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NEXT LITE-SEMINAR

Photon engineering with a Condensed Matter perspective

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Date and Time: **Tuesday, February 27th 2018, 14:00**

Location: **TU Wien, Institute of Solid State Electronics**
1040, Floragasse 7, 1st Floor, Seminar Room 362

Host: S. Rotter

Abstract

Engineered quantum systems are of central importance for future information processing and metrology. During the last two decades the elementary building blocks of such quantum technologies have been realized based on various platforms, ranging from atomic and trapped ion to solid-state systems. In particular, light-matter systems are at the forefront of research, providing the best of two worlds, i.e., the ability to transport information over large distances via photons as well as the possibility to create entanglement and strong interactions locally in various cavity QED architectures. A key challenge for further progress in the field is to couple together basic building blocks such as qubits, cavities and waveguides and to develop novel mathematical tools for the description of such inherently open quantum many-body systems.

In this talk, I will discuss recent progress and prospects of quantum technologies based on interacting photonic lattices for exploring novel phases of matter and light and for the implementation of various quantum tasks, ranging from quantum simulations and sensing to quantum information processing.

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