

Abstract Submitted  
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**Off-Axis NBCD Experiments in DIII-D**<sup>1</sup> J.M. PARK, M. MURAKAMI, ORNL, C.C. PETTY, M.A. VAN ZEELAND, J.R. FERRON, T.H. OSBORNE, P.A. POLITZER, R. PRATER, GA, W.W. HEIDBRINK, UCI, C.T. HOLCOMB, LLNL, D.C. PACE, ORISE — Experiments on off-axis neutral beam current drive (NBCD) in DIII-D have clearly demonstrated off-axis NBCD using the new tilted beamline. The local NBCD and beam ion density profiles were measured in H-mode plasmas under a range of beam injection and discharge conditions, including on/off-axis, parallel/perpendicular injections, beam energy, injection power, toroidal field direction, plasma beta, and ratio of beam energy to electron temperature. For the off-axis injection, the magnetic pitch angles measured by the motional Stark effect diagnostic show clear evidence of off-axis NBCD when compared with the on-axis injection at the same electron temperature and density. The beam-stored energy estimated by equilibrium reconstruction, neutron, and fast-ion  $D_\alpha$  data indicate no large anomalous losses of NBCD and fast ions. The measurements are compared with the classical model calculation using NUBEAM for validation of the off-axis NBCD physics.

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