

- Relativistic kinetic energy

$$K = (\gamma - 1) m_0 c^2$$

$m_0 c^2$  is called "rest energy".

$m_0$  is the rest mass.

- Relativistic total energy

$$E = K + m_0 c^2$$

$$= \gamma m_0 c^2$$

- Relationship between relativistic momentum and energy

$$E^2 = p^2 c^2 + m_0^2 c^4$$

\* particle at rest:  $p=0 \Rightarrow E = m_0 c^2$

\* massless particle:  $m_0=0 \Rightarrow E = \frac{p}{c}$

This is the energy and momentum of a photon!