

Bollettino Settimanale

Lunedì 22 gennaio 2024	Martedì 23 gennaio 2024	Mercoledì 24 gennaio 2024	Giovedì 25 gennaio 2024	Venerdì 26 gennaio 2024
<p>POMERIGGIO TEMATICO SU QUANTUM COMPUTATION AULA AMALDI</p> <p>14:40 Quantum Computation for Henergy Energy Physics¶¶ 40m' This seminar explores the transformative potential of quantum computing in high-energy physics. An introduction to current quantum computing paradigms, quantum algorithms for particle physics simulations and complex computations, and quantum machine learning will be presented, emphasizing their possible role in accelerating high energy physics research. While highlighting possible advantages and opportunities, I'll also address limitations and crucial questions that need to be answered to eventually hope for quantum advantage in real-word applications.</p> <p>Speaker: Stefano Giagu (Sapienza Università di Roma and Istituto Nazionale di Fisica Nucleare)</p> <p>15:00 → 15:20 Quantum Computing for the search of gravitational waves¶¶ 20m' Gravitational waves are tiny perturbations of the space-time structure, which propagate at the speed of light and are searched using large interferometric detectors. Gravitational waves are typically buried in the instrumental noise, so proper data analysis algorithms are necessary to extract these signals from the detector data stream. Some searches need to cover a huge parameter space, and are computationally bounded. This means that optimal analysis methods, based on matched filtering, which would provide the best sensitivity, cannot be used. An example is represented by all-sky searches for long duration signals emitted by spinning neutron stars. In this presentation I will discuss these issues and describe how quantum computing may provide the needed speed-up to make, in principle, optimal wide parameter space searches computationally tractable.</p> <p>Speaker: Cristiano Palomba (Istituto Nazionale di Fisica Nucleare)</p>				