
Kolloquium des Instituts für Angewandte Physik / Quantentechnologien



TECHNISCHE
UNIVERSITÄT
DARMSTADT

Zeit: **Dienstag 25.11.2025, 16 Uhr**

Ort: Gebäude S2 | 15, Raum 134 (Handbibliothek)

From Regular Arrays to Molecules: Symmetry, Collectivity, and Dissipation

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Periodic arrays of quantum emitters provide a controlled setting to probe how geometry and symmetry shape light–matter coupling under dissipation. I begin with atomic arrays, showing how subwavelength structuring enables linear optical elements and chiral response. I then move to highly symmetric ensembles, outlining a compact approach to the Dicke problem and its implications for collective decay, entanglement, and multilevel extensions. Finally, I turn to molecules—not yet collective platforms, but systems where nonradiative decay and conical intersections govern relaxation. I sketch a generalized energy-gap description and an outlook for modeling nonadiabatic effects with open-system tools.

The overarching theme is open-system light–matter physics: when symmetry supports collective behavior, when added internal structure suppresses it, and where these ideas may (and may not) carry over to molecular settings.