Proposed Experiments To Detect Absolute Motion

By: Ken H. Seto
http://www.geocities.com/kn_seto/index.htm

A new physical model of the universe called Model Mechanics [1, 2, 3] has been formulated. Model Mechanics is based on the idea that space (pure void) is filled with a stationary, structured and elastic light-conducting continuous medium called the E-Matrix. Motions of objects in the E-Matrix are called absolute motions. Also, motion of an object with respect to the light rays in the E-Matrix is also called absolute motion. It is posited that absolute motions of objects with respect to the light rays in the E-Matrix should be detectable. However, numerous past attempts to detect absolute motion were failures. The most notable of these is the Michelson-Morley Experiment (MMX) [4]. In this experiment a light beam was split into two parts that were directed along the two arms of the instrument at right angles to each other, the two beams being reflected back to recombine and form interference fringes. Any shift in the interference fringes as the apparatus is rotated would mean the detection of absolute motion of the apparatus. To everyone's chagrin, the MMX produced a null result. However, the MMX null result does not mean that there is no absolute motion of the apparatus. It merely means that the speed of light is isotropic in the horizontal plane. In order to detect anisotropy of the speed of light using the MMX, the plane of the light rays must be oriented vertically. This conclusion is derived from the observed gravitational red shift (gravitational potential) in the vertical direction. Also this interpretation is supported by the results of the Pound and Rebka experiments [5]. It should be noted that this new interpretation does not mean that the earth is moving vertically in the E-Matrix on all the locations where the MMX is performed. It merely means that if the plane of the light rays is oriented vertically then the apparatus will give non-null result with respect to these local light rays.

The new interpretation of the MMX null result gives rise to a new concept for the propagation of light as follows:
How does light get from point A to point B? The current assumption is that, locally, light travels in a straight line towards the target, and that, in a train of light pulses, the first pulse hits the target is the first one the source generated. These assumptions both make sense if the target is stationary relative to the light pulses, but if the target moves the second assumption could be erroneous. **Fig 1** describes a thought experiment that is currently used by physicists to derive the time dilation equation. A light clock is constructed of two mirrors parallel to each other with light pulses bouncing between them. In one period of the clock, a light pulse travels up to the top mirror and returns back to the bottom mirror. The diagram **(Fig. 1)** shows that the light pulse is presumed to travel a slant path when the light clock is in motion. This description of the actual processes raises the question: How does light know when to follow a vertical path and when to follow one of the infinite numbers of slant paths? It is more realistic to say that light will always follow the perpendicular path on its way to the upper mirror. The reason is that the vertical path is the direction where all the light pulses are directed. **Figure 2** shows this: the first pulse of a train of pulses follows the original path AB, but the pulse detected at “E” travels the path CE.

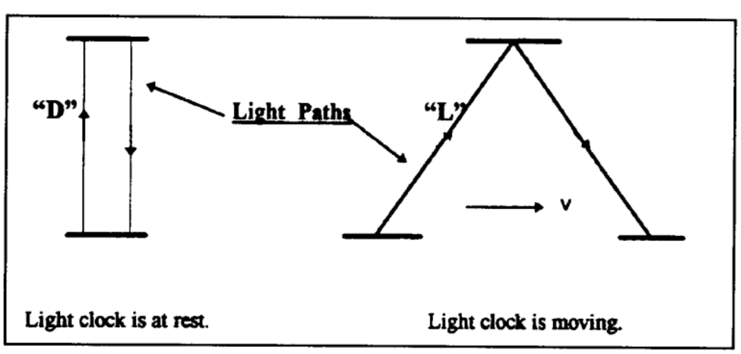


Fig 1 Current interpretation for light paths in a light clock at rest and in motion.

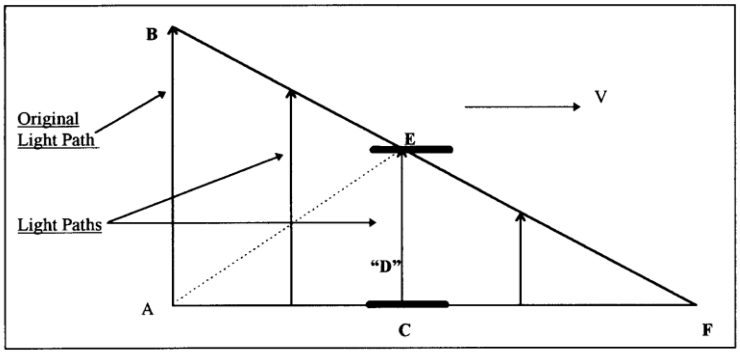
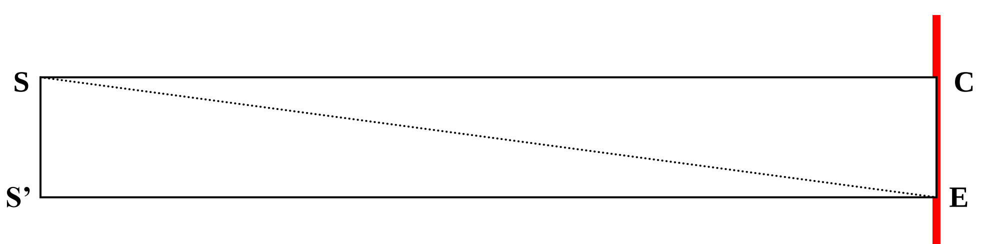


Fig 2 Current physics says that AE is the path that light follows to the top mirror and the angle for this path is depended on the length AC that, in turn, is depended on the motion of the light clock. The new interpretation for light propagation is that every light pulse generated will follow a perpendicular path on its way to the target point E at the top mirror. The first light pulse will follow the path AB and it will miss the target point E at the top mirror because the light clock is in a state of absolute motion. The subsequent light pulses generated by the source between points A and C will also miss the target point E at the top mirror. However all the subsequent light pulses generated after point C will be able to hit target point E at the top mirror.

With this description of the light paths, the first batch of pulses is never detected at "E." The light pulse detected at "E" is generated by the source at a later time. It turns out that this description of light paths is also capable of giving us the time dilation equation by using the Pythagorean Theorem. The reason is that the original light path (AB) is equal to the assumed light path (AE) and both are the radii of a light sphere at the point of origin "A". It is noteworthy that as the speed of the mirrors approaches light speed a light pulse will take a longer time to reach the upper mirror. When the mirrors are moving at the speed of light, no light pulse is able to reach the upper mirror at all. Current physics interprets this situation as time standing still at the speed of light. The new interpretation is that time keeps on ticking at all speeds of the light clock. The amount of time (duration) passed depends on the length of the original light path AB divided by the speed of light 'c'. This new interpretation suggests that absolute time for a moving frame is not slowed or dilated as currently assumed. The specific amount of absolute time (duration) required for light to travel the original light path AB is equal in all frames. A light clock runs slow when it is in motion because it is not catching the first light pulses, but rather some later one. The lower elapsed clock time recorded by a moving clock because a moving clock second contains a higher amount of absolute time.

The above new concept for the propagation of light suggest that if the top mirror is large enough it will catch all the light pulses generated by the source along the line AC. If the top mirror is a light sensitive detector such as photographic paper the light pulses generated between points A and C (between S and S' in the following diagram) will trace out a line on the photographic paper. It is this interpretation that gives us a new way to detect the existence of absolute motion. The following is the schematic diagram of the proposed experiments:



V_a

Red line = Photographic Paper
SC = S'E = Distance of separation between the laser and the photographic paper.

CE = L_0 = The distance the laser traced out on the photographic paper due to the absolute motion of the photographic paper during the transit of the laser light from S' to E.

SE = The distance the leading edge of the laser pulse from S must travel before the laser pulse from S' is able to reach the point E on the photographic paper.

V_a = Absolute motion of the photographic paper and the laser source S and S'.

Experimental Equipments:

1. A blue laser sources
2. Cylinder focusing lens.
3. Fixtures to support the lasers, the cylinder focusing lens and the photographic paper holder.
4. Photographic paper holding table and fixture.
5. Measuring tape.
6. Black and white Photographic Papers.
7. Photographic developing chemical solutions.

Experimental Procedure:

1. The experiments are to be performed outside and at nighttime.
2. Distances of 50 m, 100m, 150m and 200m are mark out using the measuring tape and the laser beam is use as a guide to ensure that the distance measurements follow a straight line.
3. The distance between the source and the photographic paper holder is moved to 50m apart.
4. Place the cylinder focusing lens at 10 meters intervals between the laser source and the photographic paper holder.
5. Insert the photographic with cover board into the photographic paper holder. Remove the cover board to expose the photographic paper to the incoming laser light.
6. Switch on the laser light.
7. Insert the cover board after the photographic paper is exposed to the laser light for 2 seconds and remove the composite from the holder for development. The length of the line shown on the photographic paper is called L_o .
8. Insert a new photographic paper along with cover board into the holder then remove the cover board. Insert the cover board after the photographic paper is exposed to the laser light for 2 seconds and remove the composite from the holder for development. The diameter of the laser pulse shown on the photographic paper is called D_o . The length of ($L_o - D_o$) is the length caused by the absolute motion of the photographic paper with respect to the laser beam.
9. Repeat steps 4 to 7 three times.
10. Repeat steps 4 to 8 with the distance of separation between the source and the paper holder 100m apart.
11. Repeat steps 4 to 8 with the distance of separation between the source and the paper holder 150m apart.
12. Repeat steps 4 to 8 with the distance of separation between the source and the paper holder 200m apart.
13. Reverse the directions of the laser and the photographic paper holder and repeat steps 4 to 11. This is designed to show the isotropy of the speed of light when the corresponding lengths of $L_o - D_o$
14. Repeat steps 1-13 at different time of the year.
15. Repeat steps 1-14 at different locations.

The predictions for the above proposed experiments are summarized in the following table. The distance SC = S'C =100 meters between the source and the photographic paper holder is selected for the following calculations:

The distance traced out by the laser on the photographic paper due to the absolute motion of the photographic paper = CE = L_{100} = $L_o - D_o$

The time interval required for light from S' to traverse the distance S'E = $T_{100} = \frac{\sqrt{L_{100}^2 + 100^2}}{c}$

The time interval (T_{100}) is also the time interval required by the laser to trace out the distance L_{100} on the photographic paper.
The time interval (T_{100}) is also the time interval required by the laser pulse from S' to reach the point E on the photographic paper.

Therefore the absolute motion of the photographic paper = $V_a = V_{100} = \frac{L_{100}c}{\sqrt{L_{100}^2 + 100^2}}$

Assumed values of L_{100}	The values of T_{100} in seconds correspond to the assumed values of L_{100}	The values of V_{100} (m/second) correspond to the assumed values of L_{100}
0.2 m	3.3356476×10^{-9} sec	599583.92 m/sec
0.1 m	3.3356443×10^{-9} sec	299792.16 m/sec
0.05 m	3.3356414×10^{-9} sec	149896.21 m/sec
0.02 m	3.3356410×10^{-9} sec	59958.49 m/sec
0.01 m	3.3356410×10^{-9} sec	29979.25 m/sec
0.005 m	3.3356410×10^{-9} sec	14989.62 m/sec

The above proposed experiments will be performed in the near future and the results will be reported in a paper entitled "Proposed Experiments to Detect Absolute Motion" in my website:
http://www.geocities.com/kn_seto/index.htm

References:

[1] K.H. Seto "Unification of Physics" p.3-13
http://www.geocities.com/kn_seto/2005Unification.pdf

$L_o - D_o$

[2] K.H. Seto "The Physics of Absolute Motion" ISBN0-9647136-1-6,
KHS Publishing, P.57-70.

[3] K.H. Seto, "Past Experiments Detecting Absolute Motion"
http://www.geocities.com/kn_seto/2005pastexperiments.pdf

[4] A.A. Michelson and E.W. Morley, "On the Relative Motion of the Earth And the Luminiferous Ether" Am. J. Sci., Third Series 34, 333-345 (1887)

[5] The Pound-Rebka Experiment
http://hyperphysics.phy-astr.gsu.edu/hbase/relativ/gratim.html

[6] K.H. Seto, "Improved Relativity Theory and Doppler Theory of Gravity"
http://www.geocities.com/kn_seto/2007IRT.pdf