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Sala Azzurra

Palazzo della Carovana

Piazza dei Cavalieri

# Colloqui della Classe di Scienze

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SCUOLA  
NORMALE  
SUPERIORE

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*Quantum physics, computation, and simulation*

### ABSTRACT

The ultimate scope and the limits of computers are determined by the laws of physics. Quantum computers exploit the rules of quantum mechanics, using quantum coherence and entanglement for new ways of information processing. The realization of these systems requires extremely precise control of matter on the atomic scale and a nearly perfect isolation from the environment. The question, to what extent quantum effects could also play a role in natural and less controlled information processing systems, in particular in biology, is exciting but still open. In this talk will review some of our recent work on physical and biologically inspired models of information processing.