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The ITER-HNB Plasma Grid and Extraction Grid in BUG: Characterization of a Magnetic Deflection Correction System

The BATMAN Upgrade test facility aims to extract H-/D- at high current densities. Inevitably co-extracted electrons are deflected out of the beamlet by permanent magnets before acceleration. These magnets induce a row-wise zig-zag deflection of the beamlets. In the new MITICA-like extraction system, this deflection is compensated by additional deflection correction magnets. Since these additional magnets are installed in half the grid, the effect of magnetic deflection correction can be directly compared to an uncompensated beam. IBSimu modeling studies indicate that the deflection correction system not only acts on the overall beamlet deflection, but also causes aberrations to the angular distribution. Using the available diagnostic tools (CFC tile calorimetry, Beam Emission Spectroscopy), these effects will be studied in the experimental data.

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