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RESEARCH ARTICLE

NEWS IN CLASSICAL AND QUANTUM EVTD2 GRAVITY THROUGH CORRELATIONS BETWEEN BODIES MASSES AND THEIR BLACK BODY EMITTANCES

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ABSTRACT

This publication follows, recent works (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017) related to the presence of mini black holes at the zero resulting potential between two masses, in quantum EVTD2 gravity. The equal reports series, arising from the classic gravity, is surprisingly augmented by the balance black body temperatures at fourth power reports for each concerned masses. This is highlighted by simply using the solar system data and the estimations and calculations that have been made during the recent works (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017). Quantum gravity EVTD2 (Conte and Rosca, 2015; Conte and Rosca, 2015; Conte and Rosca, 2015; Rosca and Conte, 2008; Rosca and Conte, 2015) allows a new approach to the predominant phenomena in gravity that are not considered until now. This, taking into account the ubiquitous electromagnetic phenomena in space-time that structure the gravitational fields as they are generated by various black body photonic radiation of the masses to their black body requivalent temperature (Te). Te of a celestial body, part of a duo, can be determined if Te of the other one is known as well as their ratios and, their masses report.

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INTRODUCTION

In the present day physics, new perspectives on the space-time organization are developed (Timashev, 2017). The base hypothesis of the EVTD^2 entities theory are in good correlation with this new approaches. The theory of energetic entities EVTD^2 structuring the space-time allows phenomenological explanations for observed behaviors, depending on the case, between two masses more or less distant one from the other. Quantum gravity EVTD^2 (Conte and Rosca, 2015; Conte and Rosca, 2015; Conte and Rosca, 2015; Rosca and Conte, 2008; Rosca and Conte, 2015) allows a new approach to the predominant phenomena in gravity that are not considered until now; the explanation of the free fall mainly concerns the quantum levels of active potential on scalable length segments, which participates in the acceleration of free fall (Conte and Rosca, 2015; Conte and Rosca, 2015). The following known reports were very often used in work (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017). More, the reports to the point *O*, of respective planets in duos masses photonic flows are also part of these same equalities and they were justified by calculations (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017), which matches here with the relation (1):

$$\left(\frac{OM_1}{OM_2}\right)^2 = \frac{g_2}{g_1} = \frac{m_1}{m_2} = E_{Sphere\ M_1O/m^2} / E_{Sphere\ M_2O/m^2} . \quad (1)$$

For the classical physics of gravity it is, firstly, to mention the equalities, especially of the distances square ratio (OM_1 and OM_2 to their zero resulting potential O (Conte and Rosca, 2015) of the bodies M_1 and M_2) with the g_2 and g_1 accelerations' report. The latter is itself also equal to the ratio of the masses m_1 and m_2 values. But more, the reports of the photonic flow powers per square meter $E_{SphereM_1O/m^2}$ and $E_{SphereM_2O/m^2}$, emitted by each of the balance black body temperatures T_e of the concerned masses and, arriving in their point O, lay be equal respectively to the report of the concerned masses, among others (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017).

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So, in these cases, a series of unknown so far equalities between reports there was already highlighted, which establishes, surprising at first glance correlations between the black bodies flow energy arriving in O from these masses and the values of these masses themselves. But here the object of the work is to highlight another equality between all these previous reports and the report of the balance black body temperatures T_e to the fourth power. Equality of this particular type of reports is mainly with the ratio of these respective masses values. It is enough to use the temperatures of duets for each of the eight planets of the solar system and the Sun to check, quite properly, these circumstances (as shown in relationship (2)). But this is also true in the case of a planet and its unique satellite (Earth-Moon) duo, i.e. with relatively nearby temperatures: without the 6100°K of the surface temperature T_{eS} used here.

$E_{Sphere\,M_1O/m^2} / E_{Sphere\,M_2O/m^2}$, we can write as it follows in the relationship (3). Indeed, if M_1 is the mass of the Sun (M_S) and M_2 corresponds to mass M_P of each planet P in duet with the Sun, we can write from works (Timashev, 2017; Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017):

$$E_{\substack{Sphere\\SO/m^2}}/E_{\substack{Sphere\\PO/m^2}}=\frac{\sigma T_{eS}^4}{\sigma T_{eP}^4}.\frac{4\pi r_S^2}{4\pi r_P^2}.\frac{4\pi(OP)^2}{4\pi(OS)^2}.\frac{T_{eS}}{T_{eP}}=\frac{m_S}{m_P}=\left(\frac{OS}{OP}\right)^2=\frac{g_P}{g_S}=R_a, \quad (3)$$

where: r_S and r_P are respectively the rays of emitting surfaces: on one hand the Sun and, on the other hand one of the planets and, R_a refers to the value of each of these reports concerning the pairs of considered celestial bodies. R_a is, especially, the known ratio between the masses of each pair. The multiplying

Table 1. Intermediary results from (2-5)), balance black bodies temperatures of planets' and Moon emitting surfaces and, the ratio of photonic flows arriving in *O* from each celestial body and their squared distance to the point *O*

Duets	Reports $R_a=\frac{m_S}{m_P}$	T_{eP} calculated by the relation (2)K	T_{eP} calculated by the relation (4) K	T_{eP} used in work (2-5) K	$E_{Sph\,SO/(SO)^2}$	$E_{Sph\,PO/(PO)^2}$
S – Me	6023600	123.13	113.7	150	$2.5974\cdot10^{-15}$	$2.5741\cdot10^{-15}$
S – Ve	408523	241.3	232.05	232	$7.3581\cdot10^{-18}$	$7.371\cdot10^{-18}$
S – T	332981	253.93	246.6	250	$1.8741\cdot10^{-18}$	$1.8703\cdot10^{-18}$
S – Ma	3098710	145.4	130.1	150	$5.773\cdot10^{-19}$	$5.678\cdot10^{-19}$
S – Ju	1047	1072	948	260	$1.1643\cdot10^{-21}$	$1.10\cdot10^{-21}$
S – Sa	3498	793.2	630	200	$9.7928\cdot10^{-25}$	$9.650\cdot10^{-25}$
S – Ur	22869	496	413	160	$5.7797\cdot10^{-26}$	$6.0974\cdot10^{-26}$
S – Ne	19314	517.4	448.7	130	$9.564\cdot10^{-27}$	$9.2626\cdot10^{-27}$
T-Moon	R_a=T/Mo = 81.29	84.6	72.4	159.5	E_{TO}: $4.602\cdot10^{-17}$	E_{MoO}: $4.594\cdot10^{-17}$

$$\left(\frac{OM_1}{OM_2}\right)^2=\frac{g_2}{g_1}=\frac{m_1}{m_2}=\frac{E_{Sphere M_1O/m^2}}{E_{Sphere M_2O/m^2}}=\left(\frac{T_{e1}}{T_{e2}}\right)^4=R_a. \quad (2)$$

It therefore appears, that there is a certain and general correlation between the mass value of the objects (stars) and their absolute balance black bodies temperature T_e, established outside of their immediate environment and, even since their zero resulting potential, to be precise. However we must remember that balance black body temperatures for the studied stars duets, were at best estimated in (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017) from some allowed data for the characteristics of the stars in the Solar system and the laws of physics for black bodies radiation (of Wien and Stefan Boltzmann). One of the (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017) conclusions has been to highlight the correlations between emitted photonic flows (black body) and the values of the masses. As these energy flows are determined from the values of the surfaces emittances or the emissive areas, according to the law of Stefan Boltzmann, it follows also correlations with their black bodies balance temperatures to the fourth power (T_e^4).

CORRELATIONS BETWEEN MASSES AND BALANCE BLACK BODIES TEMPERATURES IN SOLAR SYSTEM

By extending the work (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017) and by examining the reports of the photonic flow (black body) arriving in *O* as they have been used: report of the photonic flow of the Sun (T_{eS}/T_{eP}), as being more energizing than those of the considered planets (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017), comes from the law of Wien.

This multiplying report is used to standardize at best the levels of photonic energy which meet in the *O*, where they interfere to create mini black holes (*MBH*) following (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017). Thus, from the wave-length, result the frequencies' and periods' ratios:

$$\left.\begin{aligned}\lambda_{Smax}&=\frac{2.898\cdot10^{-3}}{T_{eS}}\text{m}\\ \lambda_{Pmax}&=\frac{2.898\cdot10^{-3}}{T_{eP}}\text{m}\end{aligned}\right\}\Rightarrow\frac{f_{Smax}}{f_{Pmax}}=\frac{\lambda_{Pmax}}{\lambda_{Smax}}=\frac{T_{eS}}{T_{eP}}.$$

From this relationship and from (3) arises that the balance black body temperature of a planet T_{eP} is found, for each duo, by the equation (4) if is known, or estimated at best the T_{eS} value and the other concerned quantities (rays and R_a).

$$\frac{T_{eS}^4}{T_{eP}^4}.\frac{r_S^2}{r_P^2}.\frac{(OP)^2}{(OS)^2}.\frac{T_{eS}}{T_{eP}}=\left(\frac{OS}{OP}\right)^2=R_a\Rightarrow$$
$$\frac{T_{eS}^5}{T_{eP}^5}.\frac{r_S^2}{r_P^2}=\left(\frac{OS}{OP}\right)^4=R_a^2\Rightarrow T_{eP}^5=T_{eS}^5\left(\frac{r_S^2}{r_P^2}\right).\frac{1}{R_a^2}\Rightarrow T_{eP}=T_{eS}\sqrt[5]{\frac{1}{R_a^2}\frac{r_S^2}{r_P^2}}. \quad (4)$$

Thus, from the Sun emitting sphere equilibrium temperature T_{eS} of 6100° K, which has been estimated and chosen for all

previous (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017), we can recalculate the corresponding temperature T_{eP} for each of the studied planets and, also for the Moon (T_{eLu}) as Earth's satellite. Table 1 shows the data of the work (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017) and the results given by the previous relationships, including (2) and (4). There is to mention, once more, the good concordances of the T_{eP} selected in (Conte and Rosca, 2017) from the generally accepted temperatures and those given by two relations (2 and 4) respectively for Sun-Venus and Sun-Earth duets. Some intermediate results (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017) are recalled and balance (or equivalent) black body temperatures of emitting surfaces of planets and Moon, which were calculated, are also reported. The last column gives the photonic flow (per m^2) arriving in *O* from each celestial body in duet and they are divided by their squared distance to the point *O* and, there are found the respective equalities. This shows that black body balance temperatures calculated by the relationship (4) relatively to the three duos Sun-Venus, Sun-Earth and Sun-Mars are very similar with the temperatures found in the works (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017). For Mercury and the planets beyond the asteroids belt, estimated values and those respectively calculated are very far from each other. It is quite possible that this is due to taking into account not controlled data because of the close proximity of Mercury to the Sun on one hand and, on the other hand, the major influence of the asteroids belt for the duets Sun and the four farthest planets. Indeed it is difficult to know how energy flows from the Sun are disturbed and modified through the thick asteroid belt, to achieve in each of the four corresponding *O* points. Which is relatively probably that the effects on these crossings is homogeneous for the four farthest duets: the questions are, then, in what proportion and mainly on what radiation of solar radiation?

HIGHLIGHTING EQUALITIES OF THE REPORTS $\frac{E_{SphereSO/m^2}}{(OS)^2}=\frac{E_{SpherePO/m^2}}{(OP)^2}$ FOR EACH SUN-PLANET DUET

Considering the relationship (3), various indicated equalities allow to write this equality between the reports mentioned in this chapter title. The calculations for two Sun-Earth and Sun-Venus duets will be developed as they are the most successful. For Sun-Mercury and Sun-March as well as for Earth-Moon and the four duets Sun with each of the four planets beyond the asteroid belt results, in similar calculations, are only given in Table 1. To treat the other seven cases data will be also drawn from works (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017). With respect to the Sun-Earth duet, the respective distances of the masses to the point O_3 are: TO_3 =258799365 m and the distance SO_3 =149339071335 m. While the values of two flows by square meter, in O_3 were determined in the work (Conte and Rosca, 2017):

$$E_{\substack{Sphere\\TO_3/m^2}} = 0.13453 \cdot 0.935 = 0.1257855 \quad \mathrm{W/m^2};$$

$$E_{\substack{Sphere\\SO_3/m^2}} = 1712.71 \cdot 24.404 = 41796.97 \quad \mathrm{W/m^2},$$

Where from:

$$E_{\substack{Sphere\\TO_3/m^2}} / (TO_3)^2 = \frac{0.1257855}{(258799365)^2} = 1.87803 \cdot 10^{-18} \ \mathrm{W/m^4};$$

$$E_{\substack{Sphere\\SO_3/m^2}} / (SO_3)^2 = \frac{41796.97}{(1493390713\ 35)^2} = 1.8741 \cdot 10^{-18} \ \mathrm{W/m^4}.$$

As we see, there is a very good match and equality between these reports, thus calculated, for the Sun-Earth duet. Regarding the duet Sun-Venus the distances to use are, respectively to the point O_2: VeO_2 = 169025983 m and SO_2 = 108039904017 m with (Conte and Rosca, 2017) data for the corresponding flows.

$$E_{\substack{Sphere\\VeO_2/m^2}} = 0.210588 \ \mathrm{W/m^2};$$

$$E_{\substack{Sphere\\SO_3/m^2}} = 3265.735 \cdot 26.3 = 85888.83 \ \mathrm{W/m^2},$$

Where from,

$$E_{\substack{Sphere\\VeO_2/m^2}} / (VeO_2)^2 = \frac{0.210588}{(169025983)^2} = 7.37100 \cdot 10^{-18} \ \mathrm{W/m^4};$$

$$E_{\substack{Sphere\\SO_2/m^2}} / (SO_2)^2 = \frac{85888.83}{(10803904017)^2} = 7.3581 \cdot 10^{-18} \ \mathrm{W/m^4}.$$

We find Sun-Venus, again, a good match for equality of these reports. It is the same for Sun-Mercury, Sun-March as well as for the four duets Sun-planets beyond the asteroid belt and Earth-Moon (see Table 1) for all these results of respective equalities. However it should be noted that the respective photonic flow in O_5, for the Sun-Jupiter duo, have been recalculated. Similarly to verifications of this type of equalities of previous reports, other types could be verified as, for example, the probably reports taking into account the gravitational accelerations or the photonic flows at zero resulting points between two masses. So, we should also have the respective equalities for the pairs of bodies which have no other preponderant influence or undergoing a common influence: such as that of the Sun on the Earth and its Moon satellite. As an example we can write, consequently to the relationship (3), the various equalities of the following reports (5) for the different duos Sun-planets:

$$E_{\substack{Sphere\\SO/m^2}} / g_P = E_{\substack{Sphere\\PO/m^2}} / g_S.$$

For a simple verification with the data and results of (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017) we shall test this on the Sun-Earth duet. The photonic power per square meter, arriving in *O* from the Sun, has been determined to the value of $E_{\substack{Sphere\\SO/m^2}} = 41796.97 \quad \mathrm{W/m^2}$, while the respective distance from Earth to *O* was of $E_{\substack{Sphere\\TO/m^2}} = 0.1257855 \quad \mathrm{W/m^2}$.

Knowing that the relationship of gravity can determine the possible acceleration *g,* respective of these two stars in the case

of school (in an imaginative situation), where they would be isolated from any other influence, we obtain for them the values:

$$g_S = 1.7819 \cdot 10^{-8}\ \mathrm{m/s^2};\ g_T = 5.93732 \cdot 10^{-3}\ \mathrm{m/s^2}.$$

Two verification calculi give respectively for the starting reports:

$$E_{\underset{SO/m^2}{Sphere}} / g_T = 7.04633 \cdot 10^6;\ E_{\underset{TO/m^2}{Sphere}} / g_S = 7.06153 \cdot 10^6.$$

This new verification gives adequate results to establish a good matching level provided for this type of reports that are so unusual. So we can say that these black bodies' photonic flows emitted by the bodies at their temperatures T_e are interesting to know. Indeed they enable determinations for other parameters related to the gravitation, which are not used so far.

CONCLUSION

This study shows, in its multiple numerical confirmations, that there are other useful quantities and sometimes somehow equivalent, other than the values of the masses themselves of the objects involved in gravity. Especially what has been the basis of these recent works (Conte and Rosca, 2017; Conte and Rosca, 2017; Rosca and Conte, 2017; Rosca and Conte, 2017)- the photonic energy flows that everybody radiates at a temperature higher than the 0°K (Rosca and Conte, 2015). These flows are to be considered either arriving in zero resulting potential, either from the emitting surface of the object. It therefore appears that balance or equivalent black body temperatures of objects emitting surfaces in gravity can be a substitute to the values of the masses themselves. As long as the gravitational field, in this approach, is energetic, photonic (black body) and more, quantic since there is of photons emissions in all space-time. It follows, then, that the equivalent black body emittances can play neither more nor less a role comparable to the masses in another concept of gravity and, why not, can be interchangeable according to the possessed data. So, this allows to correlate classical gravity with gravity-based photonics thus, quantic and why not EVTD^2.

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