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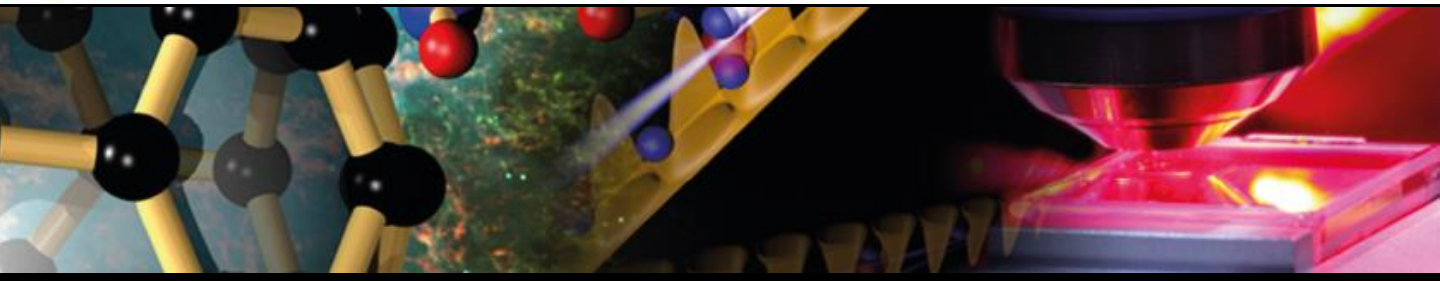

New Directions in Quantum Algorithms: Thermalization meets Convex Optimization

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I will discuss recent results on quantum algorithms for semidefinite programming, an important class of convex optimization problems with widespread applications (from resource allocation to approximating hard combinatorial problems). I will discuss a connection of the task of solving semidefinite programs (SDPs) to the task of quantum Gibbs sampling (which consists of computing properties of thermal states at finite temperature on a quantum computer). I will then discuss results on the time of thermalization of many-body quantum systems and show that they directly give quantum speed-ups for SDPs. I will also argue that the quantum algorithm for SDPs can be seen as a generalization of quantum annealing and is a good candidate for realisation on small quantum computers.

DK-ALM Pre-Talk: 16:30 h
Lorenz Kranabetter
Photo fragmentation of charged cluster complexes

Snacks will be provided in between the pre-talk and the colloquium.

Colloquium: Tuesday, 05.06.2018
17:15 h in lecture hall C

Innsbruck Physics Colloquium, Organisation: M. Beyer, R. Kissmann, H.-C. Nägerl, A. Reimer