A Refutation of the Relativity

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The microwaves of the CMBR behave like stationary waves (or standing waves). They serve as an absolute framework of reference at rest.

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In a recent article [1], we have given another explanation of the force of the gravity using the Fatio-Le Sage idea with the cosmic microwave background radiation (CMBR): the force of attraction between two bodies would be produced because both bodies are pushed the one against the other by the microwaves of the CMBR. This rules out the general relativity (GR) of Einstein where the gravity bends the space.

In addition, as the CMBR flux is isotropic and all the directions have the two opposed ways because of the processes of emission and absorption of thermal radiation (CMBR) in the thermal equilibrium of the universe, the microwaves of the CMBR behave like stationary waves (or standing waves). Then, they serve as an absolute framework of reference at rest. This rules out the special relativity (SR) of Einstein where does not exist such a frame.

On the other hand, the mass-energy relation applies, but only in the form: $E_0 = m_0 c^2$. We can deduce it without using the SR as follows: when an atom absorbs a photon, the energy is converted into matter, that is, into mass. Thus, an atom at rest of mass m_0 recoils with a speed v when it absorbs a photon of an energy E that corresponds to a mass μ. The momentum of the photon would be $p = F\tau = F\lambda/c = W/c = E/c$, where F is the force exerted by the photon, $\tau = \lambda/c$ the duration of the event, λ the wavelength, c the speed of the light in the vacuum and $W = F\lambda$ the work done by the photon (the energy E is converted into the work W during the event). (Note that as $E = hf$ and $c = \lambda f$, then $p = E/c = hf/\lambda f = h/\lambda$, where h is the Planck's constant and f the frequency; and also that $\tau = \lambda/c = \lambda/\lambda f = 1/f$). From the conservation of the momentum, $(p_1 + p_2)_{final} = (p_1 + p_2)_{initial}$, where the subscript 1 is for the atom and the 2 for the photon; we would have that $mv + 0 = 0 + E/c$, or $mv = E/c = (E/c^2)c = \mu c$, where m is the moving mass of the atom and $\mu = E/c^2 = hf/c^2$ the so-called "effective mass" of the photon. From the conservation of the energy, $(E_1 + E_2)_{final} = (E_1 + E_2)_{initial}$, we would have that $E_a + 0 = E_{0a} + \mu c^2$, $E_a - E_{0a} = \mu c^2$, and as $\mu = m - m_0$, then $E_a = mc^2$, $E_{0a} = m_0c^2$ and $T_a = \mu c^2$, where E_a, E_{0a} and T_a are, respectively, the total, rest and kinetic energies of the atom.

If we do $m = \gamma m_0$, then $\gamma m_0 = m = m_0 + \mu$, $(\gamma - 1)m_0 = \mu$, $(\gamma - 1)m_0c = \mu c = mv = \gamma m_0v$, $(\gamma - 1)c = \gamma v$ and $\gamma = (1 - v/c)^{-1}$. Therefore, for a body of rest and moving masses m_0 and m its energy would be $E = mc^2 = \gamma m_0c^2 = (1 - v/c)^{-1}m_0c^2$, and for $v << c$, $E \approx m_0c^2 + m_0vc + m_0v^2$, which is a balanced expression but erroneous. In the SR, it is $\gamma = (1 -$

$v^2/c^2)^{-1/2}$ and $E = mc^2 = \gamma m_0 c^2 = (1 - v^2/c^2)^{-1/2} m_0 c^2$, and for $v^2 << c^2$, $E \approx m_0 c^2 + (1/2) m_0 v^2$, which is correct because $(1/2) m_0 v^2$ is the Newton's kinetic energy. It seems that from the absorption process we cannot obtain the correct value for the gamma factor, and that we need the SR.

However, this is not true because $m = \gamma m_0$ is a fallacy since it supposes the conversion of energy into matter in a simple process of absorption of a photon. In this process, the photon energy (which is only kinetic energy: $E = p\, c$) is transformed in kinetic energy of the atom. Therefore, we have obtained that $E_{0a} = m_0\, c^2$, and that $E_a = E_{0a} + T_a = m_0 c^2 + hf$, that is, the total energy is the rest energy plus the kinetic energy.

[1] José Francisco García Juliá, Another Explanation of the Gravity, viXra: 1311.0093 [Classical Physics].
http://vixra.org/abs/1311.0093