

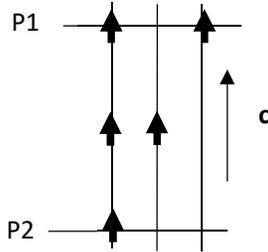
Michelson-Morley, again

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Coherent systems, like interferometers



In coherent systems, operating with plane wave fronts (not spheres), we cannot see a transverse ether wind \mathbf{v} , ($v \ll c$). Light moving from P2 to P1 has unchanged, apparent, (ray) motion, c , for 2 different values on the transverse ether wind \mathbf{v} . Real (beam) motion is changed to the speed $\sqrt{c^2 + v^2}$. (See diagram in the ether's frame, where both particles move in the plane of the wave fronts). Mirrors have relevance for \mathbf{c} , but not for \mathbf{v} .

Therefore, in a Michelson interferometer, and in an optical resonator, plane wave fronts are **always parallel** to mirrors, and not spheres. So, wave fronts are **conserved** in relation to transverse ether wind, as stated by this author to NPA and CNPS for many years. (See *The forbidden ether* and *Conserved wave front: A memorandum*, from 2009.) Light is leaving P2, moving towards **present** P1, and arrives at P1, apparently moving from **present** P2. This follows from the fact that wave fronts are not spherical, but plane.

Coherent technology cannot reveal a transverse ether wind, blowing inside the wave fronts, and wave front orientation is conserved. This means that we have no effect of the ether wind in the transverse arm in Michelson's interferometer. This means also that a transverse ether wind cannot explain stellar aberration. Stellar aberration is instead an illusion of wave front bending, caused by observer motion.

The use of coherent systems can produce the **illusion** that wave fronts, instead of as eccentric spheres, become compressed ellipsoids in front of the source, and become extended ellipsoids behind the source. The reason is that, in relation to mirrors, light should be described without including transverse component in ether wind. So, the interpretation of Michelson's experiment has **not** followed the wave model in a strict way, and a peculiar mixture of wave and particle thinking and the use of plane wave fronts in a coherent system, has started the most fundamental paradox in physics, the **wave or particle** confusion. The assumption of $c \pm v$ in the longitudinal arm implies $\sqrt{c^2 + v^2}$ in the transverse arm, since wave fronts are **conserved** by mirrors. Ignoring this fact resulted in the confusion in quantum physics and the twin paradox, by not regarding that Michelson's interferometer operates with plane wave fronts.

Remark. Light in Michelson's interferometer moves, in sequence, forward and back between mirrors, with the speed c . In a crystal, atoms produce longitudinal forces that move, in simultaneity, forward and back between atoms, with the speed c , to control separation. In both cases this means $c \pm v$ in relation to the equipment. Therefore, the expected effect in the longitudinal arm of Michelson's interferometer is real, but compensated, and therefore **not observable**. This compensation is 2 times the Lorentz contraction.

Result. We find that the 2 pillars behind the invention of special relativity, Michelson's interferometer and stellar aberration, as coherent systems, are **both useless in relation to the ether wind**. Therefore, SRT **cannot get support** from this kind of coherent systems.

Perhaps, scientists have used Einstein's limitation (v is less or equal to c) to disprove the ether, without realizing that this limit is valid in the ether's frame only. If so, this is circular reasoning.

After repeated statements about this idea to NPA and CNPS for more than a decade by this author, no valid objections have been presented by CNPS members and directors. However, many members seem to believe so by strongly advocating alternatives, and believing to have complete solutions. Instead, you must disprove your opponents and not just advocate own ideas. So, we should have more critical thinkers like Ray Gallucci.