

Speaker: **Maria Carmen BANULS (Max Planck Institute of Quantum Optics, Germany)**

Title: **Tensor Networks for spectral properties**

Tensor networks are well known as efficient numerical tools for ground states of quantum many-body systems in low spatial dimensions. The ansatz is however not suitable to describe highly excited eigenstates, or out-of-equilibrium dynamics. Nevertheless, recently proposed TNS algorithms allow us to access spectral properties of the Hamiltonian over extensive energy ranges. They allow us to access spectral densities of many-body operators (e.g. densities of states) but also to probe the structure of physical operators in the energy eigenbasis, in particular the predictions of the eigenstate thermalization hypothesis, which particularizes the random matrix behaviour for the physical many-body setting.