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**Pedestal Magnetic Field Measurements using the Spatial Heterodyne Spectrometer on DIII-D**[1] M.G. BURKE, R.J. FONCK, B. GEIGER, G.R. MCKEE, University of Wisconsin - Madison, B.A. GRIERSON, S.R. HASKEY, Princeton Plasma Physics Laboratory, K.H. BURRELL, M. KNOLKER, K.E. THOME, General Atomics — A novel high-speed spatial heterodyne spectrometer (SHS) for measuring internal plasma electric and magnetic fields has been installed on DIII-D. The diagnostic spectrally resolves the Balmer alpha neutral beam radiation split by the Motional Stark Effect (MSE). This provides information on the local magnetic field magnitude with the added benefit that the $E_r$ contamination and density sensitivity, present in polarimetry techniques, are significantly suppressed. This suppression and high optical throughput allow for very small changes in the edge magnetic field, and thereby local bootstrap current, to be measured. First measurements at rho 0.89-0.94 show a rapid increase in the local magnetic field ($\Delta B \approx 0.025$T) during a period of high pressure ($\beta_N$ up to 2). Although inboard of the bootstrap current peak, these measurements indicate the potential sensitivity of the diagnostic to edge current changes. Forward modeling of the SHS spectrum using a core-MSE constrained kinetic EFIT is used to simulate spatial and temporal B-field changes induced by current density profile dynamics. In addition, significant changes of the local magnetic field strength are observed during ELM crashes.

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