



**Einladung
zum
Physikalischen Kolloquium**

**Montag, 01.06.2015
16:15 Uhr in N24/H13**



Prof. Dr. Ignacio Cirac
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Garching

"Quantum simulations of high energy physics models"

Many-body quantum systems are very hard to describe and simulate in general, since the dimension of the state space grows exponentially with the number of particles, volume, etc. Cold atomic systems may help us in that task, as one can in principle engineer the interactions among the atoms to emulate many-body quantum problems. So far, this possibility has been mainly addressed in the context of condensed matter systems, and a significant experimental effort is nowadays trying to pursue this goal. In this talk I will present some recent work where we have analyzed how to use cold atomic systems to simulate simple high-energy models. In particular, I will explain how lattice (compact) QED and QCD in different dimension may be simulated. Time permitting, I will also mention other efforts to describe and simulate (classically) some of those problems using tensor-network techniques, as developed in the context of quantum information theory.

Ab 15.45 Kaffee, Tee und Kekse vor dem Hörsaal H13

Organisation: Prof. Dr. F. Jelezko, Tel. 23750

Host: Prof. Dr. F. Jelezko, Tel. 23750, off.: 23751