Abstract Submitted for the DPP08 Meeting of The American Physical Society

Parallel and Perpendicular Plasma Flows in Alcator C-Mod¹ NOAH SMICK, BRIAN LABOMBARD, BRUCE LIPSCHULTZ, JOHN RICE, KENNETH MARR, RACHEL MCDERMOTT, ALEX INCE-CUSHMAN, MIT PSFC, ALEX GRAFF, U C Davis — Three new scanning Gundestrup probes have been operating on Alcator C-Mod for the 2007 and 2008 run campaigns. Two of the probes are located on the on the LFS and HFS midplanes, and one is near the outboard divertor leg. Each probe is equipped with a four-electrode Gundestrup geometry and is capable (in principle) of measuring the parallel and perpendicular component of SOL plasma flow. Parallel flow results show a strong correlation to magnetic topology, particularly on the high field side where near-sonic flows exist toward the active x-point. This observation supports the idea of a ballooning-like transport asymmetry. The possibility that these flows couple to core toroidal rotation is investigated. Contrary to expectation, the perpendicular flow shows a strong feature in the electron diamagnetic direction in the vicinity of the separatrix. This may be connected to recent theoretical work by Hutchinson¹ which suggests the inclusion of an electron diamagnetic term in the Gundestrup formulation. [1] I. H. Hutchinson, Poster this session.

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Noah Smick MIT PSFC

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