- Relativistic mass : $m = \dfrac{m_0}{\sqrt{1 - u^2/c^2}} = \gamma m_0$

m_0 : "propermass".

- Relativistic momentum : $\vec{p} = m\vec{u} = \gamma m_0 \vec{u}$

$\vec{u}$: velocity of the particle

Be carfuly Here

$$\gamma = \frac{1}{\sqrt{1 - u^2/c^2}}$$

$\vec{u}$: velocity of the particle.

different from γ in Lorentz transformations.

- Relativistic Newton's second law

$$\vec{F} = \frac{d\vec{p}}{dt} = \frac{d}{dt}(m\vec{u})$$

$$\vec{F} = m\frac{d\vec{v}}{dt} + \vec{v}\frac{dm}{dt}$$

$v \ll c \quad \gamma = 1 \Rightarrow \dfrac{dm}{dt} = 0 \Rightarrow \vec{F} = m\dfrac{d\vec{v}}{dt}$

$$\vec{F} = m\vec{a}$$

Classical limit !!!