

Abstract Submitted
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Overview of FRC experiments in the C-2 device MICHEL TUSZEWSKI¹, TriAlphaEnergy — Large-size hot FRCs are produced in the C-2 device by merging two dynamically-formed, high-beta, Compact Toroids [1]. Typical plasma parameters after merging are separatrix radius : 0.5 m, separatrix length: 3 m, density: $5 \times 10^{19} \text{ m}^{-3}$, deuterium ion temperature: 0.5 keV, and electron temperature: 0.2 keV. The main goal of the FRC experiments in the C-2 device is to achieve FRC sustainment, with heating and current drive from perpendicular (to B) neutral beam injection, and with pellet fuelling. Maximizing the FRC lifetime is important before attempting sustainment. Hence, the focus of present C-2 experiments is to improve the FRC target as much as possible. Techniques are being developed to improve plasma stability and confinement by controlling open-field-line conditions. Recently, enhanced confinement and longer FRC lifetimes have been achieved. In addition, the $n = 2$ rotational mode has been eliminated without using multipole magnetic fields. Some details of these exciting results will be presented.

[1] M.W. Binderbauer et al., Phys. Rev. Lett., 105, 045003 (2010).

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