



Einladung zum Vortrag

Novel platforms for quantum science and technology

von

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Ort: Seminarraum IQOQI
9. Boltzmannngasse 3, 2. Stock

Abstract:

The 'second quantum revolution' aims at exploiting coherence for novel technologies, e.g. computers, communication, and sensors. These platforms likely involve electromagnetic, mechanical, as well as topological degrees of freedom as building blocks.

I will start by introducing cavity optomechanics, a rapidly-growing field where mechanical degrees of freedom are coupled to electromagnetic cavity modes. Showcasing its impact on technology, I will discuss non-reciprocity due to synthetic magnetic fields and reservoir engineering [Nat. Comm. 8, 604 (2017) as well as PRL 120, 023601 (2018)].

These developments also lead to many-body problems interesting in their own right. I will discuss the robustness of Majorana edge modes under disorder and interactions, presenting the exact, analytical topological phase diagram for interacting Kitaev chains with disorder [PRB 96, 241113(R) (2017)].