

Polarimetry concept based on heavy crystal hadron calorimeter

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In the upcoming Juelich Electric Dipole moment Investigations (**JEDI**) project, the essential point will be to measure a tiny beam polarization change over an extended period of time. The particle scarcity in the polarised deuteron or proton beams and its slow extraction rate puts tough experimental limitations on the polarimetry. For the future EDM measurements, a dedicated high precision polarimeter is required. The new concept is based on the following principles: Achieving maximum identification efficiency for the elastic events off the carbon target, dead time-less data taking and avoiding strong magnetic and electric fields. Also, the experiment will last over several years, so the long-term stability and strong radiation hardness is required. To fulfill these specifications, a fast, dense, high resolution (energy and time), and radioactive hard novel crystal scintillating material is required. LYSO is supposed to be used for particle detection/identification. The LYSO crystal PMT and SiPM readout with FADC based system is under the development. The first proton and deuteron beam test of the prototypes were done and will be presented (talk by F.Mueller). In this presentation, the new polarimetry concept based on heavy crystal hadron calorimeter; first prototype test results and upcoming activities at JEDI@COSY will be overviewed.

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