

Workshop for young scientists with research interests focused on physics at FAIR



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The PANDA Experiment at FAIR

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The advent of new accelerators technologies, like the use of intense and stored antiprotons beams, will set an inflection point in what we know today

as Modern Physics. In particular, the PANDA experiment at the FAIR facility in Darmstadt, (Germany), will help to elucidate many of the still obscure aspects of the strong interaction, and consequently build a link between nuclear and hadron physics. At PANDA, the interaction of antiprotons beams at momenta up to 15 GeV/c on a fixed target will provide a broad research program that includes among others: high-precision spectroscopy of charmonium states ; search of new states in the QCD meson spectrum; in-medium modifications of charmed mesons; high precision gamma-spectroscopy of doubly strange hypernuclei; time-like form factors and Drell-Yan processes and CP violation studies.

To achieve this ambitious physics program, the PANDA detector has been conceived as a general-purpose and versatile detector. The main objectives in the design of the PANDA detector are to achieve 4-pi acceptance, high resolution for tracking, particle identification and calorimetry, high rate capabilities and a versatile readout and events selection. To obtain a good momentum resolution the detector will be split into two spectrometers: The target spectrometer (TS), based on a superconducting solenoid magnet surrounding the interaction point, and dedicated to measure high pT tracks, and the forward spectrometer (FS), based on a dipole magnet, for detecting particles emitted at forward angles. The present status and perspectives of the PANDA experiment will be shown in the present talk. In addition, the production and identification of doubly strange hypernuclei will also be shortly reported.

Primary author: Dr SANCHEZ-LORENTE, Alicia (Helmholtz-Institute Mainz)

Presenter: Dr SANCHEZ-LORENTE, Alicia (Helmholtz-Institute Mainz)

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