$$E_x' = E_x \qquad E_x = E_x'$$

$$E_y' = \gamma(E_y - vB_z) \qquad E_y = \gamma(E_y' + vB_z')$$

$$E_z' = \gamma(E_z + vB_y) \qquad E_z = \gamma(E_z' - vB_y')$$

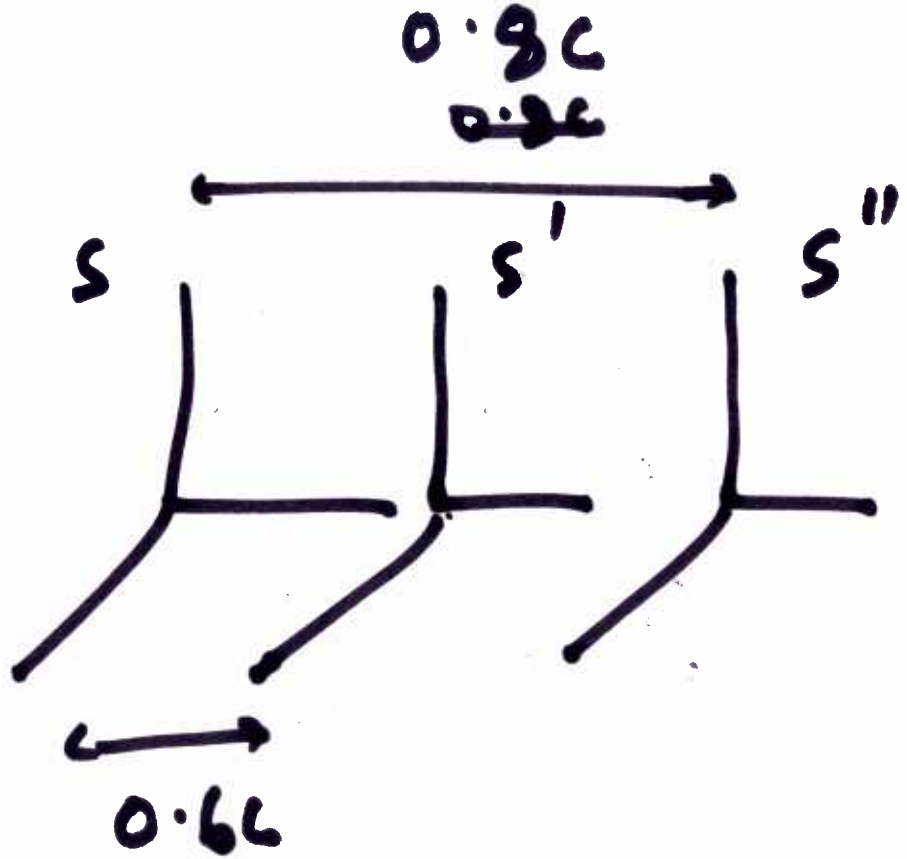
$$E_y = \gamma^2 E_y - \gamma^2 (v B_z) + \gamma v B_z'$$

$$\gamma v B_z' = E_y - \gamma^2 E_y + \gamma^2 (v B_z)$$

$$B_z' = \frac{E_y}{\gamma v} - \frac{\gamma^2 E_y}{\gamma v} + \frac{\gamma^2 (v B_z)}{\gamma v}$$

$$\gamma^2 = \frac{1}{1 - \frac{v^2}{c^2}}$$

$$\frac{1}{\gamma^2} = 1 - \frac{v^2}{c^2}$$


0.9c
S
S'
S''
0.6c

Prof. Shiva Prasad
Lec. No. 23
Date: 5/4/13

$$B_x' = B_x \qquad B_x = B_x'$$

$$B_y' = \gamma\left(B_y + \frac{v}{c^2}E_z\right) \qquad B_y = \gamma\left(B_y' - \frac{v}{c^2}E_z'\right)$$

$$B_z' = \gamma\left(B_z - \frac{v}{c^2}E_y\right) \qquad B_z = \gamma\left(B_z' + \frac{v}{c^2}E_y'\right)$$

Sol

$$E_y = 1.25\, E_0'$$

$$B_z = 0.75\, \frac{E_0'}{c}$$

$$\vec{u} = 0.6c\, \hat{i}$$

$$\vec{F} = 0.89 E_0' \hat{j}$$

$$F_y = qE_y$$

S''

$$E_y'' = \frac{13}{12} E_0'$$

$$B_z'' = -\frac{5}{12} \frac{E_0'}{c}$$

$$\vec{F}'' = \frac{12}{13} q E_0' \hat{j}$$