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Core Reflectometer Density Profile Measurements on DIII–D[1] E.J. DOYLE, T.L. RHODES, W.A. PEEBLES, EE Dept. and IPFR UCLA — With the advent of high performance NCS plasmas with core transport barriers there is a pressing need for core ($\rho < 0.3$–0.4) profile measurements on DIII–D. A potential solution to this problem is to use O–mode reflectometry to measure core density profiles in discharges with centrally peaked profiles, and such measurements may also be relevant to some ITER operating modes. However, a concern with using O–mode propagation is that the size of the target cutoff layer continually decreases towards the center of the plasma, resulting in diminishing signal strength towards the core. In order to address this concern an existing 50–75 GHz reflectometer system on DIII–D has been converted to O-mode propagation, corresponding to densities of 3.1–7.0 10^{19} m^{-3}. Using this system, core access can be investigated in medium density discharges – if successful the system will be extended to higher frequencies so as to access higher densities.

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