

Abstract Submitted  
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**Observation of Electron Cloud Stabilized 1 MeV Beam-Beam  
d+d Reactons in Self-Colliding Orbits and Feasibility of Electric Isotope**

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is only system in which beam-beam nuclear reactions demonstrated MeV energies. 1.45 MeV DC beam of  $D_2^+$  was injected into center of a weak-focusing magnetic field (Ni Ti)  $B=3.12$  Tesla, and dissociated into 2  $d^+$  stored in Self-Colliding Orbits<sup>3</sup>. Energy confinement time  $T = 23$  s (vacuum limited  $p=10^{-9}$  torr), stabilized by driven electron oscillations<sup>4</sup>. A simulation<sup>5</sup> shows that 1 DD neutron is produced at an energy cost of 5.36 MeV/n i.e. 140 MWh/g= \$8,360/g vs. \$160,000/g from beam - target. Simultaneously produced  $He^3$  and T are not only free, but bring 45 fold gain. 5 d's of 0.75 MeV generate  $1He^3 + 1T + 1p + 1n$  at cost 5.36 MeV. Hence, it will produce 2  $He^3$  nuclei (1 He-3, 1 T) plus energy gain of 161 MeV. This will be reduced by the energy gain thus reducing cost to 4.5 from 5.6 MeV. Assumed ion density  $5 \times 10^{14}$  was achieved in plasmas. Beam injection 100 mA. 1. PRL 54, 796 (1985) NIM A 271 p.,1-167; 2. AIP CP 311, 292 (93); 3. PRL 70, 1818 (93); 4.Part. Acc.1, (70); 5. "50 Years with Fission" Symp.Nat. Ac Sci., p. 761 (89)

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