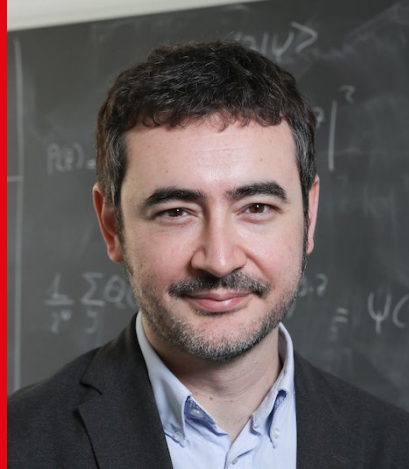


Exploring New Computational Frontiers in Quantum Many-Body Physics

APERO
after the
colloquium



Prof. Giuseppe Carleo

Computational Quantum
Science Laboratory

Tuesday

May 30th

15:15

Room BSP 231
(Cubotron I)

Since the early days of quantum mechanics, significant effort has been put into solving its fundamental equations for systems with many particles. This intrinsically complex problem lies at the heart of the possibility of making accurate predictions in physics, chemistry, and beyond. I will describe the development and application of new computational methods for quantum many-body problems. On the one hand, I will describe the concept of "neural quantum states," a family of variational states we introduced in 2016 and currently adopted in applications from condensed matter to nuclear theory. On the other hand, I will discuss the challenges and opportunities in using quantum computers to solve traditionally complex problems in physics.