STOE Inertia

J.C. Hodge[1]*
[1]Retired, 477 Mincey Rd., Franklin, NC, 28734
jchodge@frontier.com

Abstract

The Scalar Theory of Everything (STOE) model of photons is extended to model the inertia of mass. The characteristic of the plenum, hods, and their interactions yields the Newtonian characteristics of gravitational mass and inertial mass. The medium of the wave in the Hodge Experiment was the massless plenum. The plenum is the carrier of the inertia. The hods are the carrier of the gravitational mass. The Equivalence Principle is derived rather being assumed. Mach's Principle is inconsistent with the STOE.

keywords: Inertia, Newtonian Interpretation, STOE

1 INTRODUCTION

The Newtonian model recognizes two effects of mass. Inertial mass m_i of a body m is the proportionality constant in the mapping of a body's measurement of acceleration a to a math mapping of inertial force $F_\mathrm{i} = m_\mathrm{i}a$. Gravitational mass M_g of body M is the body's measurable characteristic effect on other bodies on a math mapping of gravitational force $F_\mathrm{g} = -Gm_\mathrm{i}M_\mathrm{g}/r^2$ where G is a proportionality constant and r is the distance between the center of masses of the bodies. The transformed forces are then combined and inverse transformed to determine the trajectory of a body. This method requires the Equivalence Principle that requires the proportionality of inertial and gravitational mass of a body. The problem is that the Equivalence Principle relates fundamental characteristics of matter but seems to have no more fundamental principle about the characteristics of the universe then this necessity to make the Newtonian method work.

The Scalar Theory Of Everything (STOE) was developed to model cosmological problems (Hodge 2015d). Hodge (2004) posited the hods were two dimensional round surfaces that maintained a plenum density $\rho = 0$. The rising ρ from the surface of the hod obeys the inverse radius law where each equipotential surface has the same total potential energy over the total surface. The

*E-mail: jchodge@frontier.com

other constituent of the universe is the plenum, which is a continuous medium like the ether or the "space" of general relativity.

Because of the differences between spiral galaxies and elliptical galaxies (Binney and Merrifield 1998), the STOE suggested that the spiral galaxies were Sources of the stuff of our universe and that the elliptical galaxies were Sinks. Rotation curves were explained by the plenum exerting an outward force from a Source balanced by the gravitational force of matter. This was extended to explain asymmetric rotation curves being caused by the plenum from neighbor galaxies exerting a force on the outer disk of the spiral galaxies.

The combination of Source and Sink galaxies cause a galaxy cluster to hunt a temperature of 2.718 K. A feedback condition with the elliptical galaxies being the control keeps this temperature.

The application of a redshift model suggested Sources and Sinks modified the light from galaxies. This model derived the Hubble law without invoking the Doppler shift. The universe is not expanding in the very long term. The redshift model was applied to the Pioneer Anomaly. The Source at the center of the Milky Way had negligible effect on the spacecraft. The signal is influenced primarily by the masses in the solar system. The model suggested the closest effect of the Source on planetary orbits is the orbit of Pluto.

Hodge (2015c, and references therein) expanded on the hod and plenum interaction and particle formation by describing the photon and positing the interaction of the hods and plenum. The characteristics of the plenum, hods, and their interactions have been used to derive the STOE photon diffraction model.

The fractal and one universe principles is a corollary of the Reality Principle. All the mathematics of the models have their analogy in our everyday life (Hodge 2015d). The action of the plenum on the hod surface was posited to be analogous to the Newtonian movement of a body through a medium (Hodge 2013b, section 2.2) in the direction perpendicular to the hod surface. The plenum from other hods effect on the test hod is through the force generated by $\vec{\nabla}\rho_{\text{other}}$ which is the gravitational force. Another force to dampen this movement was necessary to prevent the hod from achieving a velocity of light speed perpendicular to its forward motion. The dampening model was of a non–turbulent flow. Experiment confirmed the model by predicting and not rejecting the STOE model by the observation of diffraction and interference experiments (Hodge 2015c). This experiment rejected all other models of the diffraction experiments.

Another aspect of the Hodge Experiment is that the simulation calculated the photon induced a wave in the plenum that became like the "pilot wave" of the QM Bohm Interpretation. A wave in the "space" of GR is often assumed in other models.

The observation of the diffraction of light and the success of the probabilistic Schröndinger equation suggests the Emergence Principle is ontologically present and epistomatically present (Hodge 2016). Mathematics has been successful in describing the universe in two branches of algebra and geometry. This suggests the constituents of the universe are discrete hods and continuous plenum

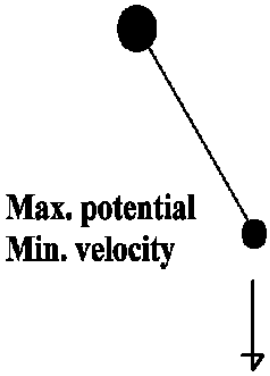

Figure 1: Pendulum at maximum swing.

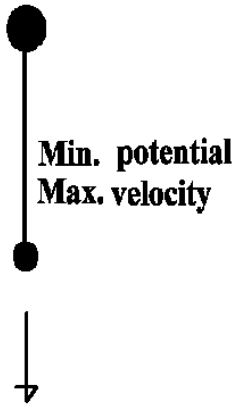

Figure 2: Pendulum at center swing. This is the rest position, also.

("space" of General Relativity or gravitational ether). The task is to develop a model of the characteristics of these two constituents.

This Paper suggests the inertial characteristic of inertial mass in the Newtonian equations is a characteristic of the plenum. The model of hods and plenum interaction is discussed in section 2. The Discussion and Conclusion are in section 3.

2 The model

The heat equation was used to model the CMB temperature (Hodge 2015d). The level of the energy/heat/plenum density varies as $1/r$ from a source or sink like gravity from a gravitational mass.

The wave equation was a critical part in the Hodge Experiment of diffraction. The photon's movement induced a wave in the plenum. This wave traveled much faster than the photon and was reflected from matter particles.

Consider the pendulum. The horizontal distance of the swing is described by the wave equation (in a sinusoidal motion) (see Fig. 1). The potential energy is reduced as the pendulum swings down and inertia increases. The minimum potential energy and maximum inertia are at the bottom of the swing (see Fig. 2). This is also the "rest" position. The swing is continued by the inertia of the mass that increases the potential energy.

If the wave equation applies, the motion is described by a sin() and/or cos() function. This requires some of the motion to be totally dependent on inertia.

The photon diffraction experiment uses the convolution of the heat equation ($1/r$ dependence) and the wave equation [cos() function of r] of the plenum density to achieve the successful result. Therefore, the plenum is the carrier of the inertia.

If there is plenum and matter from neighbor clusters, the feedback maintains the temperature. Therefore, neighbor clusters have negligible effect on the energy in a cluster. The Pioneer Anomaly model suggested the Sun and the matter in the solar system have the primary effect on establishing the inertial frame of reference for the Earth. This is noted in the tides on Earth. Mach's Principle is inconsistent with the STOE.

3 Discussion and Conclusion

The m_s is the same for both the inertial force and the surface for the action of the ρ field caused by other hods (the gravitational field). The Equivalence Principle is then derived from the characteristic of each hod capturing and holding a fixed amount of plenum.

QM also indicates that a wave is carried by the plenum. The "entanglement" is caused by wave resonance characteristics and a much faster than light speed.

The medium of the wave in the Hodge Experiment was the massless plenum. Therefore, the plenum is the carrier of the inertia mass. The hods are the carrier of the gravitational mass. Mach's Principle is inconsistent with the STOE.

References

Binney, J., and Merrifield, M., 1998, *Galactic Astronomy* Princeton, NJ: Princeton University Press.

Hodge, J.C., 2004, *Changing universe model with applications*, http://www.arxiv.org/PS_cache/astro-ph/pdf/0409/0409765v1.pdf

Hodge, J.C., 2013a, *Scalar Theory of Everything model correspondence to the Big Bang model and to Quantum Mechanics*, http://viXra.org/abs/1402.0089

Hodge, J.C., 2013b, *Photon diffraction and interference*, IntellectualArchive, Vol.1, No. 3, P. 15, http://intellectualarchive.com/?link=item&id=597 http://viXra.org/abs/1709.0210

Hodge, J.C., 2015a, *Single Photon diffraction and interference*, http://intellectualarchive.com/?link=item&id=1557 http://viXra.org/abs/1507.0175

Hodge, J.C., 2015b, *Light diffraction experiments that confirm the STOE model and reject all other models*, http://intellectualarchive.com/?link=item&id=1578 http://viXra.org/abs/1509.0107

Hodge, J.C., 2015c, *Diffraction experiment and its STOE photon simulation program rejects wave models of light*, http://intellectualarchive.com/?link=item&id=1594 http://viXra.org/abs/1510.0347
see video "stoe photon diffraction". (https://www.youtube.com/channel/UCc0mfCssV32dDhDgwqLJjpw

Hodge, J.C., 2015d, *Universe according to the STOE*, http://intellectualarchive.com/?link=item&id=1648 http://viXra.org/abs/1709.0244

Hodge, J.C., 2016, *STOE emergence*, http://intellectualarchive.com/?link=item&id=1757 http://viXra.org/abs/1608.0178