Abstract Submitted
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Divertor ion temperature measurements on MAST by retarding field energy analyser[1] SARAH ELMORE, JAMES W BRADLEY, University of Liverpool, Brownlow Hill, Liverpool, L69 3GJ, UK, ANDREW KIRK, SCOTT ALLAN, ANDREW THORNTON, JAMES HARRISON, EURATOM/CCFE Fusion Association, Culham Science Centre, Abingdon, Oxon, OX14 3DB, UK, PATRICK TAMAIN, Association Euratom-CEA, CEA/DSM/IRFM, CEA-Cadarache, F-13108 St Paul-lez-Durance Cedex, France, MAST TEAM — The ion temperature (T_i) at the divertor determines the heat flux and erosion due to plasma surface interactions. However, there are few measurements of T_i at the divertor compared to the electron temperature (T_e) due to the relative complexity of the measurement. Divertor T_i measurements have been made using a retarding field energy analyser at the lower outer divertor of MAST in L-mode, inter-ELM H-mode and during ELMs. These measurements are compared to the T_e from Langmuir probes and the heat flux from IR thermography. The sweeping of the strike point means that T_i profiles can be produced. In a range of L-mode discharges with $I_P = 400 - 900$ kA, $T_i \sim T_e$, with $T_i = 3 - 15$ eV, however in inter-ELM H-mode T_i/T_e can be up to 3. In inter-ELM H-mode a dependence of T_i/T_e on collisionality has been seen. First measurements of T_i at the target during ELMs will be presented either measuring the ELM averaged ion temperature using a slow sweep of the discriminator voltage or using a fast (50μs) sweeping mode. The effect of parallel Mach flows on T_i measured at the divertor will be considered for the discharges presented in this work.

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