Lockheed Martin Compact Fusion Reactor Concept

The Lockheed Martin Compact Fusion Reactor (CFR) concept relies on diamagnetic plasma behavior to produce sharp magnetic field boundaries and confine fusion plasma in a magnetically encapsulated, linear ring current. Simulations show stable inductance to high beta, sharp cusp boundaries with constant thickness sheaths. Zero dimensional confinement model is evaluated for neutral beam heating to produce high electron temperatures in the T4B experiment. These same models are used to determine feasibility of an operational reactor and determine required magnetic shielding performance for design closure. The T4B experiment will characterize and test plasma sources in the CFR geometry and conduct initial neutral beam heating experiments. The T4B experiment design and diagnostics suite are presented.