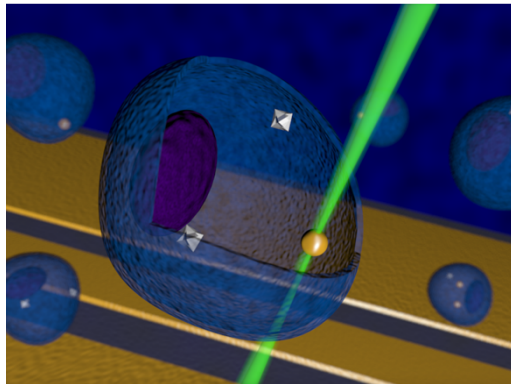


# Physikalisches Kolloquium

Di 16.07.19  
15:15 Uhr  
14:45 Uhr, Kaffee/Tee  
R 513



**Prof. Dr. Peter Maurer**  
EPFL Lausanne, Switzerland /  
University of Chicago, USA



## Quantum sensing in a new single-molecule regime

Quantum optics has had a profound impact on precision measurements, and recently enabled probing various physical quantities, such as magnetic fields and temperature, with nanoscale spatial resolution. In my talk, I will discuss the development and application of novel quantum metrological technologies that enable the study of biological systems in a new regime. I will start with a general introduction to quantum sensing, with a focus on the measurement of magnetic fields at a nanoscale. I will then show how we utilize such sensing techniques to control the temperature profile in living systems with subcellular resolution. Finally, I will provide an outlook on how quantum sensing and single-molecule biophysics can be utilized to perform NMR spectroscopy with unprecedented sensitivity, possibly down to the level of individual biomolecules.