

Abstract Submitted
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Experimental characterization of the electron transport across a magnetic field barrier F. GABORIAU, R. BAUDE, L. LIARD, G.J.M. HAGELAAR, CNRS, Universite de Toulouse — Magnetized plasma transport plays a key role not only in fusion plasmas but also in low-temperature plasma sources operating at low pressure. Due to the presence of chamber walls, magnetized low-temperature plasmas can show ill-understood complex behavior while most available experimental data is too application-oriented and not detailed enough for model validation. In this context, the objective of that work is to study the magnetized transport as a problem of its own. A new dedicated laboratory set-up with flexible magnetic field has been built with simple but detailed diagnostics of the plasma transport. In addition to the commonly used Langmuir probe diagnostic, we have developed space-resolved wall-current measurements to characterize the different transport regimes governed by the classical cross field mobility and magnetic drifts. We will present and discuss the first experimental results obtained in argon discharges by varying the magnetic field intensity and the DC bias voltage on an electrode placed in front of the magnetic field region. This work is supported by French National Research Agency (project METRIS ANR-11-JS09-008).

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