

Lista V

- ① (a) Tempo tomado quando a luz reflete o espelho que se move paralelamente ao éter:

$$t_1 = \frac{2L}{c} \frac{1}{1 - \frac{v^2}{c^2}}$$

Luz refletido no espelho perpendicular

$$t_2 = \frac{2L}{c} \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}.$$

- (b)

$$\begin{aligned} \phi &= \frac{c}{\lambda}(t_1 - t_2), \\ &= \frac{c}{\lambda} \frac{2L}{c} \left\{ \frac{1}{1 - \frac{v^2}{c^2}} - \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}} \right\}. \end{aligned}$$

- ③ (a)

$$L' = L/\gamma.$$

- (b)

$$v = \frac{1}{\sqrt{3}}c.$$

- ⑤

$$\tan \beta = \frac{v}{c}.$$