

## HK 75: Invited Talks VI

Time: Friday 11:00–12:00

Location: HK-H1

**Invited Talk** HK 75.1 Fri 11:00 HK-H1  
**Hyperon Physics with PANDA at FAIR** — ●JENNIFER PÜTZ  
for the PANDA-Collaboration — GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt, Germany

In order to deepen our insights of color confinement in the mass range governed by non-perturbative QCD, it is essential to understand the excitation pattern of baryons. Up to now only the nucleon excitation spectrum has been subject to systematic experimental studies while very little is known about the excited states of double or triple strange baryons.

Antiproton-proton collisions offered by the PANDA experiment are well-suited for a comprehensive baryon spectroscopy program in the multi-strange sector. A large fraction of the inelastic  $\bar{p}p$  cross section is associated to final states with a baryon-antibaryon pair together with additional mesons, enabling studies with high statistics of ground states as well as excited states both in the baryon and the antibaryon channel.

The investigation of hyperons is a flagship component of the PANDA physics program, particularly, in the first phase of the experiment. This talk will provide an overview on the hyperon physics with PANDA and highlights its uniqueness compared to complementary experiments worldwide.

**Invited Talk** HK 75.2 Fri 11:30 HK-H1  
**3-hadron problem from lattice QCD** — ●MAXIM MAI — University Bonn, Bonn, Germany

The enigma of the spectrum of the strongly interacting particles (hadrons) includes many puzzles. What is the general form of the spectrum of excited states of hadrons? Why do some resonances resemble simple Breit-Wigner form and others do not? Can we say something about the nature of individual states?

The challenge in answering these questions arises from the very structure of the Quantum Chromodynamics (QCD) – the quantum field theory of strong interaction. In that, lattice gauge theory is the only tool available to us to tackle the non-perturbative dynamics of QCD which already led to many important insights.

Currently the frontier of hadron spectroscopy from first principles is entering a new phase, addressing dynamics of resonant multi-hadron states. This has become possible by many groundbreaking advances of theoretical and computational techniques, which I will describe in my talk. The remaining part of the talk will be devoted to the recent results on states of high relevance, bridging the gap to experimental results.