

Abstract Submitted
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Off-axis Neutral Beam Injection as a Tool for Expanding the Operating Space of DIII-D High f_{NI} Discharges¹ J.R. FERRON, T.C. LUCE, P.A. POLITZER, J.C. DEBOO, R.J. LA HAYE, General Atomics, C.T. HOLCOMB, M.J. LANCTOT, LLNL, F. TURCO, Columbia U., J.M. PARK, ORNL, Y. IN, FAR-TECH, Inc, M. OKABAYASHI, PPPL — The newly installed capability for 5 MW off-axis neutral beam injection is being utilized to broaden the pressure and current density profiles and raise the minimum q value in DIII-D discharges with noninductive current fraction f_{NI} near 1. Broader pressure is expected to allow stable access to increased β_N and increase the bootstrap current density J_{BS} off-axis. Reducing the on-axis current drive allows access to higher q_{min} , increasing the on-axis J_{BS} and improving tearing mode stability. This is a path toward DIII-D (and a steady-state powerplant) $f_{NI} = 1$ discharges at $q_{95} = 5$, which require $\beta_N \geq 4$. Initial experiments have demonstrated q_{min} maintained above 2 with broader pressure profiles than previously observed. Analysis of the noninductive current profiles and high β_N stability of discharges with off-axis beam injection will be presented

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John Ferron
General Atomics

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