

Urgent Reevaluations of Physical Doctrines in the Light of TSO

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Abstract and Summary

TSO is a new quantum theory, published in a book by St Petersburg University Press 1999. It can, by aid of only two constants, c and h plus π , explain and account for known physical relations and manifestations, also those that previously were enigmatic or quite unknown. It is therefore worth consideration. The basic presumption of TSO is that a Time-Space-Oscillation is the basic mechanism of physics. All physical entities and manifestations including matter and charge are constituted of time and space as amplitudes, mediated by the oscillatory force that acts between them. The fact that this presumption appears as validated makes a reevaluation of several doctrines of present physics required, especially those concerning our matter concepts and its sequel doctrines of Relativity and Big Bang. In this paper we will discuss such reevaluations of prevailing physical doctrines, which are urgently required in the light of TSO. These reevaluations also concern fundamental physical aspects e.g. the probabilistic doctrine and the existence of a parallel world of 3-D time, which is responsible for force and field actions, but otherwise hidden to our senses. Another aspect is the limitation to only two fundamental physical dimensions, time in seconds [S] and space in meters [M].

Dynamic Reinterpretation of the Mass-Energy Relation - The Clue to TSO

The basic presumption of TSO is that a harmonic Time-Space-Oscillation of spherical cosmic size is the fundamental but hidden mechanism of physics. TSO is also derived on basis of the old energy formula for oscillatory motion, $E_o = \frac{1}{2}m_o(A_o\omega)^2$, identical, $E_o = m_o c^2$, when the velocity amplitude ($A_o\omega$) equals $c\sqrt{2}$, as it does in the quantum realm. Here E_o stands for the harmonic energy and m_o for the harmonic mass or the inertia that is active in whole the wide TSO. The formula, $E = mc^2$, was originally proposed in 1881 by J.J. Thompson, but it was referred to relativistic ideas by Einstein in 1905. In TSO, energy and mass are not identical as Einstein teaches in his relativity doctrine. But as every particle mass is spherically oscillating with a velocity amplitude of $c\sqrt{2}$, it is always connected with the oscillatory energy $E = m(c\sqrt{2})^2/2 = mc^2$.

Harmonic TSO-units - Two Dimensions – Sub-quanta - The Time World

The clue to the harmonic values is an extrapolation of the “neutron force amplitude” $F_n = 0,10136 \times 10^7$ N to a pure π -function $F_o = 10^7/\pi^2 = 0,1013212 \times 10^7$ N [MS⁻¹], which also gives the impedance amplitude $I_o = F_o/c = 10^7/\pi^2 c$ [I]. Other fundamental units are the harmonic amplitude of time, $A_T = 0,9909467 \times 10^{24}$ [S] and the harmonic amplitude of space $A_o = cA_T = 2,970783 \times 10^{16}$ [M], the latter determined as $A_o^2 = 2\sqrt{2}E c/F_o = 8,82555 \times 10^{-32}$ [M²]. They happen to correspond to the harmonic mass $m_o = I_o A_T/2 = F_o A_T^2/2A_o = 1,6745566 \times 10^{-27}$ kg [S].

It does not exist as a particle, because it is dissociated in proton and electron plus a positron, the mass of which becomes hidden inside the proton. At the dissociation A_T splits off a time sub-quantum of $(10^{16}T_P)$ that gives the electron mass. Its negative charge refers to lack of balancing space sub-quanta $(10^{16}L_P)$ that stays as a surplus in the positron and causes its positive charge.

Particle mass and charge are not eternal but secondary manifestations, incessantly formed and extinguished at the center of each TSO-unit. All units are expressed in dimensions of time [S] and space [M]. Mass gets dimension of time [S], charge dimension of length [M], force and velocity [M/S].

Most remarkable is that TSO yields an exact ratio of time-space (A_TA_o) of the quantum realm to that of a sub-quantum realm of Planck's time-length (T_PL_P) i.e. the "super-string" realm. The ratio is $A_TA_o/L_PT_P = 10^{41}I_o$ or $A_T^2 = 10^{41}I_oT_P^2$. This yields $T_P = 5,39027 \times 10^{-44}$ [S] and $L_P = 16,15962 \times 10^{-36}$ [M]. Therefore A_T and A_o can be expressed as $A_T = 10^{20}T_P\sqrt{10I_o} = 0,183840 \times 10^{20}T_P$ and A_o as $A_o = 10^{20}L_P\sqrt{10I_o}$. The ratio 10^{41} also appears as the cosmos/quantum ratio, deciding the radius of universe $R = 10^{41}(\pi\sqrt{2})A_o = 1,32 \times 10^{26}$ [M].

Further it appears in the gravitational constant, which in TSO becomes $G = 10^{41}(\sqrt{2}c)^3/I_o^2 = 6,671876 \times 10^{-11}$ [M³S⁻³]. TSO not only reveals this two-sided relation. Its very presumption necessitates the existence of a 3-D time world, analogous to our 3-D space world. Also the imaginary solutions of the Schroedinger equation indicate the active participation of a 3-D time world, but as this time world is almost hidden to our senses, we have disregarded it.

The Doctrine of a Probabilistic Physics - The Oscillatory view of Matter

The existing doctrine of atoms as "static building blocks" is in TSO replaced by a dynamic view, in which particles are incessantly extinguished and reshaped at the center of their TS-oscillator. Like time and space, matter and all quantum entities become phase dependent oscillators with a frequency of 10^{24} Hz. Thus physics is not probabilistic, it is rendered causal and logic. But we can get only wave-statistical (probabilistic) values from our quantum measurements, because they are dependent on the oscillatory phase in which they happen to be registered, and that is outside any experimental control.

Heisenberg's uncertainty principle is presently considered as mathematical proof of the probabilistic character of physics. But in TSO it is only a warning sign, indicating that we try to describe nature by incorrect and incompatible concepts. In the oscillatory quantum realm, only amplitudes of finite length (A_o) and duration (A_T) exist but no infinitesimal points. When present physics tries to describe nature in terms of points (positions/instants) Nature shows up the uncertainty principle as a warning sign. But 20th century physicists have misinterpreted it as a proof of the probabilistic doctrine.

An Image of how Time and Space Amplitudes constitute two Worlds

Physical manifestations as mass and energy appear in TSO-equations as squared amplitudes (A_T^2 and A_o^2) with linear amplitudes (A_T and A_o) as denominators. In a simile we can compare the squared amplitudes with the pictures, we see during a movie. Then each A_o^2 corresponds to a single film picture with its temporary arrangement of matter in space and each A_T^2 to the intermediate but to us hidden dark interval, when the shutter is closed and the next A_o^2 -picture is brought forward. (But if we fall asleep or pass away, the pictures of A_o^2 become hidden to us. In stead we get aware of the content of the “dark” intervals of A_T^2 , wherein we can find our real Self). The linear flow of A_o and A_T gives us the perception of a permanent space and a passing time. Physically it decides the degree of change between each sequence of A_o^2 and A_T^2 . We should however keep in mind that the oscillations between the phases of A_o and A_T in both A_o^2/A_T^2 and A_o/A_T physically are irrevocably connected. It is only our own biased and limited senses that falsely separate them as different worlds by making us almost unaware of the time sequences A_T^2 .

The universal role of \dot{E} - Mass Increase in TSO and in Relativity

Planck’s constant \dot{E} , the quantum of oscillatory action (oscillatory angular momentum), represents the superior and universal law of physics. It appears as a unit of integers but never in fractions as $\frac{1}{2}\dot{E}$ alone. It determines how particles can be constituted of amplitudes by formulas $\dot{E}=m_x^2 c^3 \sqrt{2}/F_x$ and $\dot{E}=m_x c A_x / \sqrt{2}$. It also determines how different units and parameters are allowed to interact with one another by formulas $\dot{E}=F_o A_o A_T / 2\sqrt{2}$ and $\dot{E}=10^{41} (F_o T_p)^2 / 2\sqrt{2}$. Finally it also determines how a system, when overloaded, splits in two \dot{E} -systems, the one split off forming a de Broglie wave interference system, $\dot{E}=m v A_v / \sqrt{2}$

Mass and energy appear in TSO as $m=F_o A_T^2 / 2 A_o [S]$ and $E=I_o A_o^2 / 2 A_T [M^2 S^{-1}]$ while charge e^2 appears as $\pi^4 (10^{16} L_p)^2 / 10^{26} A_T [M^2]$. If we from the surrounding’s frame consider a particle with high translational velocity v in space, the linear amplitudes of the denominators will appear as contracted, causing an increase of both mass and energy, which is experienced by the surrounding. But the surrounding does not experience any effect of the charge, only other charges do. However, if seen from the particle’s frame of reference its own amplitudes are constant with internal mass, energy and charge constant. But at acceleration to velocity v the particle meets a compressed external TSO-field of the surrounding (total universe) in front of it, and a dilated TSO-field in the back of it. This explains the immediate braking against the acceleration, according to Mach’s principle. At acceleration also the charge feels a compressed electrical field in front of it from all charges in universe and thereby contributes to brake the acceleration of a charged particle. In Relativity the cosmic flows of time and space are considered as dilated or contracted at high velocities, which causes the twin paradox. In

TSO only denominator amplitudes that constitutes the mass and energy are contracted, and they can not go to zero, why mass or energy can never be infinit.

Present Doctrines concerning High Energy and Particle Physics

Particle masses and charges are in present physics enigmatic and referred to their quark constituents. In TSO the real constituents of matter are force, time and space amplitudes. The doctrines of quarks and gluons as building blocks of nucleons have no sense, and the “strong force” supposed to keep nucleons and their quarks together in nuclides does not exist. In TSO they are simply kept together by the impact of the oscillating force F_o .

The mass formula used above $m_o = F_o A_T^2 / 2A_o$ is valid also for non-harmonic particles as the neutron, in which A_T^2 is constant, while A_o of the denominator is contracted or elongated by external energy/velocity to $A < A_o$. A_o or A is here the particle’s spin amplitude and $A/\sqrt{2}$ the efficient spin radius that also turns up in its angular momentum $\dot{E} = m_o c (A_o/\sqrt{2})$ or $\dot{E} = mc (A/\sqrt{2})$. As \dot{E} and c are constants, by necessity a decreased $A < A_o$ will be accompanied by an increased $m > m_o$ corresponding to a mass increase at high external velocities /energies. We conclude that particle spin \dot{E} is the most invariable constant, while particle mass varies with external energies inverse to A as $m A = m_o A_o = \sqrt{2} \dot{E} / c$. The Compton wavelength is a measure of its radius and the distance from the TSO-center, where the particle is formed. It is $\lambda_c = h/mc = 2\pi \dot{E} / mc = 2\pi A_o / \sqrt{2}$, why a contraction of A_o also results in a decreased radius (size) of the particle.

The formation of heavy particles (gluons, bosons and free quarks) during high energy collisions, reported by CERN during the 1990’s, appear in this perspective only as specific resonance patterns. They are just deformed harmonic particles with a heavily compressed spin radius $A \ll A_o$ and consequently with a heavily increased mass $m \gg m_o$. These deformed particles can not be regular constituents of matter, as CERN vindicates.

The Dissociation of TSO-units in protons and electrons vitiate Big Bang

In present physical doctrine protons and electrons are considered as quite independent particles, which happened to remain in equal amounts after Big Bang and its subsequent interactions, thereby causing an electrically neutral universe. This is in sharp contrast to TSO, where protons and electrons are incessantly created in pairs by dissociation of the harmonic oscillator of mass m_o and time amplitude A_T . Present physics is further unable to give any explanation or account of the proton and electron masses and the origin of their charges, while TSO can do so with very high accuracy.

Before dissociation the time amplitude of the harmonic oscillator is $A_T = 10^{20} T_P \sqrt{10} I_o$ corresponding to harmonic mass $m_o = \frac{1}{2} I_o A_T =$

$\frac{1}{2}I_0 10^{20} T_P \sqrt{10I_0} = 1,6745566 \times 10^{-27} \text{ kg [S]}$. The time amplitude that goes to the electron appears to be $\frac{10^{16} T_P}{\sqrt{10I_0}}$ corresponding to a mass $m_e = \frac{1}{2} I_0 10^{16} T_P = 0,910878 \times 10^{-30} \text{ kg}$.

But at the dissociation also a weak oscillatory force $F_e = 0,2998328 \text{ N}$ with impedance $I_e = F_e/c = 0,10001345 \times 10^{-8}$ and mass factor $\frac{\sqrt{10I_e} = 1,000067 \times 10^{-4}}$ appears beside the strong impedance I_0 and its mass factor $\sqrt{10I_0}$. It corresponds to the weak interaction in present physics. Due to the weak impedance the correct time amplitude should be written $\frac{10^{20} T_P \sqrt{10I_e} = 10^{16} T_P \times 1,000067$ that gives $m_e = \frac{1}{2} I_0 10^{16} T_P \times 1,000067 = 0,910939 \times 10^{-30} \text{ kg}$.

The residual time amplitude after deduction for the dissociated electron and the hidden positron is $A_{T_P} = 10^{20} T_P (\sqrt{10I_0} - 2\sqrt{10I_e}) = 10^{20} T_P (0,183840 - 0,000200) = 0,183640 \times (10^{20} T_P) \text{ [S]}$. If this residual time amplitude is used for accounting the proton mass we get $m_p = \frac{1}{2} I_0 \times 0,18364 \times 10^{20} T_P = 1,672736 \times 10^{-27} \text{ kg}$. If we use the weak mass factor $\sqrt{10I_e}$ now in the denominator, we get the value $m_p = \frac{1}{2} (I_0 / \sqrt{10I_e}) 0,18364 \times 10^{16} T_P = 1,672623 \times 10^{-27} \text{ kg}$. Surprisingly, the weak mass factor of the denominator $\frac{\sqrt{10I_e} = 1,000067 \times 10^{-4}}$ here transfers the basic electron time amplitude $10^{16} T_P$ back to the nucleon amplitude $10^{20} T_P$.

The previous discussion shows that the electron consists of a time-amplitude $10^{16} T_P$ that is parted from the time-amplitude of the harmonic oscillator by the mass factor $\sqrt{10I_e}$. It gives the electron mass since the weak mass factor is considered. But the space-amplitude $10^{16} L_P = 16,15962 \times 10^{-20} \text{ [M]}$ is lacking in the electron and causing its negative charge. It remains in the proton, causing its positive charge $e = 0,99147 \times 10^{16} L_P = 16,02178 \cdot 10^{-20} \text{ C}$, and it is also causing hiding of another time amplitude of $10^{16} T_P$ that refers to the hidden positron mass. The processes, indicated by these stoichiometric relations, remain to be identified in detail..

The TSO Concept of light makes Relativity invalid

According to present physical doctrines light units or photons are independent of their sources and absorbers and have a constant velocity c in whatever frame it is measured. As we do not seem to be able to measure the velocity of light without absorbing it by our instruments (also interferometers are absorbers) one ought to draw the conclusion that the constant velocity of light always refers to the absorber, which transports it through space by its wide TSO-field. This is further elucidated by the fact that the absorber's TSO-field must be the cause of its $\frac{1}{2} \dot{E}$ particle spin. As \dot{E} must appear in integers the $\frac{1}{2} \dot{E}$ spin must be combined with an oscillatory $\frac{1}{2} \dot{E}$ translation, $\frac{1}{2} \dot{E}$ trans.

Together they form a $1 \dot{E}$ spiral, an oscillatory spiral movement forth and back during each period. Only units of $1 \dot{E}$ spin like photons can interact with

and be transported by such a TSO, otherwise \dot{E} would not appear in integers. In order to change the forth and back movement of the standing TSO-field to a propagation velocity c through space the angular momentum, $\dot{E} = m_0 c A_0 / \sqrt{2}$ [M²], must interact with the angular frequency of the photon $\omega_x = \sqrt{2} / A_{TX}$ [S⁻¹]. Thereby also an energy $E = \dot{E} \omega_x$ appears corresponding to the photon frequency (not to the high TSO-frequency) that is transported toward the absorber with the TSO propagation velocity c . So a photon not transported by an absorber's TSO-field will just be a circuit of frequency without energy and velocity of its own. We can also conclude that a photon must disappear as dark background radiation, if it loses contact with its TSO carrier, which might explain the old Olbert paradox of the dark sky in the night.