



CRC 1227
Designed Quantum States of Matter



GUEST LECTURE

Priv.-Doz. Dr. Beatriz Olmos Sanchez

**Institute for Theoretical Physics,
Eberhard Karls Universität Tübingen, Germany**

(Guest of Prof. P.O. Schmidt and Prof. K.Hammerer)

Leibniz Universität Hannover

DQ-mat Colloquium

13 April 2023, 4.00 pm

Room D326

Building 1101, Welfengarten 1

"Atoms coupled to nanofibers: from topological phases to correlated photon emission"

An ensemble of emitters coupled to a common environment displays collective behaviour. This includes the enhanced and inhibited emission of photons from the ensemble (so-called super and subradiance, respectively), and the emergence of induced dipole-dipole interactions among the emitters. Among these structures, so-called nanophotonic waveguides such as single mode optical nanofibers particularly stand out, since the translationally invariant nature of the nanofiber-guided modes gives rise to infinitely ranged couplings between the emitters. In this talk, I will summarize some of the latest theoretical results in my group, where we have shown how these all-to-all interactions can facilitate the enhancement of the fiber coupling efficiency, the study of non-trivial topology, and the emergence of correlated photon emission, among other phenomena.

All DQ-mat members and all interested are cordially invited to attend.