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# Tensor Network methods for quantum circuit emulation, hybrid-architectures and quantum systems in non-Markovian regimes.

*Wednesday, 30 October 2024 15:05 (20 minutes)*

Tensor network methods have emerged as powerful tools for addressing complex challenges in quantum science, particularly supporting advances in quantum computing and technologies. In this talk, I will discuss recent developments in tensor network techniques across various domains. First, I will highlight how the integration of hyper-optimized contraction protocols into tensor network algorithms significantly improves the efficiency and accuracy of quantum circuit emulations. Additionally, I will explore novel hybrid tensor network architectures for variational optimization tasks. Finally, I will focus on the simulation of quantum optical systems in non-Markovian regimes, presenting results about the generation of entangled bound states in waveguide quantum electrodynamics.

## Sessione

Simulazione

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