Abstract Submitted
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Classical physics impossibility of magnetic fusion reactor with neutral beam injection at thermonuclear energies below 200 KeV. BOGDAN MAGLICH, TIMOTHY HESTER, ALEXANDER VAUCHER, California Science Engineering Corp. — Lawson criterion was specifically derived for inertial fusion and DT gas of stable lifetime without ions and magnetic fields[1]. It was revised with realistic parametrers[2]. To account for the losses of unstable ions against neutralization with lifetime τ, $n\,(t) = n\tau\left[1 - exp\left(-{}^{t}\!/_{\tau}\right)\right] \rightarrow n\tau\,\mathrm{for}\,\tau \ll$ t, where $\tau^{-1} = n_0[ERR : md : MbegChr = 0x2329, MendChr = 0x232A, nParams = 1]$, $n_0 =$residual gas density. Second revised criterion becomes: $ntL = 10^{14}\mathrm{cm}^{-3}$s, tL = Lawson conf. time becomes $n\tau tL = 10^{14}\,\mathrm{or\,ntL} = 10^{16}/\tau$. In CT resonance regime below critical energy To, $\tau \sim 10^{-5}$, and Lawson requirement $nt_L \sim 10^{21}$ i.e. not realistic. Luminosity (reaction rate for $\sigma = 1$) is that of two unstable particles each with lifetime τ: $L = n^2\,(t)\,v_{12} = n^2t^2v_{12}$. In subcritical regime, $L = 10^{-10}n^2\,\mathrm{for\,n} = 10^{14}\mathrm{cm}^{-3}$, v $\sim 10^9\mathrm{cm\,s}^{-1}$ = L = 10^{27}. . Which is negligible and implies a negative power flow reactor. But above T_0, at $\mathrm{T_D} = 725\,\mathrm{KeV}$, $\tau = 20$s was observed implying $L = 10^{39}$ i.e. massive fusion energy production[3,4]. 1. Lawson, Proc. Phys. Soc. B70, 6 (1957) 2. Maglich Miller, J. App. Phys. 46, 2916 [Fig. 13] (1975); 3. Phys. rev lett.54, 769 (1985); 4. NIM A271 pp. 1-128 (34 papers)

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