Answer on Question #68814, Physics / Mechanics | Relativity

If we move with speed of light the time stops?

But what if we move faster than light ?

Solution:

If we move with speed of light the time stops?

Lorentz transformation for time:

$$t = \frac{t_0}{\sqrt{1-\frac{v^2}{c^2}}} \quad (1)$$

If v=c, then from (1) $\Rightarrow$ $t = \frac{t_0}{\sqrt{1-\frac{c^2}{c^2}}} = \frac{t_0}{0} = \infty$ (2)

From (2) $\Rightarrow$ the time stops.

But what if we move faster than light ?

If v>c, then the expression $\sqrt{1-\frac{c^2}{c^2}}$ give us a square root of a negative number.

In this way, equation (1) will give us a negative number for time *t*. It is an imaginary number and impossible.