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Simulation of High-Beta Plasma Confinement GABRIEL FONT, Lockheed Martin, DALE WELCH, ROBERT MITCHELL, Voss Scientific, THOMAS MCGUIRE, Lockheed Martin — The Lockheed Martin Compact Fusion Reactor concept utilizes magnetic cusps to confine the plasma. In order to minimize losses through the axial and ring cusps, the plasma is pushed to a high-beta state. Simulations were made of the plasma and magnetic field system in an effort to quantify particle confinement times and plasma behavior characteristics. Computations are carried out with LSP using implicit PIC methods. Simulations of different sub-scale geometries at high-Beta fusion conditions are used to determine particle loss scaling with reactor size, plasma conditions, and gyro radii.

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