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Transport simulations of the C-2 and C-2U Field Reversed Configurations with the Q2D code. MARCO ONOFRI, SEAN DETTRICK, DANIEL BARNES, TOSHIKI TAJIMA, Tri Alpha Energy, TAE TEAM — The Q2D code is a 2D MHD code, which includes a neutral fluid and separate ion and electron temperatures, coupled with a 3D Monte Carlo code, which is used to calculate source terms due to neutral beams. Q2D has been benchmarked against the 1D transport code Q1D and is used to simulate the evolution of the C-2 and C-2U field reversed configuration experiments [1]. Q2D simulations start from an initial equilibrium and transport coefficients are chosen to match C-2 experimental data. C-2U is an upgrade of C-2, with more beam power and angled beam injection, which demonstrates plasma sustainment for 5+ ms. The simulations use the same transport coefficients for C-2 and C-2U, showing the formation of a steady state in C-2U, sustained by fast ion pressure and current drive.

Marco Onofri
Tri Alpha Energy

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