Contribution ID: **6** Type: **Lecture**

Tensor Networks - Introduction and Matrix Product States (lecture 1)

Tuesday, 5 March 2019 10:00 (1 hour)

In recent years, tensor networks have become a viable alternative to Monte Carlo calculations and exact diagonalization for the simulation of many-body systems.
As they represent a formulation of quantum mechanical wavefunctions with polynomially many parameters, they make calculations of large systems feasible.

They have already found wide application in condensed matter physics and start to be an interesting tool for high energy physics as well.

In this lecture series, I will introduce the basic concepts of tensor networks.

We will start with an introduction of the necessary basics of quantum mechanics and linear algebra and focus on the algorithmic side of tensor networks in the second lecture.

Presenter: EMONTS, Patrick (Max Planck Institute of Quantum Optics)

Track Classification: Lectures and exercises