

SPECIAL INTERFERENCE

E. Gigov, 04.12.2018

Abstract: Light also has inertia and variable speed.

Examination

Light has some properties of particles. If we make a radial light accelerometer (fig.1), we will register a Coriolis effect. The interference pattern will change with the rotational velocity. This shows that light has inertia and variable speed.

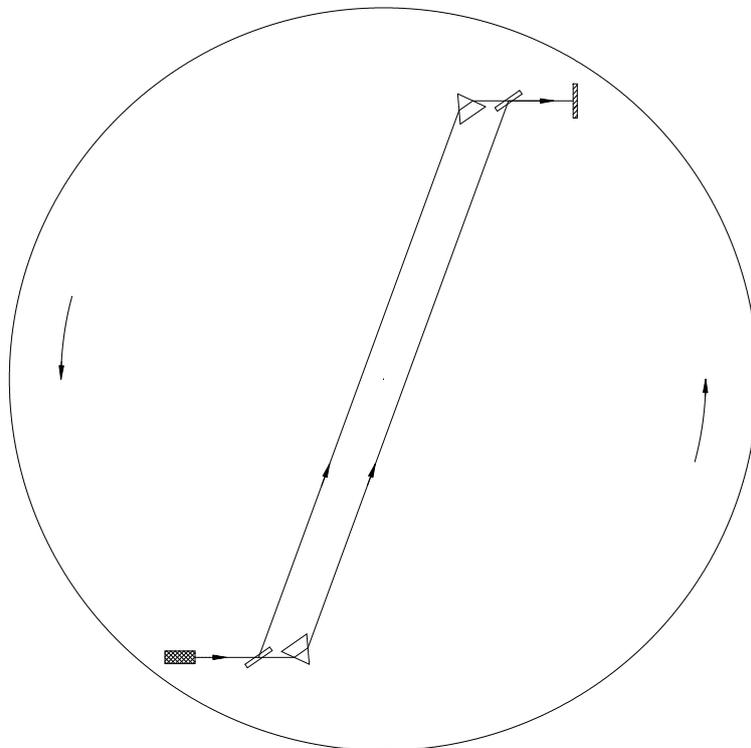


Fig. 1

The first prism equalizes optical paths and the second one dephases rays. This interferometer provides a large dephasing at a small active area, unlike the device of Sagnac, by summing the effects of Coriolis and Snellius.

Other variants of the interferometer are with corner reflectors (fig.2,3). It is also possible for star-shaped schemes with counter-streaming beams, for example.

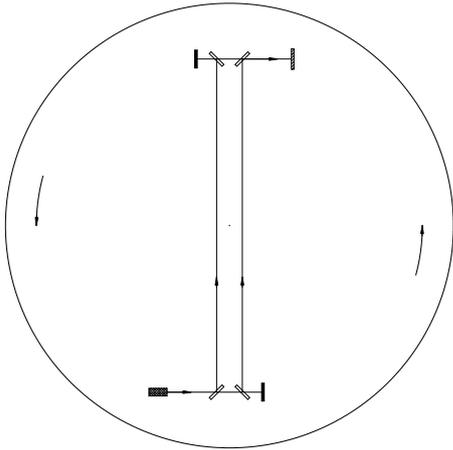


Fig. 2

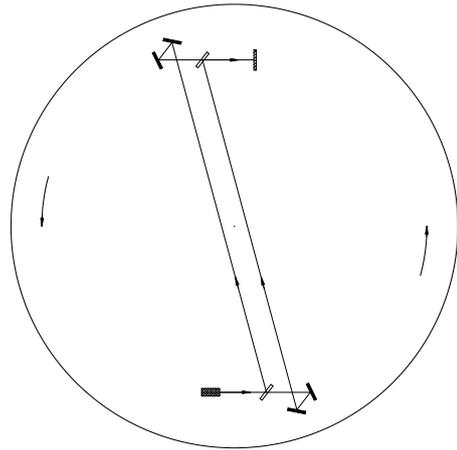


Fig. 3

Sagnac interferometer with zero active area does not dephase the rays, but if we replace the ordinary mirrors with corner reflectors (fig.4), there will be substantial dephasing, despite his formula, because the Coriolis effect is summed and permutes the rays. The effect of Sagnac actually is a tangential limited case of the overall effect of Coriolis and Snellius.

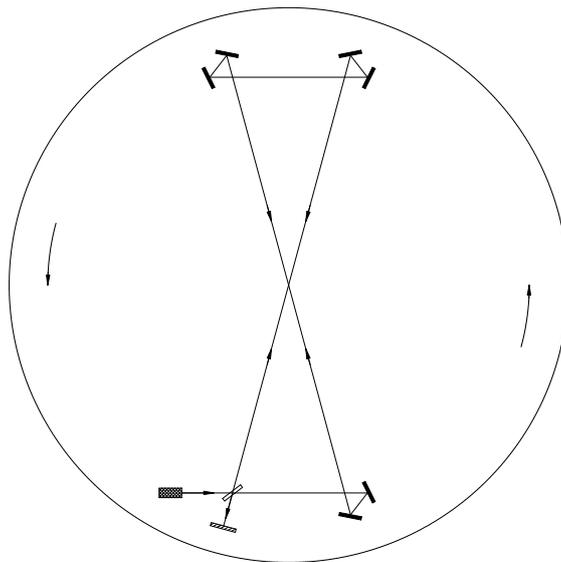


Fig. 4

The formula for the overall dephasing of fig.1 is:

$$D = L \cdot \left(\frac{c}{c-v} - \frac{c}{c+v} \right) \cdot 2 \quad (1)$$

D - dephasing

L - active lengths of the rays

c - speed of light

v - peripheral speed

These simple experiments are in agreement with the Emission theory^[1] of light.

Reference

[1] Ritz, "*Recherches critiques sur l'Électrodynamique Générale*", 1908.