SONDERKOLLOQUIUM DES SFB/TR 49

Donnerstag, den 04.09.2014 um 14:00 Uhr in Raum 46-576

Es spricht:
Dr. Richard Schmidt
Harvard University

zum Thema:
Field-theoretical Study of the Bose Polaron – Challenges for Quantum Simulation with ultracold Atoms

Abstract
In this talk we review our recent study of the Bose polaron, an impurity strongly interacting with a Bose-Einstein condensate, using a field-theoretic approach. In our work we make predictions for the spectral function and various quasiparticle properties that can be tested in experiment. We find that most of the spectral weight is contained in a coherent attractive and a metastable repulsive polaron branch. Additionally we show that the qualitative behavior of the Bose polaron is well described by a non-selfconsistent T-matrix approximation by comparing analytical results to numerical data obtained from a fully selfconsistent T-matrix approach. The latter takes into account an infinite number of bosons excited from the condensate. Also we discuss how our results can be tested in experimentally using radio frequency spectroscopy. Finally we comment on the implications of our results for an attempted quantum simulation of the Froehlich Hamiltonian using ultracold atoms.

Der Gast wird betreut von Prof. Dr. Artur Widera.

Gäste sind herzlich willkommen.