Contribution ID : **121** Type : **plenary talk**

HADES results in elementary reactions

Thursday, 29 May 2014 12:30 (0:30)

Collaboration

HADES

Abstract content

The High Acceptance Di-Electron Spectrometer (HADES) installed at GSI in Darmstadt is a second generation experiment designed to measure e+e- pairs (dielectrons) in the 1-3.5 GeV/nucleon energy regime. The main goal of the experiment is to measure dielectron emission from a compressed baryonic matter formed in heavy ion collisions and ultimately learn about in-medium hadron properties. In addition, the excellent particle identification capabilities of the detector allow for strangeness production measurements, hence providing an additional probe of the dense medium. A dedicated program focusing on systematic investigations of dielectron and strangeness production in nucleon-nucleon, proton-nucleus and heavy ion reactions is ongoing and will be soon extended to measurements with the GSI pion beam. The data obtained by HADES in elementary reactions give an indispensable reference to isolate true medium effects. Using both pp and quasi-free 'n'p reaction, isospin effects were studied. Inclusive as well as exclusive production cross-sections of π, η , ω and ρ mesons could be measured in both hadronic and dielectron channels in an energy range where previous data were very scarce. In addition, a contribution to the dielectron yield due to the coupling of the ρ meson to light baryonic resonances can be clearly identified. This is of particular interest, due to the link to the electromagnetic structure of the involved baryons and to the role of such couplings in the expected in-medium modifications of vector mesons. Along this line, the precise differential spectra measured for the production of K^0_S and Λ in elementary reactions are used to constrain the investigations on the kaon-nuclear potential. Complementary information is provided by the reconstruction of other strange particles, e.g. $\Lambda(1405)$ and $\Sigma(1385)$. In this talk, I will present recent HADES results obtained in elementary reactions. The main focus will be on dilepton production, but I will also show selected results obtained in the strangeness sector and will discuss as well the upcoming measurements with the HADES setup and the GSI pion beam.

Primary author(s) : RAMSTEIN, Beatrice (Institut de Physique Nucléaire d'Orsay)

Presenter(s) : RAMSTEIN, Beatrice (Institut de Physique Nucléaire d'Orsay)

Session Classification : Plenary Session