

Abstract Submitted
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The Dynamics of Flux Amplification of Coaxial Helicity Injection on the HIT-II Spherical Torus R.J. SMITH, T.R. JARBOE, B.A. NELSON, University of Washington — Internal magnetic probing results are combined with external magnetics, bolometry and injector circuit measurements to provide a detailed description of the dynamics of a Coaxial Helicity Injected (CHI) ST demonstrating poloidal flux amplification. The relaxation process is characterized by an initial, sub-*ms* phase of rapid flux and plasma current buildup, a slower, *ms* time scale phase of steady current buildup and a stagnation phase in which helicity drive is balanced by losses which is strongly associated with a large amplitude edge mode activity. Flux amplification behavior over an extensive parameter range is presented in juxtaposition to non-relaxation CHI discharges. Possible explanations for the observed relaxation and flux amplification will be discussed.

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