

Lista VI

②

$$\tan \theta = -\gamma \frac{uv}{c^2}.$$

④ (1)

$$v'_i = \frac{v_i + u}{1 + \frac{uv_i}{c^2}}.$$

⑤

$$v = \frac{pc^2}{E}$$

Para a luz temos

$$E = pc.$$

⑥ (2)

$$p' = \sqrt{\frac{c-u}{c+u}} E,$$

$$E' = \sqrt{\frac{c-u}{c+u}} E.$$

(3)

$$p'_y = -\frac{\gamma u}{c^2} E,$$

$$p'_x = \frac{E}{c},$$

$$E' = \gamma E.$$