

The Creation of a Paradox

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Abstract

A Potier created a paradox 136 years ago by changing Michelson's prediction for his experiments with Morley (MMX). He reduced the prediction by half and the missing part was used by Lorentz to motivate the absurd concept dilation of time. This mistake was repeated by Einstein in his light clock. Time dilation implies individual aging, which is absurd.

Light model

Our models for light are incomplete and it looks like the transition from light particles to light waves is not really finished.

In coherent systems (based on phase) we cannot see the real motion of light (the beam direction), but only the orientation of wave fronts defined by their normal (the ray direction). This limitation means that, in coherent systems, we must describe light as the wave vector and the component in the ether wind that is parallel to the wave vector. Transverse ether wind becomes irrelevant.

Michelson's prediction

Michelson assumed that the mirrors in the equipment defined the wave vector to be orthogonal to the mirrors. He used the ray concept and assumed light to take the fastest way between mirrors. He therefore concluded that there is no effect of the ether wind in the transverse arm of the MMX equipment.

A Potier's prediction

Potier had a different opinion. He assumed mirrors to define the vector sum of wave vector and ether wind to be orthogonal to the mirrors. He used the beam concept and assumed light to take the shortest way between mirrors. He arrived at an effect that was half the effect in the longitudinal arm in the MMX equipment.

However, the mirrors imply boundary conditions that are relevant in relation to the wave vector, but not in relation to the ether wind. Therefore, the original interpretation given by Michelson is the correct interpretation.

Result

The false reduction of the prediction produced a gap that later was used by Lorentz to introduce dilation of time. This mistake gave us individual aging and introduced science fiction into physics. Instead of by time dilation the behavior of atomic clocks can be explained by assuming the clocks to be sensitive to the ether wind. So, the clocks can do what stellar aberration and MMX cannot do, namely detect an ether wind.

Reference

See more details in my article [Fundamental Errors in Physics](#), sent to Foundational Questions Institute in December 2017.