FISICA = IN TUTTI I S. D. R. INERZIALI

$F \Rightarrow F'$ $\qquad x' = x - ut \;, t = t'$

$$\frac{\partial^2 y}{\partial x^2} = \frac{1}{v^2}\frac{\partial^2 y}{\partial t^2} \qquad \frac{\partial y}{\partial x} = \frac{\partial y}{\partial x'}\frac{\partial x'}{\partial x} = -u\frac{\partial y}{\partial x'}$$

$$\frac{\partial^2 y}{\partial x} = -u\left[\frac{\partial^2 y}{\partial x'^2}(-u) - \frac{\partial u}{\partial x'}\frac{\partial y}{\partial x'}\right]$$

$$u^2\,\partial_{x'^2} y - \partial_{x'} u\,\partial_{x'} y = \frac{1}{v^2}\frac{\partial^2 y}{\partial t^2}$$

$F \Rightarrow F'$

Lorentz

$$x' = \frac{x - ut}{\sqrt{1 - \left(\frac{u}{c}\right)^2}} = \gamma (x - ut)$$

$\gamma \to 1$

$u \to \varnothing$

$$w = \frac{v - u}{\sqrt{1 - \frac{uv}{c^2}}}$$

$w = c$

$F \quad v$

$F'_{(x)} \quad w$

$$t' = \frac{t - ux/c^2}{\sqrt{1 - (u/c)^2}}$$

Lorentz → onde ok

luce → stessa veloc. in
tutti i s.d.r.

" c è finita "

" $c > u$ "

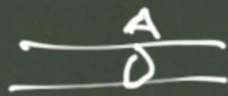
1) t dilatato

2) relativ. eventi simult.

3) contrazione lunghezze

δx $\dfrac{\delta x}{\gamma}$

F F'



n, v, e $\qquad I = e n v A$ (1)

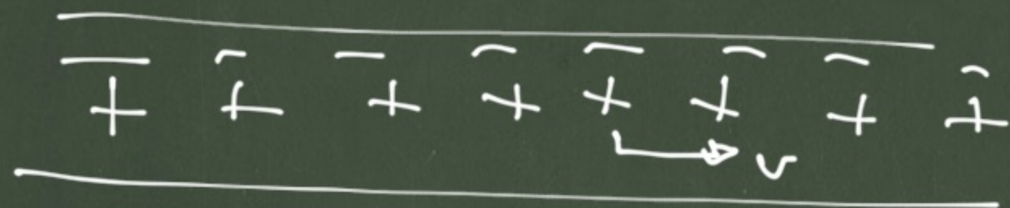
effetti rel. solo su $x(t)$ (2)

n_0, v

$$n_0 = \frac{Q}{L}$$ (3)

$$n = \frac{Q\gamma}{L} = \gamma n_0$$

Q invariante (4)



n_0^-

n_0^+

$n_0^- = \gamma n_0^+$

$I = n_+ v A e$

RIPOSO

$-e \quad v$

$\rightarrow F', v$

$n_0^+ \qquad n^- = \gamma n_0^- = \gamma^2 n_0^+$

$$n_{netta} = -n^- + n_0^+ = -\underbrace{n_0^+(\gamma^2 - 1)}$$

$$\gamma^2 \simeq \left(1 + \frac{v^2}{c^2} + \dots\right)$$

$$= -n_0\left(\cancel{1} + \left(\frac{v}{c}\right)^2 \dots \cancel{-1}\right)$$

$$n^-_{netta} = -n_0^+ \left(\frac{v}{c}\right)^2 \qquad \bar{E} = \frac{\lambda \, \hat{r}}{2\pi\varepsilon_0 r}$$

$$\lambda = e n_{netta} A = -eAn_0^+ \left(\frac{v}{c}\right)^2$$

$$\bar{F} = -e^2 A n_0^+ \left(\frac{v}{c}\right)^2 \frac{\hat{r}}{2\pi\varepsilon_0 r}$$

$$= -\underbrace{eAn_0^+ v}_{I} \, \frac{e v \hat{r}}{2\pi c^2 \varepsilon_0 r} = -e \frac{I v}{2\pi r} \mu_0 \hat{r}$$

$$\mu_0 \varepsilon_0 = \frac{1}{c^2}$$

$$\boxed{= -e v \frac{\mu_0 I}{2\pi r} \hat{r}}$$