

Großes Physikalisches Kolloquium an der Universität zu Köln

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Quantum algorithms for quantum simulation and small devices



Quantum computers offer important speed-ups in the solution of a variety of problems. One of them is the simulation of quantum many-body systems, as they appear in atomic, condensed matter or high-energy physics, or quantum chemistry. Other, like SAT, are related to classical optimization problems. In this talk I will first review some of the quantum algorithms to simulate the equilibrium and dynamics of quantum many-body systems. Then I will present a hybrid quantum-classical algorithm to solve SAT problems with (relatively) small quantum devices.

