

## Quantum computing for quantum simulation

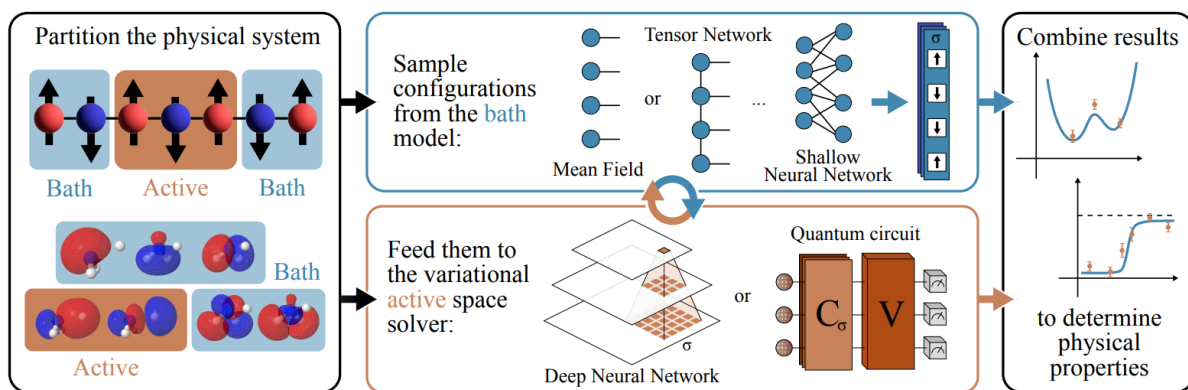
**Stefano Barison**

*École Polytechnique Fédérale de Lausanne (EPFL)*

November 15th 2024, 11.00 CET, Room U1-11, Piazza della Scienza 1

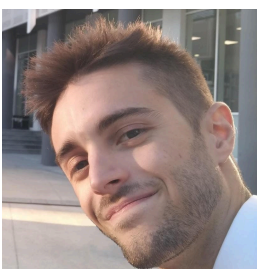
Università di Milano-Bicocca, Dipartimento di Fisica

Piazza della Scienza 3, 20126 Milano



*image from S. Barison et al. arXiv:2309.08666 [quant-ph]*

In this seminar, we will discuss why quantum simulation is a highly anticipated application of quantum devices. We will start by introducing the challenges that classical computers face and the potential advantages of quantum computers. Then, we will examine the current limitations of quantum hardware and introduce the quantum-classical hybrid workflow. Finally, we will present some of the modern hybrid quantum-classical techniques for simulating quantum systems, addressing both their equilibrium properties and dynamics.



Stefano Barison is currently completing his Ph.D. at the École Polytechnique Fédérale de Lausanne (EPFL) under the supervision of Prof. Giuseppe Carleo. Previously, he obtained his M.Sc. and B.Sc. degrees in Physics at the Università degli Studi di Milano. His work focuses on developing and using novel quantum and/or classical algorithms to study quantum systems.