

Abstract Submitted
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Initial results from the swept frequency O-mode correlation reflectometer system in Alcator C-Mod¹ A. DOMINGUEZ, E. MARMAR, MIT PSFC, G.J. KRAMER, E. VALEO, PPPL, AND ALCATOR C-MOD TEAM — Turbulent eddies are believed to be largely responsible for increased cross-field particle and energy transport in confined plasma devices. One of the tools that has been used to characterize this turbulence is correlation reflectometry whereby the spatial extent of the eddies in the direction of propagation of the reflectometry waves can be determined. A swept frequency O-mode reflectometer has been installed on the Alcator C-Mod tokamak. The system has a midplane view of the plasma from the low field side and covers the frequency range of 110GHz-140GHz, corresponding to electron density cutoffs of $1.50\text{-}2.43 \times 10^{20} m^{-3}$. In conjunction with two fixed frequency O-mode reflectometry channels at 110GHz and 140GHz, it is possible to determine radial correlation lengths, which can be mapped to the turbulent radial correlation lengths with the use of a 2-D synthetic diagnostic code[1]. Initial results from the analysis of results from various plasma conditions using this system will be presented.

[1] E.J. Valeo, G.J. Kramer, R. Nazikian, Plasma Phys. Control. Fus. 44 (2002) L1

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