

# Animation of Apparent Source Theory

HenokTadesse, Electrical Engineer, BSc  
Ethiopia, Debrezeit, POBox 412, Mobile: +251 910 751339 / +251 912 228639  
email: [entkidmt@yahoo.com](mailto:entkidmt@yahoo.com) or [wchmar@gmail.com](mailto:wchmar@gmail.com)

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## Abstract

In this paper we will briefly introduce Apparent Source Theory (AST) as it is applied to the Michelson-Morley experiment and provide a link to animation of AST uploaded on Youtube. The animation will help understand not only why the Michelson-Morley should give a null result but also why small fringe shifts were observed in the Miller experiments, why the Miller's absolute velocity direction differed from the directions determined by the Silvertooth experiment and the CMBR anisotropy experiment.

## Introduction

The Michelson-Morley (MM) experiment has two different interpretations. The first interpretation is that NO fringe shift was observed and the second is that a small fringe shift less than the predicted value was observed. The NULL result is the basis of the theory of special relativity. Modern Michelson-Morley experiments using optical cavity resonators give complete null result, supporting the null interpretation. Earlier first-order experiments such as the Arago and the Airy star light refraction and aberration experiments had also given null results. The Ives-Stilwell experiments also agree with the prediction of special relativity.

On the other hand, the non-null interpretation is supported by the Miller experiments that always detected small but consistent fringe shifts, always pointing to the same direction in space and with sidereal correlation. Absolute velocity of the earth has also been detected and measured in the Marinov coupled-shutters experiment, the Silvertooth experiment, the CMBR anisotropy experiment and the Roland De Witte experiment.

These experiments somehow support ether (absolute motion) theory. However, the ether theory cannot clearly explain all of the positive ether-drift experiments, for example the Silvertooth experiment. The Sagnac effect also appears to be a strong evidence of ether theory.

Yet there are some experiments that appear to prove the emission (ballistic) theory, one of which is the Venus planet radar range anomaly, as analyzed by Bryan G Wallace. The Michelson-Morley experiment and the Lunar Laser Ranging experiment also appear to be a strong evidence of emission theory. On the contrary, however, moving source and moving mirror experiments have clearly disproved emission theory.

Thus, all known classical and modern theories of the speed of light (ether theory, emission theory, special theory of relativity) and their variations have failed to consistently explain light speed experiments and observations. The mainstream physics community, however, has not yet recognized this. The crucial question to be asked today is: what is the correct model underlying these contradictions in the speed of light that has eluded physicists so far? This author proposes a new model of motion and the speed of light, called Apparent Source Theory (AST), that successfully resolves these contradictions.

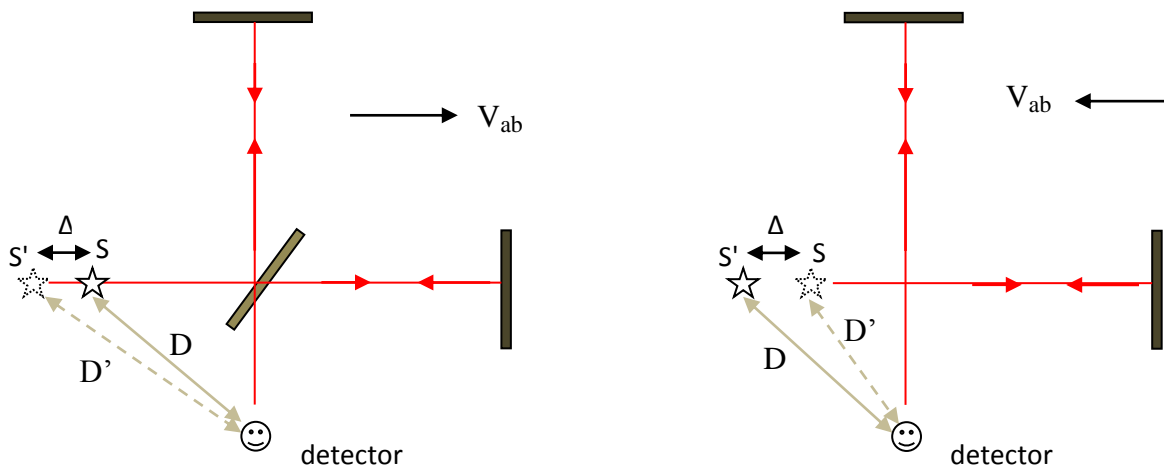
In this paper we will introduce Apparent Source Theory as it is applied to the Michelson-Morley experiment and provide a link to animation of Apparent Source Theory on Youtube. The animation will explain not only why the Michelson-Morley should give a null result but also why small fringe shifts were observed in the Miller experiments.

## Apparent Source Theory

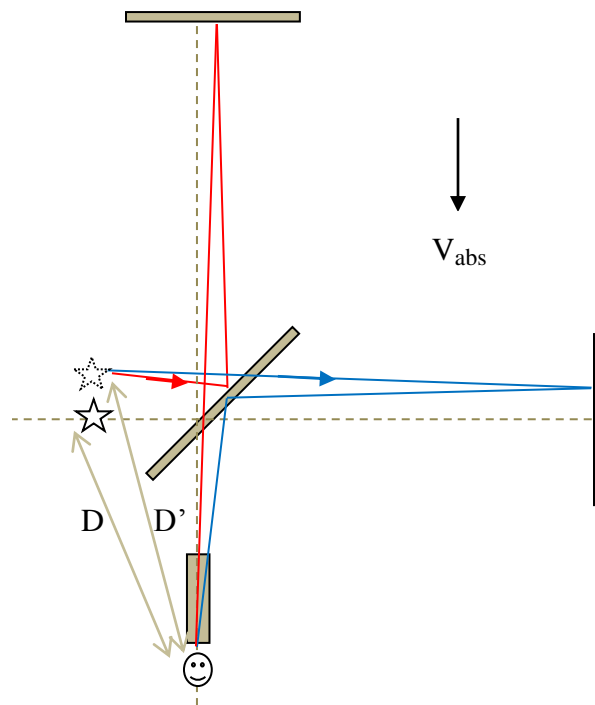
Apparent source theory is formulated as follows [1].

*The effect of absolute motion of an inertial observer is to create an apparent change in position of the light source relative to the observer/detector. The apparent change in position of the light source is determined by the magnitude and direction of observer's/detector's absolute velocity and the orientation of the line connecting the source and the observer/detector with respect to the absolute velocity vector. The light speed experiment is analyzed by assuming that light is emitted from the apparent source position, and not from the actual/physical source position.*

In order to analyze Michelson-Morley experiment, therefore, we replace the actual/physical source with an apparent source and analyze the experiment by assuming that light is emitted from the apparent source position, not from the real source position. For example, if the interferometer is absolutely moving to the right as shown below (left figure), the source position will apparently change from  $S$  to  $S'$  relative to the detector. Intuitively, there will not be any fringe shift because both the longitudinal and transverse light beams will be delayed by exactly the same amount. Obviously, this is unlike the prediction of ether theory. In the case of absolute velocity directed to the left (right figure), both light beams are advanced by the same amount.



If the absolute velocity is directed downwards, as shown below, there will be an apparent change of source position in the upward direction. In this case there will be a small fringe shift due to unequal path lengths of the red and blue 'virtual' light rays. This can explain the small fringe shifts observed in the Miller's repetitions of Michelson-Morley experiment.



### **Apparent Source Theory reconciles the absolute velocity directions determined in the Miller experiments with that of the Silvertooth and CMBR experiments**

From the Silvertooth experiment and the CMBR anisotropy experiment, the absolute velocity of the Earth is directed towards Leo constellation. However, from the Miller experiments, the direction has been determined to be towards Dorado constellation, at ninety degrees to the former. Apparent Source Theory reconciles these conflicting results. As we have seen above, in the case of the MM interferometer absolutely moving to the right, the fringe shift is null. There will be a fringe shift for absolute velocity directed downwards or upwards. Therefore, Apparent Source Theory gives a new interpretation regarding the direction of absolute velocity detected in the Miller experiments. Therefore, the Michelson-Morley and the Miller experiments also suggest that the Earth's absolute velocity is directed towards Leo constellation, in agreement with the Silvertooth and the CMBR experiments.

The crucial insight of AST is: *the effect of absolute motion of an observer is to create an apparent change in the past position of the source ( apparent change in the point of light emission) relative to the observer.* Therefore, the effect of absolute motion of the Michelson-Morley experiment is to create an apparent change in position of the source relative to the detector, which will cause only a small or no fringe shift.

The easiest way to understand AST is to ask: what is the effect of actually/physically changing slightly the position of the source in the Michelson-Morley experiment, instead of setting the apparatus in absolute motion? The obvious answer is that, from elementary optics, only a small fringe shift or no

fringe shift will occur. Apparent Source Theory thus reduces the problem of absolute motion of the Michelson-Morley apparatus into an elementary optics problem.

## **Animation of Apparent Source Theory**

Considering the subtlety of Apparent Source Theory, I thought that it will be helpful if AST is presented in the form of animation. The animation shows how changes in absolute velocity of the Michelson-Morley apparatus affects the path lengths of the (virtual) light beams , resulting in small fringe shifts.

A link to animation of Apparent Source Theory uploaded on Youtube is given below:

*“A New Theory of Motion and the Speed of Light “*

[https://youtu.be/W0r-UHAK\\_us](https://youtu.be/W0r-UHAK_us)

<https://youtu.be/r25aNAmjz4>

Thanks to Almighty God and the Mother of God, Our Lady Saint Virgin Mary

## **References**

1. *A New Theoretical Framework of Absolute and Relative Motion, the Speed of Light, Electromagnetism and Gravity*, by Henok Tadesse, [www.vixra.org](http://www.vixra.org)