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FAIR: exploring the nature of matter and its evolution

Friday, May 11, 2012 6:30 PM (30 minutes)

The new international accelerator facility FAIR under construction in Darmstadt aims at studying matter at atomic, nuclear, and hadronic levels.

I will present different aspects of the current status of the Facility for Antiproton and Ion Research. I will discuss the focus of the experiments at FAIR and the associated theory in hadron physics, nuclear structure and compressed nuclear matter physics, plasma and atomic physics, physics with antiprotons, as well as related applications.

In the second part of my talk I will very briefly present results for the nucleon and Delta-baryon masses and electromagnetic form factors, as well as the N-Delta electromagnetic transition form factors, calculated within the Dyson-Schwinger/Bethe-Salpeter equations approach. Recently the method has been accommodated to study scattering processes of photons and mesons with hadrons, and thus can be applied to exclusive proton-antiproton annihilation into two photons that will be studied with the PANDA experiment at FAIR.

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