

# Introduction to Tensor Network Methods

*Friday, 20 September 2024 11:00 (2 hours)*

We introduce tensor network methods, a powerful class of classical numerical algorithms to support future quantum simulations and computations, providing guidance, benchmarking and verification of the quantum computation and simulation results. Starting from the basics concepts and algorithms, we conclude the lesson with an overview of some of the latest developments: their application lattice gauge theories in regimes where Monte Carlo methods efficiency is hindered by the sign problem and to complex hard combinatorial problems. Finally, we review the application of tensor networks to perform machine learning tasks.

**Presenter:** MONTANGERO, Simone (Università degli Studi di Padova, Italy)