

OPTEXC

Invited Speaker Series

Beyond the Edge: Discovering Excitons in Organic and Hybrid Materials from First Principles**

The diverse nature of photo-induced quasiparticles in novel optoelectronic systems calls for a fundamental, microscopic understanding that ab initio methods are uniquely equipped to provide. Density-functional theory and many-body perturbation theory serve as state-of-the-art approaches to capture these electron-hole interactions. In this talk, I will briefly outline these computational frameworks and demonstrate through targeted examples their power to elucidate the nature and dynamics of excitons across diverse platforms, ranging from organic semiconductors and their crystalline phases to hybrid organic/inorganic interfaces. I will highlight how these theoretical insights directly bridge the gap to experimental observations, paving the way for a rational understanding of excitonic phenomena in complex systems.

Date: Thursday, 22nd October 2026

Time: 1230 | Room: H11 (NWI)



Prof. Dr. Caterina Cocchi
Universität Jena
Germany

OPTEXC

Tutorial Series

Ab Initio Spectroscopy: A Solid-State Physicist's Perspective

Date: Wednesday, 21st October 2026

Time: 1600

Room: S35 (NWI)



Prof. Dr. Caterina Cocchi
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