

# The Behavior of Light

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Huygen's principle means that light finds the fastest way. The fastest wave front is winning – not the one with the shortest path. This explains the law of refraction for wave fronts passing a surface with a change in light speed. This means that the wave front, defined by its normal (the ray), is relevant in the law of refraction – not the motion of light as the vector sum (the beam).

The ray is also relevant in the law of reflection. This follows from the fact that mirrors can reflect light waves, but mirrors are transparent to ether particles. It is also important to regard the fact that the ray is not real, but a mathematical tool that we use to describe a wave front. Reality is in the wave front instead.

Huygen's principle is also valid for light that is locked in between 2 parallel mirrors in a cavity, or in a Michelson interferometer. Light takes the fastest – not the shortest – way, and ray (not beam) is relevant. This means that the wave fronts are always parallel to mirrors in cavities and in a Michelson interferometer. Another way to see this is to regard the fact that the state of motion of the ether and the orientation of the mirrors together define light behavior. The translational motion of the equipment is not relevant for light behavior, since such motion does not change the boundary conditions that are controlling the wave fronts. So, translational motion of the equipment cannot change light behavior to take a longer way, as Potier stated in 1882. Potier's idea is in conflict with Huygen's principle, and also in relation to the ether hypothesis. Michelson resisted this idea for 5 years.

The erratic introduction of an ether wind effect in the transverse arm in Michelson's test needed a cover up, and this problem was solved by the 'invention' of the absurd concept dilation of time. This mistake produced the twin paradox, and also gave some help to produce confusion regarding the structure of light. This demonstrates that we humans are much better on *inventing* cover ups, than at *discovering* the truth. (We call this confirmation bias.) So, we can see that the paradoxes in modern physics are caused by our bad understanding of the behavior of light. We have not observed that we need 2 models for light, namely

- *beam* with transverse ether wind as *relevant*
- and *ray* with transverse ether wind as *not relevant*,

although the difference is as low as 1  $\mu$ radian.

Michelson's test is a tragic era in physics. The expectations were not fulfilled, due to wrong assumptions, and these failures gave a *negative* contribution to theoretical physics, that is most clearly demonstrated in the twin paradox.

**Translational motion of the equipment in Michelson's test does *not* change boundary conditions, and therefore light behavior is *unchanged*. This means *no* effect of ether wind in the transverse arm. Potier was wrong, and Michelson was right.**