Abstract Submitted
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Angular dependence measurements of Magnum-PSI plasmas using MAST-U flush mounted Langmuir probes[1] JACK LELAND, University of Liverpool, CCFE, SARAH ELMORE, ANDREW KIRK, CCFE, HENNIE VAN DER MEIDEN, DIFFER, JAMES BRADLEY, University of Liverpool — Langmuir probe measurements in tokamaks are difficult to interpret when operating at grazing angles of magnetic field incidence due to the effects of sheath expansion on the probe collection area. A probe array from MAST-U, with a novel tip design, was taken to Magnum-PSI to investigate whether temperature (T_e) and density (n_e) measurements could be performed at the low angles of incidence (0-10°) possible in the MAST-U divertor. Incidence angle scans were made at a range of plasma parameters, with temperatures and densities measured using the Bergmann 4-parameter model and compared to the Thomson scattering system on Magnum-PSI. Comparisons are also made to simulations of the probe tip using particle-in-cell code SPICE. The measured plasma parameters suggest that the tip design is successfully mitigating the effects of sheath expansion at low angles of magnetic field incidence.

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