

Polarimetry of pulsed H^-/D^- ion beams: Extended applicability of the Lamb-shift polarimeter

Until 2023, a polarized H^-/D^- ion source delivered pulsed negative ion beams for stripping injection into the COSY accelerator. Accurate and efficient measurement of the nuclear spin polarization directly behind the source is essential for precision experiments at COSY. A data acquisition system was developed to enable reliable, automated measurements with improved efficiency and to reduce operator intervention. To achieve that, the applicability of the Lamb-shift polarimeter has been successfully expanded to include pulsed H^- and D^- ion beams. The presented setup is useful and suitable to determine and optimize the polarization of upcoming polarized sources of the COSY type without pre-acceleration. We also present additional measurements of the nuclear spin polarization of H_3^+ ion beams with a Lamb-shift polarimeter.

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