

Baryon and Strangeness Physics with PANDA at FAIR

venerdì 21 ottobre 2022 11:15 (35 minuti)

With its unique combination of antiproton-proton reactions and an almost full 4π coverage, PANDA (antiProton ANihilations at DArmstadt) at FAIR (Facility for Antiproton and Ion Research) will take precision tests of QCD to a new level. It is designed to explore QCD at intermediate energies between the high energy perturbative QCD and the low energy region where phenomenological approaches such as χ Pt or advanced calculations from Lattice QCD are used to describe systems. The reactions offer a gluon-rich environment, ideal for searching for exotic states with gluonic degrees of freedom. In addition, it offers abundant production rates of strange baryons, suitable for precision measurements where strangeness production in the confinement region can be studied. The reactions are also suitable to investigate interactions that may help to constrain theories describing the equation of state of neutron stars. The baryon spectrum will also be explored as well as the baryon structure, *e.g.* in terms of electromagnetic form factors in the reactions $p\bar{p} \rightarrow e^+e^-$ and $p\bar{p} \rightarrow \mu^+\mu^-$. PANDA is complementary to current experiments utilizing electron, proton or kaon beams and is expected to improve previous studies of antiproton-proton collisions, *e.g.* from PS185 at LEAR by going to higher energies and increasing the resolution and luminosity. This talk will give an overview of the baryon and strangeness physics program and show some highlights from previously published simulation study results from PANDA.

Autore principale: REGINA, Jenny (GSI)

Relatore: REGINA, Jenny (GSI)

Classifica Sessioni: Plenary