energy $\bar{e}$ models

$$N^+_m = \alpha \Delta Q$$

$$\Delta Q_x^- = \frac{r_e N^+ B_x^*}{\gamma \cdot 2\pi \sigma_x^* (\sigma_x^* + \sigma_y^*)}$$

charge

$$\frac{\gamma 2\pi}{r_e B_x^*} \cdot .06$$

made $Q = \cancel{\text{photon mass}}\ 2E$

M = proton mass $\quad r_e = 2.82E{-}13$

$$\alpha = \frac{e^2}{4\pi\hbar c}$$

$$\frac{\sigma_L}{\sigma_T} = \frac{2M^2}{(2E)^4}$$

value

$f = 10^6$

$B = 5?$

$\sigma = A = 4\pi \sigma_x^* \sigma_y^*$

$\sigma_x^* = .1$ cm

$\sigma_y^* = .01$ cm

$$L = \frac{N^+ N^- B f}{4\pi \sigma_x^* \sigma_y^*}$$

$N = L\sigma$ $\quad \gamma = \dfrac{E}{m_e}$ $\quad B = 10 \sim 100$ cm

$$J = N^+ f B$$

$$N^+ = \frac{\gamma 2\pi \sigma_x^* (\sigma_x^* + \sigma_y^*)(.06)}{r_e B_x^*}$$

$$\sigma = \frac{4\pi\alpha^2}{3 \cdot 4E^2} \qquad Q = 2E$$