

Trasformazioni di Galileo

$$\begin{aligned} x &= x' + Vt' \\ y &= y' ; z = z' \\ t &= t' \end{aligned}$$

$$\mathbf{v} = \mathbf{v}' + \mathbf{V} ; \mathbf{a} = \mathbf{a}'$$

Trasformazioni di Lorentz

$$\left(\frac{1}{\sqrt{1 - \frac{V^2}{c^2}}} \right)$$

$$\begin{aligned} x &= \gamma (x' + Vt') \\ y &= y' ; z = z' \\ t &= \gamma \left(t' + \frac{V}{c^2} x' \right) \end{aligned}$$

$$v_x = \frac{v_x' + V}{1 + \frac{v_x' V}{c^2}} ; v_{y,z} = \frac{v_{y,z}'}{\gamma \left(1 + \frac{v_x' V}{c^2} \right)}$$

$$\mathbf{v} = \frac{\mathbf{v}' + \mathbf{V}}{\gamma \left(1 + \frac{\mathbf{v}' \cdot \mathbf{V}}{c^2} \right)} ; \mathbf{a} = \frac{\mathbf{a}'}{\gamma^2 \left(1 + \frac{\mathbf{v}' \cdot \mathbf{V}}{c^2} \right)^3}$$