Incompatibility of FRC 'Self–Colliding Beams' with Classical Large Orbit Theory and Experiment BOGDAN MAGLICH, CALSEC, California Science & Engineering Corp. — Rosenbluth[1]: *"One key physics issue is the behavior of very large gyro radius systems, for which the usual thermal physics is inadequate."*- Rostoker[2] posited (1) 0.42 KeV d^+ FRC can achieve confinement τ =30 s observed[3] in self-colliding orbits (SCO) of 725 KeV d^+, stabilized by magnet focusing[4] and electrons[5] ; (2) FRC result [6] τ=2 x10^{-3} s is "record long lived plasma state for advanced, aneutronic fuels "; (3) non-intersecting collision-less orbits produce nuclear reactions. (i) $B_z(r)$ of FRC is defocusing, field index n>0. From single particle orbit theory[7,8] destructive instability must occur with $\tau \leq 10^{-3}$ s. (ii) τ cannot be scaled up by ion energy increase. (iii) Luminosity in SCO[3]: $L \sim 10^{31} s^{-1}$ cm^{-2}; in co-revolving FRC orbits: L=0 unless 2 species in same orbit, which requires v2/v1= $z_1 m_1 / z_2 m_2$ and $N\tau$ $\sim 10^{17}$ by Lawson[9−11]. See http://www.aneutronicfusion.org 1. NIM271, p.1 (88); 2. PRL 70, 1818 (93); 3.PRL 54, 796 (1985); 4.PRL 29, 1590 (72); 5.PRL 70, 299 (93); 6.PRL 105, 045003-1,(10); 7.Part. Acc.1, (70); 8. AIP CP 311, 292 (93); 9. J.App.Phys.46, 2915 (75); 10. NIM A346 322 (93); 11.NIM 144, 65 (77)

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