University of Crete
Department of Physics

Physics Colloquium

Thursday, 3 April 2025 | 17:00 – 18:00, Seminar Room 3rd Floor

Efficient Preparation of States on Quantum Computers

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ABSTRACT

The simulation of interacting many-body quantum systems is notoriously difficult. Yet, over 40 years ago, Feynman envisioned that quantum computers would be able to overcome this difficulty — a theoretical promise known as quantum simulation. In this talk, I will consider a central component of quantum simulation: the preparation of many-body quantum states. I will discuss how dynamically using measurements can lead to exponential speedups in preparing states, as well as connections between state-preparation complexity, symmetry, and quantum phases of matter.