

FAKULTÄT für PHYSIK
LUDWIG-MAXIMILIANS-UNIVERSITÄT
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT
TECHNISCHE UNIVERSITÄT MÜNCHEN
MÜNCHEN/GARCHING

MLL-KOLLOQUIUM

Donnerstag, 10.04.2014, 16¹⁵ Uhr

NEU NEU: Seminarraum 127, TUM, Physik II, Erdgeschoss/Nord NEU NEU
Treffen zum gemeinsamen Kaffee 16 Uhr

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Heavy Hybrids in potential non-relativistic QCD (pNRQCD)

During the past years, experimental observations have revealed the existence of a large number of states above open flavor thresholds that cannot be identified as standard heavy quarkonium states. In this talk we discuss the possibility that some of these states are heavy quarkonium hybrids. Heavy quarkonium hybrids are states formed by a heavy quark-antiquark pair in a color octet configuration, bounded together by excited gluons. Heavy quarkonium hybrids can be treated with an analog of the Born-Oppenheimer approximation for molecules. In a first step, the heavy quarks are considered static, the energy levels of the gluonic degrees of freedom are the static energies. The gluonic static energies are non-perturbative and are computed on the lattice. In the short distance range, the static energies can be described using potential non-relativistic QCD. In a second step, the hybrid energy levels are obtained by solving the Schroedinger equation for the heavy quarks with the gluonic potentials defined by the static energies.

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