

Abstract Submitted
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Particle Dynamics in the Magnet Region of the DIII-D Neutral Beam System¹ C.A. BLACKFORD, GA (SULI), B.J. CROWLEY, J.M. RAUCH, J.T. SCOVILLE, GA — The Neutral Beam system on the DIII-D tokamak consists of eight ion sources on four beam lines using the Common Long Pulse Source (CLPS) developed at Berkeley in the 1980s. This poster presents the results of modeling efforts aimed to understand the anomalous power deposition in the bending magnet region of the neutral beam system at DIII-D. The code tracks individual particles in 3D electric and magnetic fields. In these fields, the particles intercept solid boundaries and deposit power on the magnet pole shields as well as various collimators, the ion dump, and the beam dump calorimeter. This code allows investigation of phenomena including the non-uniformity of the magnetic field, the space charge effects on the neutral beam, and deviant ion trajectories within the system. These phenomena are expected to contribute largely to the power deposition within the bending magnet region. Results of the analysis may lead to adjustments that could increase the efficiency of the neutral beam system at the DIII-D facility.

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B.J. Crowley
General Atomics

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