Physikalisches Kolloquium

UNIVERSITÄT BAYREUTH
Physikalisches Institut

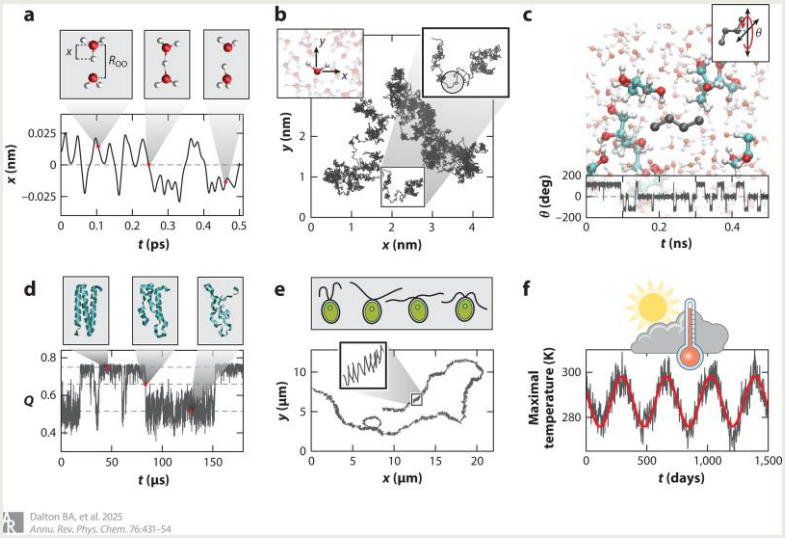
Speaker: Prof. Roland R. Netz, FU Berlin

Modeling of equilibrium and non-equilibrium time-series data: from protein folding to weather forecasting

Most systems of scientific interest are interacting many-body systems. One typically describes their kinetics in terms of a low-dimensional reaction coordinate, which in general is influenced by the entire system. The dynamics of such a reaction coordinate is governed by the generalized Langevin equation (GLE), an integro-differential stochastic equation, and involves a memory function [1]. I will discuss a few examples where the GLE can be used to interpret and model data in different fields of science, from protein-folding [2], via the motion of living organisms [3] to weather data [4].

[1] Annu. Rev. Phys. Chem. **76**, 431–54 (2025)
[2] PNAS **120**, e2220068120 (2023)
[3] PRX Life **3**, 023015 (2025)
[4] Newton **1**, 100138 (2025)

Dienstag, 9. Juni 2026 | 17 Uhr s.t. | Hörsaal H15 (NW I)



https://www.physik.uni-bayreuth.de/kolloqium