

COSMOLOGICAL IMPLICATIONS OF A $c+v$ RELATIVE VELOCITY OF LIGHT

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ABSTRACT: The $c+v$ relative velocity of light explains the observational data from spectroscopic binaries and presents evidence that the Universe is not expanding. Inconsistencies between previous laboratory experiments that present evidence of c , and interplanetary radar evidence of $c+v$, can be explained in terms of a dynamic ether.

In an earlier article, I presented interplanetary radar evidence that the relative velocity of light in space is $c+v$ and not c .¹ The present uncertainty in the mean distance of the moon is approximately 500 m.² It is interesting to note that the mean difference between an analysis based on c and one based on $c+v$, would be 471.41 m. Since all past analyses have been based on c , one would expect any bias to favor c . If the Apollo 11 laser ranging data is consistent with the interplanetary radar data, we should expect to find the mean distance values favoring a c analysis, but impossible variations in distance between different observations and observatories would exist. These variations would tend to disappear when the analysis is based on $c+v$. Since $t = D/c$, any Δt that cannot be explained must be due to either ΔD or Δc . If ΔD is logically impossible, then Δt must be due to Δc .

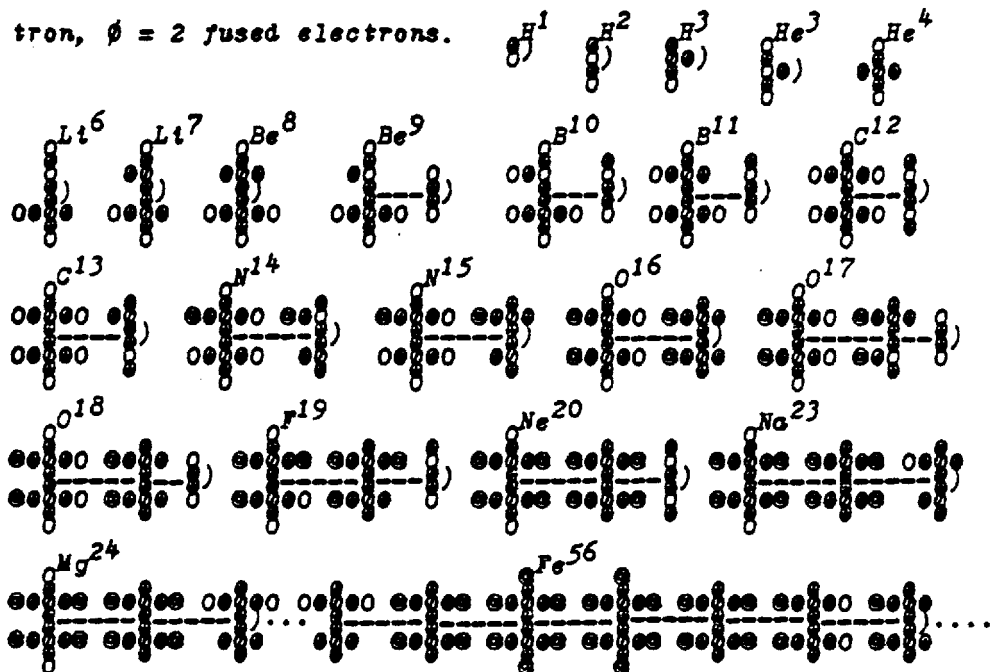
If one interprets the data from eclipsing binaries in terms of c , $c+v$ would create the illusion that the stars are imbedded in a ring of glowing gases. Now the $c+v$ change in arrival time of light is $\Delta t = D_1/(c+v)_1 - D_2/(c+v)_2$ and this is equivalent to $\Delta t_{\text{yrs.}} = \Delta v_{\text{km/sec}} D_{1.\text{y.}} (3.33 \times 10^{-6})$ or $\Delta t_{\text{d.}} = \Delta v_{\text{km/sec}} D_{1.\text{y.}} (1.22 \times 10^{-3})$. Since $v = \omega r \cos \theta$ and $dv/dt = -\omega^2 r \sin \theta$, dv/dt would be at its minimum value when v is at its maximum, thereby creating the illusion of peak v at the maximum Δt . It would not be unusual to find light curves indicating circular orbits at the same time the radial velocity curves indicate a highly eccentric orbit. The $c+v$ arrival time phase changes would make an apparent decrease in the magnitude differences of the eclipses that would be proportional to an increase in the distance. The fact that these illusions are observed presents additional evidence in support of $c+v$.^{3,5}

If the red-shift is due to the recessional velocities of distant galaxies, then $c+v$ would cause an aberrational shift relative to the positions of nearby stars whose radial velocity is close to c . The observed galaxy should appear to move in a small ellipse of semi-major axis $20.47^{\circ}(c_s/(c+v)_g - 1)$ relative to the stars. A number of galaxies have been observed and the net result has been that aberrational shifts have been detected, but they are nowhere near the magnitude predicted by the red-shift.⁶ This would seem to indicate that the red-shift is due to an energy loss. I would like to suggest that this lost energy is transformed back into matter in an eternal and infinite Universe.^{4,7,8} The energy combines to form huge photons. Where these photons collide, matter is

created and forms an irregular galaxy such as M-82.⁹ A large amount of the matter created is expelled from the galaxy and forms large clouds along its axis. The evolution of galaxies is from irregulars to Sc, Sb, Sc, E and finally they end their lives as quasars. The material in the clouds falls back to the galaxy to form the Population I type stars found in the arms of the earlier type galaxies,¹⁰ the Population II type stars being formed from the remains of earlier stars.

Laboratory evidence of the c speed of light emitted from protons traveling at velocities close to c ,¹¹ and evidence of the second-order Doppler effect predicted by Einstein's relativity theory,¹² would seem to be in conflict with the radar evidence in support of $c+v$. This apparent contradiction can be explained in terms of a dynamic ether that has an inherent speed of c relative to the earth laboratory.¹³ Ether moving in planer type vortexes would be particles of matter or fields of force. Ether moving with a translational motion would be electromagnetic radiation. The shear stresses set up by vortical motion would give a particle a quantum structure in which each orbit level would be determined by m/n^2 in the same manner as the energy levels of the hydrogen spectra are determined by R/n^2 . Now v_r is the vortical velocity, and it is orthogonal to v_m the translational velocity of the particle. The speed of the accelerating field is c relative to the earth laboratory, and the time of a particle in motion is $t_m = t_0 c/v_r = t_0 c/(c^2 - v_m^2)^{1/2}$ which is equivalent to Einstein's $t_0/(1 - v^2/c^2)^{1/2}$. Now this explanation could be expanded to give qualitative meaning to Einstein's general relativity, except for the radar and binary star evidence that the speed

of light between celestial bodies is $c+v$. Since electrons are assumed to be made of dynamic ether and their resultant motions would be analogous to the vortical motions of the ether, one would expect the forces between ceramic disc magnets to be similar to the forces between atomic particles. Mark an A on the north pole face and a T on the south pole face of a ceramic disc magnet. This represents an electron moving away from or toward the observer. To represent a proton, mark A on the south pole face and T on the north pole face. The following figures represent tentative possible atomic structures that could be made. \odot = a paired electron, \ominus = proton, \circ = electron, \emptyset = 2 fused electrons.



The curved lines show rotation. Imagine the part above the axis moves away from you and the part below moves toward you. The atoms from Li^6 on up are compound atoms that are made up

of the primary gas atoms H^1 to He^4 . Be^8 is the maximum sub-structure possible, the higher atoms being composed of superimposed substructures. The outer valence electrons are made the same size as the inner particles, but in reality they would be much larger. The top and bottom valence electrons are held tighter than the side ones and would not tend to enter into chemical reactions. The side valence electrons tend to attract and pair with other electrons, and when two valence electrons are superimposed, they pair up and no longer attract other electrons. In advancing a dynamic ether theory, it would seem to be desirable to keep the present quantitative descriptions whenever possible, changing only the qualitative meaning. The basic quantity unit of dynamic ether could be the present day wave-number. The length of a photon would be $\lambda/2$ of the present value of λ . The polarity is determined by the direction of the angle relative to the translational motion. All descriptions would be based on Euclidean geometry and relativistic in the Galilean sense.

One would expect the large pressures encountered within massive celestial bodies to disrupt the vortical structure of atomic particles. This matter annihilation would be proportional to the mass of the celestial body. It would tend to explain the enormous energy output of quasars. Neutron stars would not be expected to exist and Pulsars are probably white dwarfs that have electromagnetic shock waves traveling through their atmospheres. Population II stars start their lives with a high percentage of heavy elements. They have a heavy core

that prevents a significant amount of heavy elements from reaching the surface. They live short lives compared to Population I stars and this is why they have almost no main sequence in an HR diagram. As Population II red giants contract, above a critical mass they form R.R. Lyrae variables. Their heavy cores become critical and explode at fairly short intervals, the explosion stopping when the core expands to the point where it is no longer critical. When the atmosphere of light elements is exhausted, the star will be a white dwarf. Population I stars are formed almost entirely from hydrogen. The lower gravitational attraction of their cores allows heavy elements to reach the surface as sunspots.^{14,15} Their Cepheid variables have longer periods than R.R. Lyrae variables because their cores tend to become critical at a slower rate. They lead a long and relatively stable life when they reach the main sequence. When the bulk of their hydrogen has been converted into heavier elements, they too will become white dwarfs and end their lives as supernovas.

It would seem that a dynamic ether has tremendous potential for providing qualitative as well as quantitative descriptions for previously paradoxical empirical data. It presents the philosophically satisfying description of physical reality in relatively simple terms. I hope this paper has shown the cosmological importance of a complete radar and laser investigation of the relative velocity of light in space.

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