

Abstract Submitted
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Core Electron Temperature and Density Sustainment in the C-2U Advanced Beam-Driven FRC Plasma KAN ZHAI, JOHN KINLEY, TANIA SCHINDLER, HELEN ZHANG, MATTHEW THOMPSON, Tri Alpha Energy, THE TAE TEAM — C-2U is an advanced beam-driven FRC plasma experiment sustained by neutral beam (NB) injection for 5+ ms. Experimental evidence of FRC core electron temperature and density sustainment has been observed in our recent C-2U campaign. After upgrading the existing C-2 [1] NB system from 4 MW to 10+ MW of power via six 15 keV NBs, C-2U has FRC plasma sustainment. Electron temperature and density profiles and their temporal evolution measured with Thomson scattering system show that the core electron temperature and density have lasted more than 5 ms before they start to decrease. Core electron temperature of the sustained C-2U advanced beam-driven FRC plasma is also higher than that of previously obtained C-2 high performance FRC plasmas [1]. Detailed results about the electron temperature and density profiles and their evolution with comparison of previous results will be presented at the meeting.

[1] M. W. Binderbauer *et al.*, Phys. Plasmas **22**, 056110 (2015)

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