

Author: Dipl.-Ing. Andrija Radović
Address: Nike Strugara 13^a
11030 Beograd
Yugoslavia
Tel: +381 64 1404075
E-mail: physics@andrijar.com

Abstract

The article shows that [Autodynamics](#) theory of relativity is not able to cover Cherenkov effect correctly and thus the theory is not consistent and reliable enough, although it is quite acceptable in some other aspects.

CHERENKO PARTICLES TREATED BY [AUTODYNAMICS](#) THEORY

In [Autodynamics](#) theory (www.autodynamics.org) following relations are valid:

$$m = m_{\text{stat}} \cdot \sqrt{1 - \frac{v^2}{c^2}} \quad (1)$$

$$E = m \cdot c^2 = m_{\text{stat}} \cdot c^2 \cdot \sqrt{1 - \frac{v^2}{c^2}} \quad (2)$$

$$\vec{P} = m_{\text{stat}} \cdot \vec{v} \cdot \sqrt{1 - \frac{v^2}{c^2}} \quad (3)$$

$$E_v = E_0 - E_1 \quad (4)$$

And

$$P_v = \frac{E_v}{c} \quad (5)$$

Regarding composition of momentums we have:

$$P_1^2 = P_0^2 + P_f^2 + 2 \cdot P_0 \cdot P_f \cdot \cos(\theta) \quad (6)$$

Regarding (2) we have derived formulas:

$$E_0 = m_{\text{stat}} \cdot c^2 \cdot \sqrt{1 - \frac{v_0^2}{c^2}} \quad (7)$$

And

$$E_1 = m_{\text{stat}} \cdot c^2 \cdot \sqrt{1 - \frac{\vec{v}_1^2}{c^2}} \quad (8)$$

Also regarding (3) we have derived formulas:

$$P_0 = m_{\text{stat}} \cdot v_0 \cdot \sqrt{1 - \frac{v_0^2}{c^2}} \quad (9)$$

And

$$P_1 = m_{\text{stat}} \cdot v_1 \cdot \sqrt{1 - \frac{v_1^2}{c^2}} \quad (10)$$

By direct involving of (1), (2), (3), (4), and (5) in (6) following formula is obtained:

$$\cos(\theta) = \pm \frac{v_0^2 + v_1^2}{2 \cdot c \cdot v_0} \cdot \left(\left(\frac{2 \cdot c^2}{v_0^2 + v_1^2} - 1 \right) \cdot \frac{\sqrt{1 - \frac{v_1^2}{c^2}}}{\sqrt{1 - \frac{v_0^2}{c^2}}} - 1 \right) \quad (11)$$

Classic Cherenkov formula is:

$$\cos(\theta) = \pm \frac{c}{v_0} \quad (12)$$

As it is shown, the angle of photons is not strong defined when it is derived regarding [Autodynamics](#). Formula (11) also contains post emission velocity of charged particle that disables ability of theoretical angle determination.

CONCLUSION

[Autodynamics](#) is not able to yield correct formula (12) for angle of dissipated photons.

Equation (11) is too much different than correct equation (12) and thus the theory fails in the case. It indicates that theory is not able to correctly cover all physical situations. Consequently, the theory is not consistent enough.

Author: [Dipl.-Ing. Andrija Radović](#)
E-mail: physics@andrijar.com