

Appunti di Fisica '25

29 Ottobre ore 15:00

Sala Seminari, CNR-IPCF

Perspectives of Quantum Computing for Astrophysics and Cosmology data analysis

Farida Farsian

(INAF - Istituto Nazionale di Astrofisica - Catania)

The rapid advancement of quantum computing technologies is opening new frontiers across various scientific disciplines. As quantum devices continue to evolve, investigating their potential to tackle complex computational problems in astrophysics and cosmology becomes essential.

In this seminar, I will present an overview of my recent research focused on the application of quantum computing and quantum machine learning techniques to astrophysical and cosmological problems. In particular, I will discuss the implementation and capabilities of quantum neural networks in analysing astrophysical data, as well as the application of quantum Fourier transform in Cosmic Microwave Background data analysis.

The talk will highlight both the promising opportunities and the current limitations of these quantum approaches, providing a perspective on how quantum computing could contribute in data analysis and modelling in astrophysics in the near future.

<https://appuntidifisicamessina.wordpress.com>