Journal of Scientific Research and Essays
Vol. 1 (2), pp. 33-36, November, 2015
Review
http://pearlresearchjournals.org/journals/jsre/index.html

Hyper gravity Derived from the Le-Density and Applied To A Model for Explosion. Analysis of Universal Constants of Gravity and Light in Conjunction with the J-Space

Lena J-T Strömberg

Accepted 18 November, 2015

Previously Department of Solid Mechanics, Royal Institute of Technology, KTH, Sweden.E-mail: lena_str@hotmail.com.

ABSTRACT

For a rotating continuum with a Le-density, a pressure can be assumed, by means of a gas law. From this, a body force notified as hypergravity will be derived for a steady motion. It will have the same dependency of radial coordinate as Newtonian gravity, but derived from a kinematic approach. From the noncircular orbit (generalised ellipsoidal), a model for explosion will be outlined, and characterized by velocities and a length scale. The model features infinite pressure and density such that liquefaction and phase transitions may occur, as is the case for a sonic bang. If related to Big Bang, or other explosions in the solar system, the parameters at explosion may enter as universal parameters at Newtonian gravity as a memory, and due to symmetry also forward in time. The characteristics at an explosion are compared with universal constants for gravity.

Key words: Hypergravity, Explosion, Implosion, J-Space, Universal constant, GM, Memory, vπ/2-projection, Coriolis, Thunder.

INTRODUCTION

The noncircular format in Strömberg (2014), appears to have many applications, for systems at different scales, where almost circular orbits. Such a path may be that of a bird, flying along the earth, and the concept may be used to stabilize and maintain the orbit. If assuming that an orbit can approximate into the format, for arbitrary short times or arbitrary small arcs, higher order effects can be more easily understood and constituted. Higher order effects can be due to couplings to nearby frequencies, contact time with a boundary (as in MC-wobbling), memory, configurational forces and actions from outside forces or pressure. A rotating continuum with a Le-density, Strömberg (2014), is considered, in conjunction with forces and pressure. Hereby, a body force notified as hypergravity is derived for a steady motion. It will have the same dependency of radial coordinate as Newtonian gravity, but derived from a kinematic approach. A model of an explosion will be derived assuming hypergravity, together with other preliminary observations. The universal constant GM is compared with the parameters of a noncircular orbit at explosion, using the J-space, with different approximations.

BIRDS

Possibly, birds flying and navigating, and if deviation from a noncircular orbit, they feel vibrations with the L-frequency. The formation of a V-also favors maintaining a course at a circular path, since then when deviating the oscillation will be seen as a non-spherical shape (or for very large f; wave pattern) of the V-structure. The deviation both upwards and at the side will result in a frequency and oscillations, in accordance with an arc of a noncircular orbit.

HYPERGRAVITY

Newtonian gravity in the solar system is considered as a fundamental law, which rules the motions of the planets around the sun, and the moons around the planets. The force is proportional to $GM/r^{2.}$ Since often balanced with centripetal acceleration, a kinematic description, could sometimes be used. At earth for a constant radius, gravity is determined by the constant g. A description with centripetal acceleration is valid only at the equator. In a

rotating flow, it may be expected that similar types of forces are created. Here, it will be shown how a force with the same dependency on distance r, as the Newtonian can be derived, for a continuum in an eccentricity zone with a Le-density. The force will be due to a variation in density, smaller than Newtonian gravity, and denoted hyper gravity. To obtain the exact format of Newtonian force, additional assumptions need to be invoked. The asteroid belt may be considered a continuum with a density and an angular velocity as derived in Strömberg (2014, 2015), when eccentricity is nonzero. Other configurations which may have these properties are the planetary rings of the gas giants and a disc, as discovered and picturised recently by the telescope in Chile, from which solar systems may be created.

PRELIMINARIES

The Le-density derived in Strömberg (2014) is given by given by $\rho(t)= \rho_0 \exp(2(r_{ecc}/r_0)\sin(f\omega_0 t))$ where ρ_0 and ω_0 is constant. A pressure p, depending on the density ρ is assumed with the power law

$$p= C\rho^{\gamma} \qquad (1)$$

where C and γ are constants. The equations of motions in continuum mechanics, so called Euler equations are applied, assuming quasistatic conditions and zero viscosity. Hereby the Euler II-equation reads

$$-\text{grad } p= \rho f \qquad (2)$$

Where f is a force-field, (specific body force). The gradient refers to the orbital radial dependency. *Proposition HyperGravity:* The balance Equation (2) and a state law for pressure in the format (1), gives a force field dependant on $1/r^2$. *Corollary:* For the case case $\gamma=1$, ideal gas, the expression for the force will read, $f=2/r^2 C\sin(f\omega_0 t)\rho_0 \exp(2(r_{ecc}/r_0)\sin(f\omega_0 t))/\rho = 2/r^2 C\sin(f\omega_0 t)$. It is possible that hypergravity is plane, and the time dependency is short and repeated, as is the case for particles in gas dynamics. The concepts of J-space are valid for differentials, and do not require a finite path, and is also applicable for small arcs, out of plane. Newtonian gravity at a distance from center is spherical and three-dimensional, but close to the object (satellites at the equator), it is plane.

EXTRAPOLATION, TO OBTAIN NEWTONIAN GRAVITY

Next, we shall suggest how to extrapolate to above hyper-level, where absolute motion, to obtain the super gravity corresponding to the Newtonian force with the factor GM. Adopting, 'principle for equipresence', applied to the higher level, gives the same r-dependency. Dependency on a memory functional Gurtin and Poiduglio (1996), gives a constant, static format. This could also be achieved substituting $\omega_0 t$ with an angle and requiring so called PMRI, or rotational invariance, since the Newtonian force is independent of location perpendicular to r-direction. The relation for satellites at Earth, gives a proportionality to G, and therefore the decomposition GM, appears. The solar mass M enters since induced from the dependency of density for a continuum, and symmetry in the expression for force where a dependency of the nearby mass enters. Hereby we may conclude that C is proportional to GM if the field force also acts on solid mass particles in the continuum. Comparing with Archimedes principle, there may be a net force/uplift, depending on the density ratio of solid particle and fluid.

EXPLOSIONS AT NONCIRCULAR MOTION AND HYPERGRAVITY

Since from the Tti, a memory appears, we may note that the asteroids approaching the earth could be reversed Big Bang processes. Also assuming a gradient of temperature, reversed Big Bang-conditions could become present. This is observed for a plastic can formed by rapid forming and, after an arbitrary long time area, subjected to a temperature gradient in boiling water. Then the can slowly achieves its original shape. This is not likely to happen for the solar system since the temperature gradient is outwards from the sun. If we assume Big Bang as an explosion, in conjunction with the memory, possibly there are explosions at Earth, with the same characteristics as the Big Bang. Such could be thunder and sonic bang. At thunder, both light and sound are present, and the velocity for the electrons approaching Earth at lightning are reported to be about 1/3 of the velocity of light. Sizes of thunder are about max 30 km. Figure 1 show thunder with a single vertical lightning. Here, we will propose models for explosion, with the results for hyper gravity and J-space. To obtain the magnitude of the universal parameter GM, different scales are discussed.

Preliminaries. Sonic Frame

The kinematic is assumed such that particles moves in a rotating frame with angular velocity ω, and have a relative velocity. A coupling with forces and pressure from hyper gravity, will give an equation for forced vibration. Resonance gives large amplitude of the relative velocity, and a distorted noncircular orbit. Models for couplings

Figure 1. Lightning at thunder explosion.

Figure 2. Thunder at Disney Castle.

with acoustic pressure in fluid structure interaction are found in Sorokin (2004). In conjunction with the model, we assume that in the fluid, there may be other interactions, as Coriolis force, and interchange between frames, until the resulting angular velocity for the particle rotation is increased to v_{sound}/r_0, where v_{sound} is the sound velocity and r_0 is the radius of the orbit for rotating particles. Subsequently, this will be denoted a sonic frame. Thunder close to the equator, where the Coriolis force is large, are heavy and frequent, which support the assumption of interaction between frames, dynamic pressure, inertia, forces, and Coriolis forces. Figure 2 show thunder with a more horizontal distributed lightning. Comparing magnitudes, it appears that sound velocity and light velocity, may interact to give the universal constant GM. *Proposition:* When electron-particles with a velocity 1/3 of light enters in a sonic frame with $r_0= r_e$, where r_e is the eccentricity of the Earth, the Coriolis force will give the magnitude of GM. The value is overestimated, about 1.4. A better approximation is achieved by assuming that the sonic frame is given by the $\pi/2$-projection formula, Strömberg (2015), with $f=2^{7/12}$, such that $v_{sound}= f\omega r_e$.

Explosion

At resonance, the amplitude of radial velocity will increase, and as the condition for explosion, we shall assume that the radius of the curve approaches zero. Then the pressure and hyper-gravity will be infinitely large. The model applies somewhat to the conditions at a sonic bang, since also the Le-density will grow, which show as liquefaction of air to water. This determines the orbit before (and after) and adopting Tti and the J-space, conditions after the explosion may be assumed. At explosion, min(r) =0, and max(r)= $2r_0$. This gives that $r_e=r_0$.

Implosion

If we relate to an implosion, everything can be referred to

the motion ω (t)= ω_0 exp(-2(r_{ecc}/r_0)sin(fω_0t)) Strömberg (2015), when r_0 approaches zero, and this can be due to a state as discussed above, or some liquids, for example, nitriglycerin, are found to explode at moving. Then, the parameters are ω_0, $r_e=r_0$ and f, such that GM can be expressed as $\omega_0^2 r_0^3$. With the π/2--projection, we may interpretate $\omega r_e \sin\phi t$, as a projection of a velocity 'from above', or other dimension. If we wish to reduce time-space, this may be a sublimation valid both forward and backward in time. The angle in the projection is not determined, and the uniqueness can be analysed. With the format for ω, Strömberg (2015), integration and expansion give a second order algebraic equation, from which angles can be calculated.

CONCLUSION

Hypergravity for a continuum in a noncircular motion, was defined. Instead of assuming the Newtonian gravity, a force with the same dependency on radial coordinate could be derived from the Le-density in Strömberg (2014). If the π/2-projection, Strömberg (2015), is assumed at the explosion such that Newtonian gravity appear, the factor GM can be expressed in a characteristic velocity and a length. However, comparing the velocity, derived from the explosion with that of sound in gases or solids, it is much smaller than the orbital velocity for Earth, and identification with the universal constant for gravity is not obvious. If we adopt the memory concept, from Tti and J-space and that different J-spaces may connect, we can relate a known explosion at Earth for example, thunder, with the universal constant for gravity, and this in turn with a previous explosion. At thunder, both sound and light is active, and a geometric mean of these, and a length scale with the magnitude of the eccentricity of Earth about the Sun, will give the correct magnitude for GM. A possibility is that the light particle with high velocity, moves in the sonic space with angular velocity and then the Coriolis force, will be inwards and the magnitude of moment of moment of inertia creates GM.

The format may be derived from the model for explosion and the observation for example, thunder, where a light path is seen with a velocity perpendicular the plane before explosion. Assuming this velocity, to be a π/2-projection, it can also be assumed in the orbit, before explosion a time $\pi/2/(f\omega_0)$ before that is, ¼ of a lap if f=2.

REFERENCES

Gurtin ME, Podio-Guidugli P (1996). Configurational forces and the intrinsic laws for crack propagation. J. Mech. Phys. Solids, 44(6): 905-927.

Sorokin SV (2004). Analysis of wave propagation in sandwich plates with and without heavy fluid loading. J. Sound Vib. 271: 1039-1062.

Strömberg L (2014). A model for non-circular orbits derived from a two-step linearisation of the Kepler laws. J. Phys. Astron. Res. 1(2): 013-014.

Strömberg L (2014). Generalized potentials describing orbits in the solar system. Derivation of a ‘close force’ acting on the inner moon Phobos. J. Aerosp. Sci. Technol. 1: 48-52.

Strömberg L (2015). Models for locations in the solar system. J. Phys. Astron. Res. 1(2): 054-058.

Strömberg L (2015). Tove time invariant and definition of a J-space in the eccentricity zone, exemplified with Magnus effect and images from lateral light (in press).