Seminar/Talk

Room Temperature Superfluorescence in Hybrid Perovskites and Its Origins

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As the demand for quantum approaches in computing, communication and cryptology is increasing, the need for discovering new “quantum materials” is at an unprecedented level. While for most applications the required quantum properties are known, the designer rules for producing these materials are not clear and quantum materials functioning at room temperature is almost non-existent. One of the major challenges is the short lifetime of quantum coherent states at practically relevant temperatures. Since quantum phase is extremely fragile due to thermal scattering events, we have the following fundamental questions: Are thermal processes really a fundamental roadblock for designing quantum materials with extended coherence? Is there a way to protect quantum coherence in spite of thermal scattering? Based on our recent discovery of room temperature superfluorescence in hybrid perovskites, we believe that it is possible to protect the quantum phase of a quantum system by isolating it from ambient thermal interactions by using a mechanism similar to vibrational isolation in classical mechanical systems. In this talk, I will present the Quantum Analog of Vibration Isolation (QAVI) model and my perspective for designing quantum materials at high temperatures.

Wednesday, May 25, 2022 10:00am - 11:00am
Heinzel Seminar Room

This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station. Please find a schedule of the ISTA Shuttle on our webpage: https://ista.ac.at/en/campus/how-to-get-here/ The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.