

Plenary Talk PV X Fri 9:00 Paulussaal
Search as (quantum) selforganized process — ●GIOVANNA MORIGI — Theoretical Physics, Saarland University

Efficient retrieval of information is a core operation in the world wide web, is essential for the sustainance of living organisms, and is a paradigm for optimization algorithms. Inspired by the food search

of living organisms, we model a search mechanism on a graph with multiple constraints where the dynamics is a selforganized process resulting from the interplay of coherent dynamics and noise. We show that noise can be beneficial leading to a significantly faster convergence to the optimal solution. We then analyse adiabatic quantum searches that are assisted by stochastic dynamics and discuss when their efficiency can outperform the one of the coherent counterparts.