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Polarization measurement of a pulsed O^- / N^- ion Beam with a Lamb-shift Polarimeter

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At the FZ Jülich a polarized ion source produces a pulsed beam of nuclear spin polarized O^- or N^- ions for stripping injection into the storage ring COSY. Before injection, the nuclear polarization needs to be determined and optimized. Until now, this is done with a device called Low Energy Polarimeter (LEP), which is based on the polarization dependent elastic scattering of protons on a carbon foil. This procedure requires a pre-accelerated beam of 45 MeV from the cyclotron JULIC and is also time consuming. To make this measurement faster and more energy efficient (cheaper), the idea was to measure the polarization directly behind the source with a Lamb-shift Polarimeter (LSP). Typically, LSP measurements are performed with protons but in this experiment it was shown that a polarization measurement is possible by using O^- or N^- ions directly. First results of the polarization measurements for this pulsed negative ion beam will be presented and further ideas, e.g. for the automatization of the process, will be discussed.

Category

Polarimetry

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