Abstract Submitted
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Measurement of charge exchange losses in C-2W MARTIN E. GRISWOLD, SERGEY KOREPANOV, JAMES B. TITUS, MATTHEW TOBIN, JAMES SWEENEY, KURT KNAPP, THE TAE TEAM, TAE Technologies, Inc., TAE TECHNOLOGIES, INC. TEAM — TAE Technologies' current experimental device, C-2W (also called "Norman") [1], produces and sustains advanced beam-driven field reversed configuration (FRC) plasmas in steady state utilizing variable energy neutral beams (15 – 40 keV, total power up to 20 MW), among other systems. Charge exchange collisions with neutral gas are a substantial loss mechanism for beam-derived fast ions. We installed an array of collimated pyroelectric bolometers to measure fast neutral charge exchange losses. The bolometers measure power losses with high time resolution and moderate spatial and pitch-angle resolution. The pyroelectric crystals, which are the active element in the bolometers, were calibrated optically on the bench top as well as in-vessel by exposure to the exhaust from the open field line plasma and comparison to an adjacent gridded ion energy analyzer. [1] H. Gota et al., Nucl. Fusion **59**, 112009 (2019)

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