Seminar/Talk

Dissipative quantum phase transition and nonperturbative cQED

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Host: Johannes Fink

Strong coupling between matter and quantized electromagnetic modes may offer yet another approach of controlling equilibrium phases or dynamics of quantum many-body systems. Recent developments have realized such strong light-matter interaction in genuinely nonperturbative regimes, where conventional theoretical methods often fail. I will talk about how one can analyze strongly coupled quantum light-matter systems at arbitrary interaction strengths on the basis of an asymptotically disentangling unitary transformation [1,2]. I discuss its application to construction of tight-binding Hamiltonians, dynamics of bound states in the continuum, and revisiting dissipative quantum phase transition in resistively shunted Josephson junctions [3]. [1] Y. Ashida, A. Imamoglu and E. Demler, PRL 126, 153603 (2021).[2] Y. Ashida, T. Yokota, A. Imamoglu and E. Demler, PRR 4, 023194 (2022).[3] K. Masuki, H. Sudo, M. Oshikawa and Y. Ashida, PRL 129, 087001 (2022).

Thursday, September 15, 2022 01:00pm - 02:00pm
Online via Zoom

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