

Abstract Submitted
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Correlation of global instabilities with high-frequency fluctuations in the scrape-off layer of C-2W TADAFUMI MATSUMOTO, University of California, Irvine, THOMAS ROCHE, ROGER SMITH, MATT TOBIN, AND THE TAE TEAM, TAE Technologies — In TAE Technologies’ current experimental device, C-2W (also called “Norman”) [1], record breaking, advanced beam-driven field reversed configuration (FRC) plasmas are produced and sustained in steady state utilizing variable energy neutral beams, advanced divertors, end bias electrodes, and an active plasma control system. Global MHD modes are largely stabilized by sheared plasma rotation just outside the separatrix. Magnetic [2] and electrostatic probes have been installed in the open field line region to investigate the FRC stability and fluctuations outside the separatrix. Each probe has a wide bandwidth; therefore, we can observe and compare not only MHD modes but also high frequency fluctuations. Additionally, the FRC density profile at the mid-plane as well as plasma’s global motion can be observed with far infrared interferometry (FIR). By combining these diagnostics, we investigate the correlation between the motion of the core plasma and fluctuations outside the separatrix. The correlation between global instabilities and high-frequency fluctuations outside the separatrix will be presented and discussed. [1] H. Gota et al., Nucl Fusion, 59 , 11 (2019) [2] T. Roche et al., Rev. Sci. Instrum. 89, 10J107 (2018)

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