch. Such nanodiscs are amenable to a broad range of methods requiring nanosized particles, which sets them apart from traditional bilayer systems such as vesicles. In this talk, I will focus on a new membrane-solubilising copolymer named diisobutylene/maleic acid (DIBMA) that is compatible with optical spectroscopy in the ultraviolet range. Differential scanning calorimetry, Raman scattering, and time-resolved fluorescence spectroscopy demonstrate that DIBMA does not disturb the order, dynamics, and hydration of the solubilised membrane fragments, and enzyme assays benefit from the fact that DIBMA tolerates elevated concentrations of multivalent ions often required for protein activity.

Oluwole et al. *Angew. Chem. Int. Ed.* 2017, 56, 1919; Grethen et al. *Sci. Rep.* 2017, 7, 11517; Oluwole et al. *Langmuir* 2017, 33, 14378

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