Contribution ID: **31** Type: **not specified**

$B\bar{B}$ four-quark systems from lattice QCD

Monday, 15 February 2016 11:35 (25 minutes)

There are several mesons whose $q\bar{q}$ quark-structure is doubted or even excluded. Therefore it is interesting to look for alternative structures for those candidates. Four-quark systems are a possible explanation. One way to approach four-quark models quantitatively is by means of lattice QCD.
We study the heavy-light four-quark system $b\bar{b}l\bar{l}$ ($B\bar{B}$) on the lattice. The heavy (anti-)quarks $b\bar{b}$ are addressed in the static approximation. We consider the experimentally interesting case of isospin $I_z = +/-1$, i.e. the light (anti-)quarks $l\bar{l}$ have different flavours. One aim is to investigate whether the attractiveness of the four-quark potentials is sufficient to host a bound state. For that purpose, the potential is plugged into the Schrödinger equation. The energy eigenvalues provide an insight into whether one can find a bound state or not. The crucial task in the process is to ensure that the computed potential is not a bottomonium and a light meson instead of a four-quark system.

Primary author: Ms PETERS, Antje (Goethe-Universität Frankfurt am Main)

Co-authors: Dr KRZYSZTOF, Cichy (Goethe-Universität Frankfurt am Main); Prof. WAGNER, Marc (Johann Wolfgang Goethe-Universität Frankfurt am Main); BICUDO, Pedro (IST, Lisboa)

Presenter: Ms PETERS, Antje (Goethe-Universität Frankfurt am Main)

Session Classification: Talks