Abstract Submitted
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**Low Density ITB Studies Using the Upgraded C-Mod Reflectometry System**[1] A. DOMINGUEZ, E. EDLUND, C.L. FIORE, L. LIN, E.S. MARMAR, J.A. SNIPES, M. PORKOLAB, PSFC MIT, G.J. KRAMER, PPPL, W.L. ROWAN, FRC UT AUSTIN, PSFC MIT TEAM, PPPL COLLABORATION, FRC UT AUSTIN COLLABORATION — The Alcator C-Mod reflectometry system was recently upgraded in two ways: The low frequency channels were changed from amplitude modulation - in which two microwave signals, slightly separated in frequency, are injected into the plasma - to baseband, where a single frequency is used, in order to improve density fluctuation measurements. The second change, a variable frequency channel operating over the range from 122GHz to 140GHz (with corresponding density cutoffs of 1.84-2.43x$10^{20}$m$^{-3}$) has been installed in collaboration with PPPL. Initial results from the upgraded system are presented, including the study of low density Internal Transport Barriers. Using O-mode waves, the reflectometry system is able to radially localize density fluctuations on the low field side along the tokamak midplane. It can, therefore, be used to probe the foot of low density ITBs. The corresponding reflectometry data will be compared to those of other fluctuation diagnostics, including Phase Contrast Imaging and magnetic pick-up coils.

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Arturo Dominguez
PSFC MIT

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