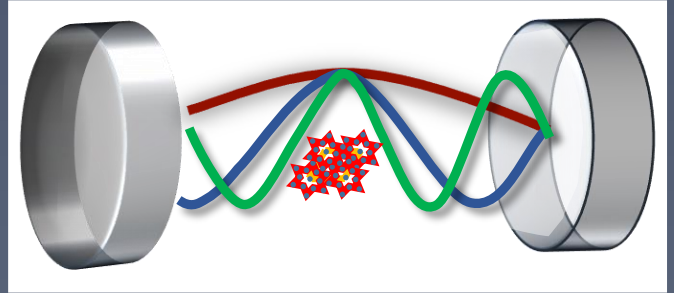


PhD Position

Cavity Control of Quantum Materials

Opening in the group of Prof. Daniele Fausti, Chair of Solid State physics at the University of Erlangen for a fully funded positions in the GMBF project "Cavity Electrodynamics as a New Route To Control Quantum Cooperative Properties of Matter" (CENTQC).

Project Overview: In CENTQT we will explore innovative approaches to the control of quantum cooperative matter phases by light. We will use light-matter hybridization, obtained by embedding quantum materials into resonant optical cavities, and resonant drive of the cavity modes, with mid infrared and THz ultrashort light pulses, to control and manipulate functionalities in quantum materials on ultrafast timescales.



Research Objectives: The selected candidate will have the opportunity to:

- Development innovative ultrashort laser spectroscopy techniques
- Implement a unique time-resolved Raman technique capable of combining resonant drive with mir-IR pulses of phonon and electronic modes and ultrafast Raman probes of the thermodynamic response of materials within and outside of resonant cavities
- Explore in collaboration, with leading theoretical groups in non-equilibrium physics of complex quantum materials, new approaches to control metal-insulator phase transitions and high temperature superconductor

Qualifications: Prospective candidates should possess a strong background in physics, material science, or a related field. A keen interest in experimental optical techniques, and in particularly in the realm of ultrashort laser spectroscopy is highly desirable. The successful applicant will join a dynamic research environment and collaborate closely with both experimental and theoretical teams.



Interested candidates are invited to submit their applications, including a CV and a cover letter outlining their research interests and the relevant experience. Application will receive a full consideration by **March 30th 2024**.

The application should be addressed to:

Prof. Dr. Daniele Fausti

daniele.fausti@fau.de

<https://www.fkp.physik.nat.fau.eu/>

Project Related Publications

Nature 622, 487–492 (2023) ([link](#), [archive](#))

Nature Physics 17, 368–373 (2021) ([link](#), [archive](#))

<https://arxiv.org/abs/2403.00851>

Full list of group publications



Lehrstuhl für Festkörperphysik
Friedrich-Alexander-Universität
Erlangen-Nürnberg
Staudstr. 2, Erlangen (De)

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