Is Einstein's Greatest Work Wrong

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Abstract: This paper concisely describes the invalidity of Albert Einstein's special theory of relativity (which explains how to interpret motion between different inertial frames of reference) and also highlights some basic aspects of bit of electromagnetic energy called photon and the dark star called the black hole.
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The connection between energy and mass, known as mass-energy equivalence, was immortalized in Einstein's famous equation $E_0 = m_0c^2$, where E_0 stands for rest mass energy, m_0 stands for intrinsic mass and c is a constant (which happens to be equal to the speed of light). Actually, $E_0 = m_0c^2$ is just the simplest case scenario, that for a particle or mass at rest. For a particle in motion, with a velocity v, the equation becomes:

$$E = m_0c^2 / (1- v^2/c^2)^{½}$$

which is the same as:

$$m= m_0 / (1- v^2/c^2)^{½}$$

where m = mass of the moving particle.

$$m^2c^2 = m_0^2c^2 + m^2v^2$$

On differentiating the above equation, we have:

$$dmc^2 = dmv^2 + dvvm$$
$$dm = dvvm / (c^2- v^2)$$

Since $dmc^2/dt = F v$ (where F = force and v = velocity). Therefore:

$$F = mac^2/ (c^2- v^2)$$

(For non-relativistic case: v is << than c. Then the above equation reduces to Newton's classical equation: $F = m_0a$)
The above equation on rearranging yields:

$$m= Fc^2 - Fv^2 / ac^2$$

If v = c then

$$m = 0$$

But according to the Albert Einstein's law of variation of mass with velocity

$$m= m_0 / (1- v^2/c^2)^{½}$$

If v = c then

m becomes infinite

Conclusion: Two different results for m (i.e., m = 0 and m = infinity) when v = c.

Did you know that:

Elusive Pupating Observation of the ripples in the fabric of space-time called gravitational waves from Colliding Massive spinning Black Holes 100 Years after Einstein's Prediction by LIGO opens a New Window on the Universe providing the direct proof evidence for the existence of the strangest and most fascinating objects called black holes and accomplishes an ambitious goal of the beginning of a new era: The field of gravitational wave astronomy.
The gravitational potential energy is $-GMm/r$ and gravitational force is GMm/r^2.
Similarly gravitational binding energy of a star is $-3GM^2/5R$ and gravitational binding force is $3GM^2/5R^2$

$$F_B = 3GM^2/5R^2$$

Where M = mass of the star, R = radius of the star and G = Newtonian gravitational constant
For a star to form a black hole its radius R should be $= 2GM/c^2$
If R becomes $= 2GM/c^2$, then

$$F_B = 0.15 (c^4/G) = 0.15 \times \text{Planck force}$$

If gravitational binding force that binds the star equals 0.15 times the Planck force (i.e., if the gravitational binding force that binds the star equals 1.815×10^{43} Newtons) then that star collapses to form the gravitational monster called the black hole.

In empty space, the photon moves at c (the speed of light) and its energy and mass are related by $E = mc^2$, where m and E are the mass and energy of the photon and if Planck Einstein equation is true, the energy of the quanta is proportional to its frequency i.e., $E = h\nu$ (where h is the constant of proportionality called the Planck constant)

$$E \times E = mc^2 \times h\nu$$

$$E^2 = mc^2 \times h\nu$$

Since $\nu c = a$ and $hc = M_{planck}^2 G$. Therefore:

$$E^2 = M_{planck}^2 Gm\, a = M_{planck}^2 \mu\, a$$

where a is acceleration of the photon mass, M_{planck} is the Planck mass, G is the Newtonian gravitational constant and $\mu = Gm$ is the gravitational parameter for photon.

$$E = M_{planck} (\mu\, a)^{\frac{1}{2}}$$

The letter which describes Einstein re-iterating the primacy of his great space-time theory

"Dear Sir: I see from your letter of April 17th that the attempt of my last publication was not reported in an adequate way. I have not questioned there that space should be at as a four dimensional continuum. The question is only whether the relevant theoretical concepts describing physical properties of this space can or will be functions of four variables. If, f.i., the relevant entity is something like the distance of two points which are not infinitesimal near to each other, then such distance has to be a function of the coordinates of two points. This means a function of eight variables. I have investigated the possibilities of this kind in the last years but my respective results seem to me not very encouraging. For the time being I have returned to ordinary differential equations [from General Relativity] with dependent variables being simply functions of the four coordinates [space-time]. What the future has in store for us nobody can foretell. It is a question of success."

$$F = mac^2 / (c^2 - v^2)$$

Since particle velocity v is related to the phase velocity v_P by the equation: $vv_P = c^2$. Therefore the above equation takes the form:

$$F = ma\, v_P / (v_P - v)$$

Which on rearrangement gives:

$$v_P (F - ma) = Fv$$

If F is very much greater than ma i.e., $F >> ma$ then $v_P = v$ is achieved. Only for massless particles like photons the condition $v_P = v$ is achieved. Hence: force which moves the photon is very much greater than its mass times its acceleration i.e., F is >> than mc^2/λ (since photon acceleration a is = c^2/λ). But according to the existing scientific data, we determine the force which moves the photon by of dividing its energy mc^2 by its wavelength λ i.e., $F = mc^2/\lambda$.

Which is right?

$$F >> mc^2/\lambda \text{ or } F = mc^2/\lambda$$

The question lingers. But the answer is beyond our reach until now.

References:

1. Relativity: The Special and the General Theory by Albert Einstein.
2. The Special Theory of Relativity by David Bohm.
3. Introduction to Advanced Astrophysics by V. Kourganoff.
4. Light - The Physics of the Photon by Ole Keller.
5. The Photon by Alfred B. Bortz.
6. The gravitational radius of a black hole by PM Kanarev.