

Abstract Submitted
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A tutorial on neutral beam injection into tokamaks¹ W.W. HEIDBRINK, UC Irvine — Neutral beam injection heats most magnetic fusion experiments. A typical source injects 2 MW of 80 keV deuterons. Deposition is governed by electron impact ionization and charge exchange with thermal ions. A “halo” cloud of thermal neutrals surrounds the “footprint” of injected neutrals. After ionizing, the energetic ions are confined by the magnetic field, eventually forming an axisymmetric fast-ion population. Fast ions that orbit through the beam footprint sometimes reneutralize. Escaping neutrals and light emitted by reneutralized fast ions is used to diagnose the fast-ion population. The initial beam deposition and halo cloud are also measured optically.

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