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Possible role of external radial electric field on ion heating in an FRC DEEPAK GUPTA, E TRASK, S KOREPANOV, E GRANSTEDT, D OSIN, T ROCHE, B DENG, M BEALL, K ZHAI, THE TAE TEAM, Tri Alpha Energy, THE TAE TEAM TEAM — In C-2/C-2U FRCs [1], a radial electric field is applied by either plasma guns or biased electrodes inside the divertors, at both ends of the machine. The electric field plays an important role in stabilizing the FRC; thus, providing a favorable target condition to a neutral beam injection. In addition, it is also observed that the application of radial electric field may lead to a heating of ions. Radial profile of impurity ion emission, azimuthal velocity and temperature are measured under different configurations. The conditions and evidences of ion heating due to the electric field biasing will be presented and discussed. Radial momentum balance equation of oxygen impurity ions is used with these measurements to estimate the radial electric field profile. Parameters affecting the ion heating due to biasing will also be discussed with some correlations. The external radial electric field is planned to be applied by biased electrodes and plasma guns in C-2W inner/outer divertors. [1] M. W. Binderbauer et al., Phys. Plasmas **22**, 056110 (2015).

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