

Abstract Submitted
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Initial Off-Axis Neutral Beam Checkout and Physics Experiments on DIII-D¹ M.A. VAN ZEELAND, J.R. FERRON, A.W. HYATT, C.J. MURPHY, C.C. PETTY, R. PRATER, J.T. SCOVILLE, General Atomics, W.W. HEIDBRINK, C.M. MUSCATELLO, UC Irvine, J.M. PARK, M. MURAKAMI, ORNL, D.C. PACE, ORISE, C.T. HOLCOMB, LLNL, B.A. GRIERSON, B.J. TOBIAS, W.M. SOLOMON, PPPL, R.A. MOYER, UCSD — Two of the eight neutral beam sources on DIII-D have been modified to allow vertical steering, with the injection angle varying from horizontal to downward at an angle of 16.5 degrees for off-axis deposition. Initial experiments to assess the basic beam functionality, geometry, and confinement were carried out. D_α images of beam into gas and plasma yield beam neutral profiles and are key in assessing beam shape and clipping. Neutron and fast-ion D_α (FIDA) diagnostics verify classical behavior of the off-axis beam ions in MHD-quiescent conditions. An initial physics experiment takes advantage of the downward steered beams to vary the fast-ion gradient $\nabla\beta_f$ from centrally peaked to hollow. Systematic scans determine the stability and impact of reversed shear Alfvén eigenmodes and toroidal Alfvén eigenmodes as a function of $\nabla\beta_f$.

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