

Abstract Submitted
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Highlights of the Alcator C-Mod Research Campaign¹ MARTIN GREENWALD, MIT, ALCATOR TEAM — Alcator C-Mod has completed an experimental campaign focusing on broad scientific issues with particular emphasis on ITER needs and requests. Experiments with no NBI torque have investigated spontaneous flow reversal, creation of transport barriers aided by the shear of intrinsic rotation and a variety of RF flow drive schemes. Studies of I-mode have found conditions where a wide operating regime opens up, allowing easy access to long-lived, high-performance discharges with L-mode like particle confinement. We are validating the EPED and BOUT++ models for pedestal height/width and ELM onset using extended parameter scans in ELMy H-mode. The challenge of high-Z impurity generation with ICRF is being addressed first by deployment of a novel antenna whose current straps and antenna box are perpendicular to the total magnetic field -second by studies of the modification of edge impurity transport, where fine-scale E_r structures in the SOL in the presence of ICRF heating have been found. LH current drive has produced non-inductive reversed shear regimes at $n \sim 5 \times 10^{19}$ which exhibit electron temperature ITBs. The first observations have been made of in-tokamak production of divertor tungsten nano-structures (fuzz), which had previously been seen only in linear laboratory experiments.

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