

Speaker: **Aurelia CHENU (University of Luxembourg)**

Title: **Harvesting noise in non-Hermitian dynamics**

We consider the dynamics of lossy systems, modeled by a non-Hermitian Hamiltonian, and show how noise in the decay rate gives rise to an 'anti-dephasing' master equation [1]. Looking at such dynamics in a dissipative qubit, we identify a new, noise-induced phase. Interestingly, adding noise allows for a rich control of the dynamics, making state purification possible for a greater variety of steady states. Among the applications, we propose a protocol for the analog preparation of non-stabilizer, magic states [2].

[1] Pablo Martinez-Azcona, A. Kundu, A. Saxena, A. del Campo, and A. Chenu, Quantum Dynamics with Stochastic Non-Hermitian Hamiltonians. Phys.

Rev. Lett. 135, 010402 (2025)

[2] Pablo Martinez-Azcona, M. Sarkis, A. Tkatchenko, A. Chenu, Magic Steady State Production: Non-Hermitian and Stochastic pathways, arXiv:2507.08676