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The spin-injector for the P2 experiment at MESA

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The P2-experiment will measure the weak charge of the proton with high precision at the MESA accelerator facility.

Using elastic scattering of longitudinally spin polarized electrons off the proton, the parity-violating asymmetry has to be measured with high accuracy.

New approaches have been chosen to fulfill the increased demands compared to older experiments which to large extent concern the injection system of MESA.

These include in particular a double Wien filter for independent setting of the polarization sign and redundant polarimetry.

The beam dynamics of the spin-injector is simulated in start-to end fashion, taking space charge effects into account.

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