FASTER THAN LIGHT

As AD constantly shows, the question regarding Superluminal velocity will be resolved by calculation using values given by observational evidence or experimentally.
Ultimately, a direct Pico-Graviton velocity measurement will be reached.

The observation of JETs emitted at Superluminal velocity[1] by many stellar bodies in the Cosmos will be confirmed without any doubt. The Superluminal velocity was also shown in Labs by the Tunneling Effect,[2] and the "communication" between Electrons and Photons.[3] And the Cesium experiment. [4]

Two questions are pertinent here.

Could be applied SR's or AD's equation?

SR excludes itself due to the well know contradiction regarding simultaneously increasing Kinetic Energy and Mass that leads to non-conservation of energy.

AD does allow for Superluminal velocity remembering that the Kinetic Energy equation describes a decay process.

What does this mean in this case?

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[1].- R. C. Vermuelen and M. H. Cohen, "Superluminal Motion and Cosmology," The Astrophysical Journal, 430:467-494, 1994 August 1. In Table 1, a Compilation of Internal Proper Motion lists 66 extragalactic sources with multiepoch observation with a maximum at 26 c.

[2].- R. Y. Chiao, P. G. Kwiat and A. M. Steinberg, Physic. Rev. A, 47, 2472(1993).

[3].- Mark Buchanan, New Scientist, 28 June 1997, "Light's spooky connections set distance record."

[4].- www.neci.nj.nec.com/homepages/lwan/gas.html

This means that we need to remember that Me[5] is the mass received by a gram of matter but a bigger quantity of mass is needed before decay in order to produce the Me value after decay.

Another problem common to SR and AD is that in the Lorentz or Carezani coefficient the particle velocity is related to a velocity taken as Unit: v/c, where c is taken as the Unit and as a maximum velocity.

We don't know the precise value of this maximum velocity! We remind the reader that c was never derived theoretically as a maximum velocity. Lorentz and Einstein took it as a fact, as per Maxwell's equations, that it was the propagation velocity of an electromagnetic field, and which was later presented by Einstein as a velocity limit.

To avoid an infinite value for Kinetic Energy, Mass and Momentum in SR, when the particle velocity is equal to c, c needs to be changed to a larger value, that will now be the velocity Unit: U > c.

This makes use of AD's theoretical hypothesis that c is not the limit. Such a limit would lead to non-sense: Infinite Energy, Mass and Momentum in SR or zero Mass and Momentum in AD that is not consequent with its finite Kinetic Energy value***. In AD all values in Nature are finite being either large or small.***

Remembering that

$$m = m_o \sqrt{1 - \frac{V^2}{U^2}} \qquad (1)$$

V = Particle or body velocity, *U* = Velocity Unit.

$$m_o = \frac{m}{\sqrt{1 - \frac{V^2}{U^2}}} \qquad (2)$$

The Autodynamic Kinetic Energy equation is

[5].- Table 1 in Section E4 in the Autodynamics Book.

$$KE = \frac{M_e \left(V\ 3\,10^{10}\right)^2}{\sqrt{1-\frac{V^2}{U^2}}}\left(1-\sqrt{1-\frac{V^2}{U^2}}\right) \qquad (3)$$

We are supposing here that $m_o c^2$ is replaced by $m_o(M_e) V^2$, not U^2. V is the factor that when multiplying M_e gives the gravitational energy provided by M_e, or any rest mass decaying to gravitons – a process that momentarily is unknown to us.

Working out equation (3) we have

$$KE = M_e \left(V\ 3\,10^{10}\right)^2 \left(\frac{1}{\sqrt{1-\frac{V^2}{U^2}}}-1\right) \qquad (4)$$

It is clear in equation (4)[6] that if V = c, U needs to be larger than V to avoid the infinite Energy, Mass and Momentum in SR which makes no sense. Or mass and momentum equal zero, which makes sense in AD, even though ***AD doesn't accept that energy, mass or momentum could be zero in Nature.***

Currently the most conclusive proof is given by the simple calculation that follows. Using values got by AD after getting the theoretical equation (4) in Section E4 in the Book, that is:

$$\phi = G\sqrt{\frac{M}{r^3}}\ X^2\ \frac{\left(1+\frac{1}{X}\right)^{\frac{t+2}{2}}}{\frac{t+2}{2}} \qquad (5)$$

[6].- Example: Making V = 27 c, to get the KE value equal to 481180 given in equation (6) is needed to make U = 75.22. This means that to give a finite KE value of 481180, U need to be larger than V. (U > V). Mass and Momentum will also be a real value no an infinite or zero values.

This equation is the AD theoretical result after applying energy absorption-mass decay to cosmological phenomenon such as Gravitation using the old idea of Gravitons.

The acceleration on Earth being 981 cm/s^2, means a body's velocity in a second will be 981 cm/s. The body's Kinetic Energy is

$$KE = \frac{1}{2} m v^2 = 481180 = A \qquad (6)$$

Taking m = 1gr and v = 981 cm/s

Newton's equation is used because v is a small velocity.

The Pico-Graviton Kinetic Energy gives this Energy to the body.[7]

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[7].- It is apparently impossible to use the momentum equation because there is not "synchronization" in time. The body velocity is given per second and the Pico-Graviton action is at superluminic velocity. The differential dt has two very different level, "size" or "value." If the "synchronization" is reestablished the body final velocity of 981 cm/s is found.
Example:

Taking the velocity given by equation (10) the M_e momentum is

$p = M_e\ V = 1.03\ 10^{-17}\ x\ 3.056613\ 10^{11} = 3.148\ 10^{-6}$ (I)

This is equal to the Net Force acting on m and

$F = m\ a$ (II)

$a = F/m = 3.148\ 10^{-6}$ cm/s^2 (III)

The velocity ratio is

$R_t = 3.056613\ 10^{11} / 981 = 3.1158\ 10^{8}$ (IV)

This is equivalent to the time ratio regarding the Pico-Graviton superluminic action on body m.

The m's velocity starting from zero is

$v = a\ t$ (V)

Using equation 5 to calculate, the value for M_e, (Table 1 Section E4 page 202 in the AD's Book). This is the Gravitons mass traveling at velocity V received by a body of mass equal to 1 gr, and which constitutes kinetic energy.

These two KE equations must be equal.

$$A = \frac{1}{2} M_e V^2 \qquad (7)$$

Why are we using Newton's equation? Due to the above considerations of SR and AD and because the resultant velocity U is comparable in magnitude to c and c many times smaller than U. which is equal to 75.22 c.

$$V^2 = \frac{2\ A}{M_e} \qquad (8)$$

$$V = \sqrt{\frac{2\ A}{M_e}} \qquad (9)$$

Replacing values

$$\mathrm{V} = 3.056613\ 10^{11}\ \mathrm{cm/s} \qquad (10)$$

It is, evident, the velocity is larger than the light velocity. Taking c as Unit, V is equal to

$$V_c = \frac{3.056613\ \ 10^{11}}{3\ \ 10^{10}} \quad = \quad 10.2\ c \qquad (11)$$

$$\mathrm{v} = 3.148\ \ 10^{-6}\ \mathrm{x}\ \ 3.1158\ \ 10^{8}\ = 981\ \ \mathrm{cm/s} \qquad (\mathrm{VI})$$

That is to say, the momentum equation is also valid taking in account the Pico-Graviton superluminic velocity with its proper time.

That is, **ten times the light velocity.**

Why is velocity 27 c mentioned many times in the Book?

Because the U. J. Balis[8] conclusion gives this value, and an empirical calculation made by Carezani[9] gives approximately the same value as the astronomical values mentioned in footnote 1. Of course, the velocity limit of 75.22 c is momentarily unknown and it is meaningless to us.

A General Discussion on Velocity Limit.

The SR conclusion, that its equations, which show that light speed has a limit, is related to the SR conclusion that inside an accelerator both, the Kinetic Energy (KE) and mass (m, mo) increase simultaneously.[10] It is important to have unequivocally established that both, KE and mass, cannot increase simultaneously because there is no energy conservation. If an Electron beam has energy equal to 1 MeV all its energy is only carried as Kinetic Energy. It is calorimetrically measured. There is no increasing energy equivalent to an increasing mass. The SR equation for KE is conclusive: KE increases because v increases but there is no increase in energy because mo **increases**. Mo, in the equation, stays constant when the velocity increases.

$$KE = m_o\ c^2 \left(\frac{1}{\sqrt{1 - \frac{v^2}{c^2}}} - 1 \right) \qquad \textbf{(1-2)}$$

[8].- Pico-Graviton mass equal to 8.08 10^{-82} Kg, density 6.7 10^{53} particle/m^3 and v = 27 c.

[9].- Pico-Graviton mass equal to 8.43 10^{-79} kg, density 1.04 10^{59} particle/m^3 given a density per cm^3 equal to 5 10^{-24} comparable to the average of Stellar mass in our Galaxy of 10^{-23} gram/cm^3.

[10] This was clearly understood by Eddington in his *Space, Time and Gravitation* (Cambridge University Press, 1923, p. 146): "The increase of mass with velocity simply means that the energy of motion has been added on." We cannot understand why the "Scientific Community" cannot see this, and, consequently, to see that SR is wrong.

The KE doesn't increase because m_o increases; the KE increases because v increases.

Consequently the SR argument that it is impossible for a particle to reach light speed because its mass enlarges the closer it is to c, and should be infinite at light velocity, is not true.

The only thing that increases is the KE and this is clearly shown by the equation.

To apply the mass equation separately, makes no sense because the mass doesn't increase, or as we said before, energy conservation fails.

The Light Speed.

The reasons why it is impossible to reach light speed from the AD point of view differs from the SR explanation.

The following will help.

It is well known that the Linear Accelerator at Stanford has 230 Klystron, each one with exactly the same power. The first Klystron and the last one give to the Electron the same energy. We will suppose that this energy or force is f.

The first Klystron gives f to the Electron provoking a velocity equal to v, Fig. 1 (through acceleration) and a KE is equal to E. The second Klystron will give the same f to the same Electron, which will now increase its velocity to v1 and its energy to E1.

SR and AD accept that energy is equivalent to mass and that Energy has also Inertia. This is proved because radiation has what is called radiation pressure or radiant energy, which possesses momentum.

Of course, v1 is smaller than v because E1 is larger that E. That is, the same force f will provoke a smaller acceleration when the particle's energy inertia is larger. The last Klystron will provoke a very small velocity because the electron has a much larger energy for what is the same very large inertia.

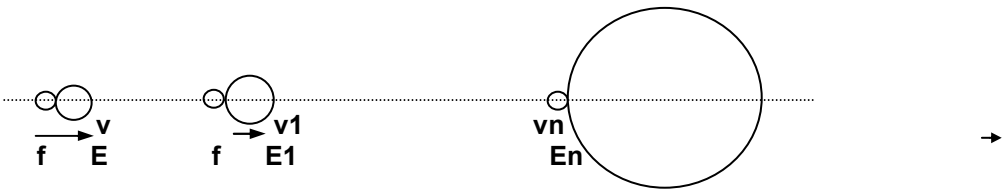

Fig. 1

Cyclotron Radiation.

The above explanation is not absolutely true. It is very well known and experimentally proved that the electron looses some energy, known as Cyclotron Radiation, each time it is accelerated. It is another reason – or the cause in itself – that the energy should be extra incremented to get the same velocity as explained before.

Also, when the Cyclotron Radiation needs to be maintained to be used as a tool, for a long time, new electrons need to be constantly injected in the electronic beam because the electrons continuously loose energy and so lose the capacity to emit more Cyclotron Radiation. This is systematically hidden when SR's supporters talk about increasing mass. In reality, the Electrons, in the beam, are constantly "loosing mass".

Mechanism or Machinery

It is important to point out here that SR has no new mechanism or machinery to explain the increasing velocity because SR uses the so called "billiard ball" that is exactly the same as Newton's mechanical "collision." The Klystron energy "pushes" or "hits" the electron, which increases its velocity and consequently its KE. It is very well known that AD proposes a very different mechanism that explains perfectly the increasing energy without mass increment, as it is possible to see in the AD's Book on page 48, "Inside an Accelerator" (XVIII).

Speed Limit

SR's conclusion, positing c as a limit, is not true. Using c in the Lorentz or Carezani coefficient, which produces relativity, doesn't introduce c as a limit. We introduce c because history has taught us to do so since Maxwell and because it was the fastest velocity measured for Light and Electromagnetic Energy.

Something different will happen if C > c is used. We will suppose, for illustration, that C = 27 c.

$$KE = m_o \left(27\ c\right)^2 \left(\frac{1}{\sqrt{1 - \frac{v^2}{C^2}}} - 1 \right) \qquad \textbf{(2-2)}$$

Of course, to get velocities larger than c it is necessary to have a carrier traveling faster than light. AD, only momentarily, proposes gravitons traveling at 27 c. Of course, this velocity is only a theoretical result. Without experimental or observational values, the door is always open to a different value. In AD's faster than light derivation 10.2 c is found, with a velocity limit equal to 75.22 c. In the Cesium experiment the researchers are talking about 300 times light speed.

Conclusion.

SR's argument doesn't prove that c is a velocity limit. This proves that when using c as a limit (carrier) it is impossible to get something faster because the carrier lacks the capacity to go faster. But if another carrier is used, and it is faster than c, will be possible to get velocities faster than light. The carrier velocity gives the particle velocity, but again, this doesn't prove either that the "new carrier" (27 c) is a velocity limit.

In another words: If c was selected for us as the carrier's maximum velocity, it is impossible to surpass that velocity. This is also inherent to the equation itself, that is, the mathematical expression $\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$ gives c, automatically, as the maximum velocity.

Momentarily AD accepts the equation but not the **concept**. For AD the concept is perfectly clear: The carrier's velocity gives the particle's maximum velocity but this doesn't mean that the actual carrier velocity (c), **selected by us**, is the speed limit.

As an answer to a Frequently Asked Question [11] published to explain the Cesium experiment [4], AD published "To Sustain the Unsustainable," which follows:

[11]. – This demonstrates the painful psychological resistance that the "Scientific Community" feels by their refusal to accept that Einstein could be wrong. The most fantastic explanations are invented to save Einstein from what is evident. Pauli invented the magical Neutrino to save SR from its failure to explain decay. Super-Kamiokande's "scientists" manipulated their data to prove that neutrinos are coming from the Sun.