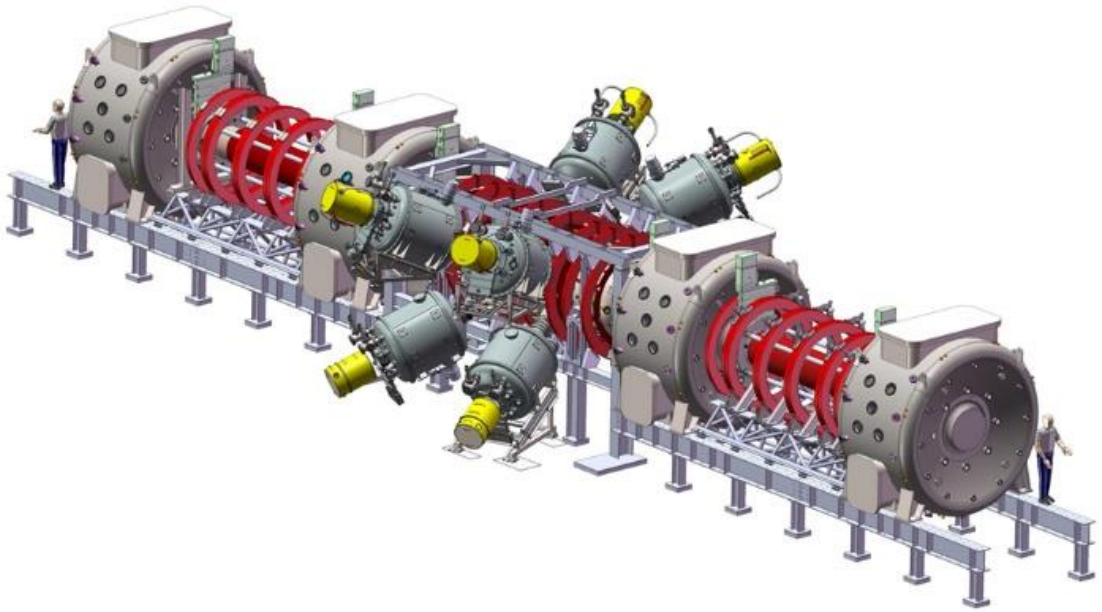
PHYSICS COLLOQUIUM



Dr. Matthew C. Thompson
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On the Path to Aneutronic Fusion

Abstract

Tri Alpha Energy's purpose is to deliver world-changing clean fusion energy technology as fast as possible. Starting with the end in mind – a fusion solution that delivers practical science, engineering integration and competitive economics – Tri Alpha Energy developed a unique approach combining advanced particle accelerator and plasma physics. The C-2U experiment at Tri Alpha Energy seeks to test these ideas by studying the evolution of advanced beam-driven field-reversed configuration (FRC) plasmas sustained by neutral beam (NB) injection for 5+ ms. C-2U is an upgrade to the earlier C-2 experiment with an improved neutral beam injection (NBI) system which can deliver a total of 10+ MW of hydrogen beam power, by far the largest ever used in a compact toroid plasma experiment. This increase in beam power, combined with our earlier innovations in FRC stabilization, successfully produced high-performance, advanced beam-driven FRCs sustained for times significantly longer than the characteristic plasma decay times. This accomplishment represents a significant advance towards the scientific validation of the FRC-based approach to fusion. This presentation will provide an overview of the C-2U device and recent experimental advances.

3:00-4:30 p.m., Friday, April 28th in McLane 162