Fast Alfven Wave Interferometry and Reflectometry on the DIII-D Tokamak

N.K. HICKS, Washington State University, R.I. PINSKER, H. IKEZI, General Atomics — A system based on the measurement of the transmission and reflection of the fast Alfven wave in the ion cyclotron range of frequencies can be used to non-perturbatively diagnose the mass density, ion species mixture, and density fluctuations in a tokamak plasma. Previous proof-of-principle experiments have demonstrated some of these possibilities. In this work, a new system of receiving probes and a dedicated low power (~ 1 W) antenna have been installed in the DIII-D tokamak to make these measurements during routine tokamak operation. Details of the installation, calibration, and operation of this system will be presented.

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