EMC studies using the simulation framework of PANDA

Aleksandra Biegun
for the PANDA Collaboration

KVI/University of Groningen, Groningen, The Netherlands

The PANDA experiment proposed at the FAIR facility at GSI (Germany) will perform a high-precision spectroscopy of charmonium and exotic hadrons, such as hybrids, glueballs and hypernuclei. The PANDA detection system is a part of the Facility for Antiproton and Ion Research (FAIR) in Darmstadt, Germany. A highly intense beam of anti-protons provided by High Energy Storage Ring (HESR) with an unprecedented resolution will scan a mass range of 2 to 5.5 GeV/c^2. In this mass region, hints for hybrid resonances have been observed experimentally or are predicted by lattice QCD calculations.

In preparation for experiments with the PANDA detector, careful and large-scale simulation studies need to be performed in the coming years to determine analysis strategies, to provide feedback for the design, construction and performance optimization of individual detector components and to design methods for the calibration and interpretation of the experimental results.

In this presentation, simulation results for the ElectroMagnetic Calorimeter (EMC) built from PWO_4 crystals and placed inside the Target Spectrometer will be presented.

The simulations are performed using the PandaRoot framework, which is based on ROOT [2] and which is an extension of the FairRoot framework developed at GSI [3].

[1] Technical Progress Report for: PANDA, Strong Interaction Studies with Antiprotons (2005)
[2] http://root.cern.ch
[3] http://fairroot.gsi.de

E-mail: a.k.biegun@rug.nl