



Contribution ID: 6

Type: **not specified**

Kaonic atoms measurements at the DAFNE collider: the SIDDHARTA experiment

Friday, 20 January 2012 11:40 (20 minutes)

Kaonic Hydrogen and Helium X-ray measurements play nowadays a fundamental role in testing the reliability of the Chiral Perturbation Theory as a different realisation of Quantum Chromodynamics at low energies. Dictated by both electromagnetic and strong interaction, X-ray transitions at lower energy levels of these complex bound systems offer indeed the unique opportunity to perform a threshold measurements of zero-energy meson-nucleon scattering. Nowadays the SIDDHARTA experiment at DAFNE collider is the only apparatus which can provide such kind of measurements with the high precision needed to disentangle different theoretical calculation scenarios. After a review on the physics of Light Kaonic Atoms with a focus on the so-called internal and external processes to understand measurement difficulties, in this work I present the peculiarity of the SIDDHARTA experiment and its results. A detailed discussion about Silicon Drift Detectors which allow the implementation of a kaon-trigger mechanism and the use of gaseous target are presented to better understand SIDDHARTA performances and its results, nowadays the best available.

Primary author: RIZZO, Alessandro (LNF - INFN & Università di Roma "Tor Vergata")

Session Classification: Session - II : Nuclear and Astroparticle Physics