

Abstract Submitted
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Physics and Design of the Driven Relaxation Experiment (DRX) at Los Alamos¹ S. HSU, X. TANG, M. KOSTORA, W. REASS, E. HEISLER², M. LIGHT, Los Alamos National Laboratory — The Driven Relaxation Experiment (DRX) is under construction at LANL with first plasma scheduled for early 2007. Recent theoretical work by Tang & Boozer³ has provided new insights into partially relaxed force-free plasmas, namely that nonlinearity removes the resonances of the linear force-free equation, and that new branches of relaxed states, such as the flipped spheromak and other high λ states become energetically accessible. The primary research objective of DRX is to create and sustain a partially relaxed driven steady-state above the first linear resonance by “over-driving” a coaxial plasma gun with $\lambda_{\text{gun}} \approx (2.5\text{--}3)\lambda_1$. Two other important objectives are to measure the spatial wave-number spectrum of magnetic energy for the relaxed states and to explore the dynamics of the relaxation. This poster will review the project theoretical motivations, experimental design, and construction status.

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³X. Z. Tang and A. H. Boozer, PRL **94**, 225004 (2005).

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