STOE model of the electron spin 1/2 observation

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Abstract

The Scalar Theory of Everything (STOE) model posits the bizarre features of the quantum mechanics model of the small scale should have analogies in the classical scale. One such feature of the quantum model is the model of "spin 1/2" observation of the Stern-Gerlach experiment. The STOE model of the structure of electron using disc magnets as an analogy of hods suggests multiple North–South poles produce the "spin" observation. The electron analogy is placed in an inhomogeneous magnetic field and the change of orientation is photographed. Noting that the re-orientating always occurs implies no electron will travel straight through the magnetic field. Thus, the STOE models another quantum feature, the spin 1/2 effect.

keywords: STOE, elementary particles, Stern-Gerlach experiment, spin, electron.

1 INTRODUCTION

The quantum mechanics model (QM) of the Stern-Gerlach experiment is that the spatial orientation of angular momentum is quantized and that the electrons have half integer angular momentum. A magnetic field exerts a torque on the magnetic dipole of elementary particles. This presumes each particle has only one magnetic North-South axis (NS). The magnetic moment vector will precess about the direction of the magnetic field. The non–uniformity of a magnetic field induces a sideways force on the particle. This can be depicted as the electron having two spin axes in a heterogeneous magnetic field that cannot be measured simultaneously.

Standard classical physics has failed to describe particles with an angular momentum (spin) of half integer (1/2). Such particles form a central part of quantum mechanics. The classical expectation of the Stern-Gerlach experiment is that a random thermal effect should result in a random space orientation of the particle's magnetic moment. Therefore, a line should be projected on the screen. However, the observation for electrons was two points on the screen that QM argued for a "quantized space".

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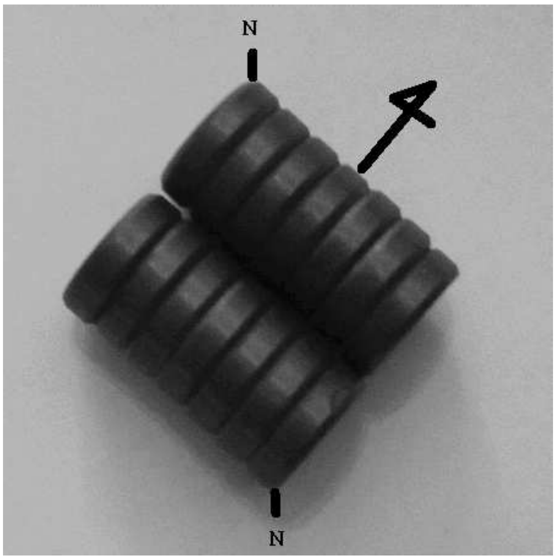

Figure 1: Neutrino that builds the electron.

The Scalar Theory of Everything (STOE) model (Hodge 2015b) posits the Fractal (self–similarity) Principle that all size scales have similar processes (math). Therefore, the very small scale has analogies found in our classical scale and not the bizarre features of quantum mechanics.

The cause of electromagnetism has also posed a mystery. Several attempts have been made to link + and - charge to matter or particles. Magnetism has been modeled as resulting from the movement of charges. Therefore, particles with a magnetic moment have been modeled as rotating charges on the particle. These type models seem unworkable in the STOE view of only two constituents of the universe. How can identical hods have a + and a - charge? Observation showed the photon was polarized in a magnetic field. The STOE postulates the photon is a column of hods. Young's experiment and Hodge's experiment Hodge (2015a, 2016b) supported the STOE model and rejected all other models of light. Therefore, the hod was posited to be a magnet with a north (N) on one side and a south (S) pole on the other.

Hodge (2016a) suggested neutrinos are an assembly of photons as shown in Fig. 1. The "N" denotes the magnetic axis pole pointing toward the Earth's North magnetic pole. Note there are two NS axes. That is, if the neutrino were placed in a magnetic field, either of the NS axes may align with the magnetic field. The arrow in Fig. 1 depicts the travel direction for the assembly as it travels. This is the direction presenting the least surface area to the direction of travel for a photon. Thus, the neutrino achieves the speed of light.

The digitization of "spin" is also explained by classical arguments that the magnetic poles of the assembly of hods cause the unique directions. That is "space quantization" is not necessary.

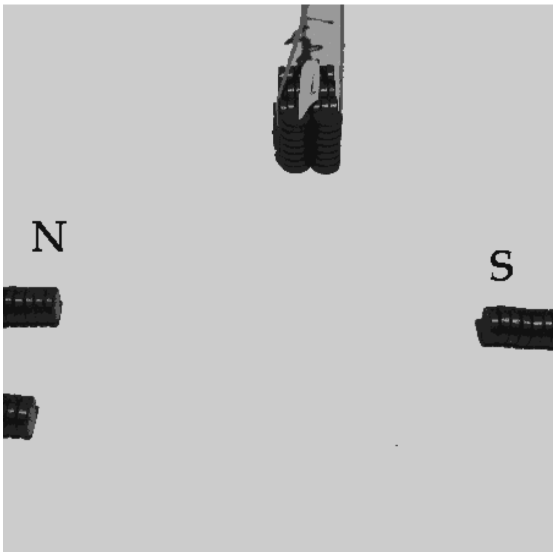

Figure 2: Initial position.

The electron and positron are assemblies of neutrinos (Hodge 2016a, Figs. 9 and 10). An external magnetic field will cause the electron and positron structure to turn slightly. This will present a larger hod surface area to the direction of travel, thus slowing the particle in a magnetic field.

This Paper suggests a classical explanation of the spin 1/2 observation. The STOE suggests the structure of the electron has more than one NS axis and the electron presesses about each axis in the Stern-Gerlack experiment. The orientation of the electron as it progress through an inhomogeneous magnetic field is shown in section 2. The Discussion and Conclusion are in section 3.

2 Experiment

Figure 2 depicts the initial position of the assembly of disc magnets from Hodge (2016a) that represents the electron in our scale. A column of magnets provides the external magnetic field. The N and S poles of the external magnets are labeled. A string suspends the electron assembly such that it can rotate in response to the external magnetic field. The electron will tend to move in the direction of least hod surface area. Note that most of the hods in the neutrinos are oriented with their edge toward the direction of movement.

Figures 3 and 4 depicts the precession of the electron assembly as it moves vertically (into the page) through the external magnetic field.

The electron assembly in the figures rotates clockwise in the upper magnetic NS field so that it oscillates (precesses). Many of the hods in this orientation are now presenting some surface area to the direction of movement and would

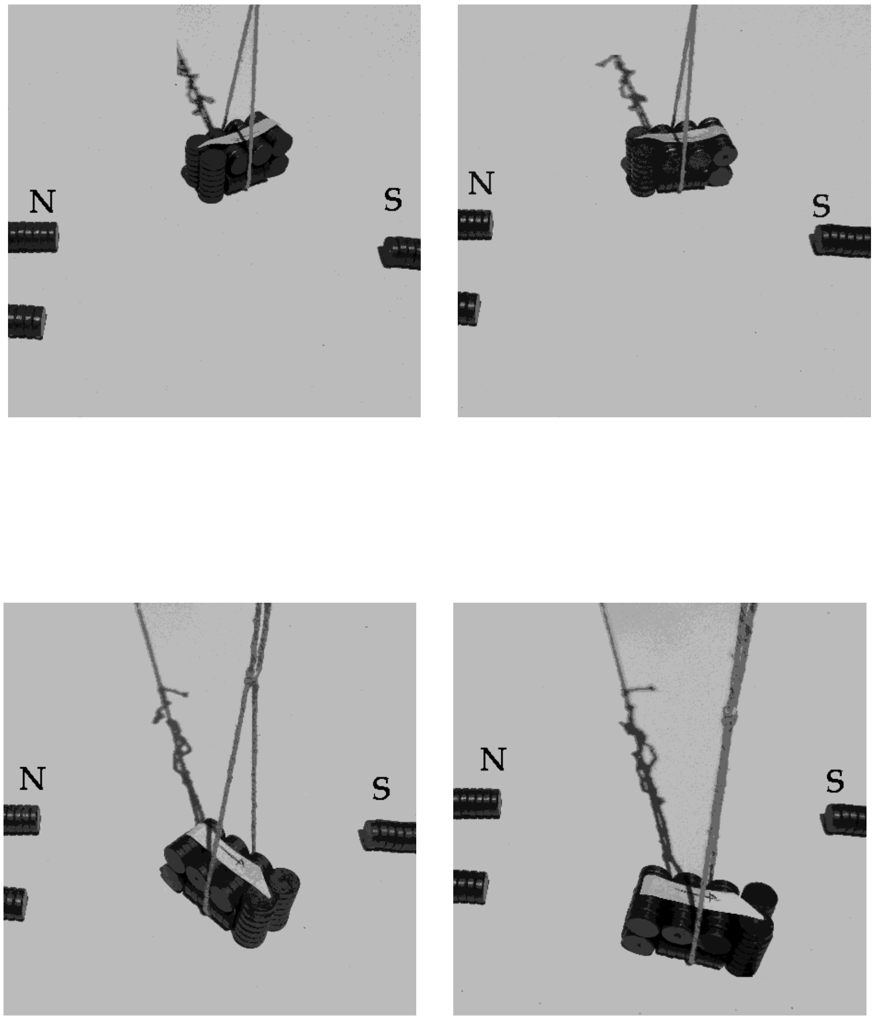

Figure 3: The change in orientation as the electron progresses through the inhomogeneous magnetic field. The electron is traveling into the page. The electron is in the plane of the external magnets.

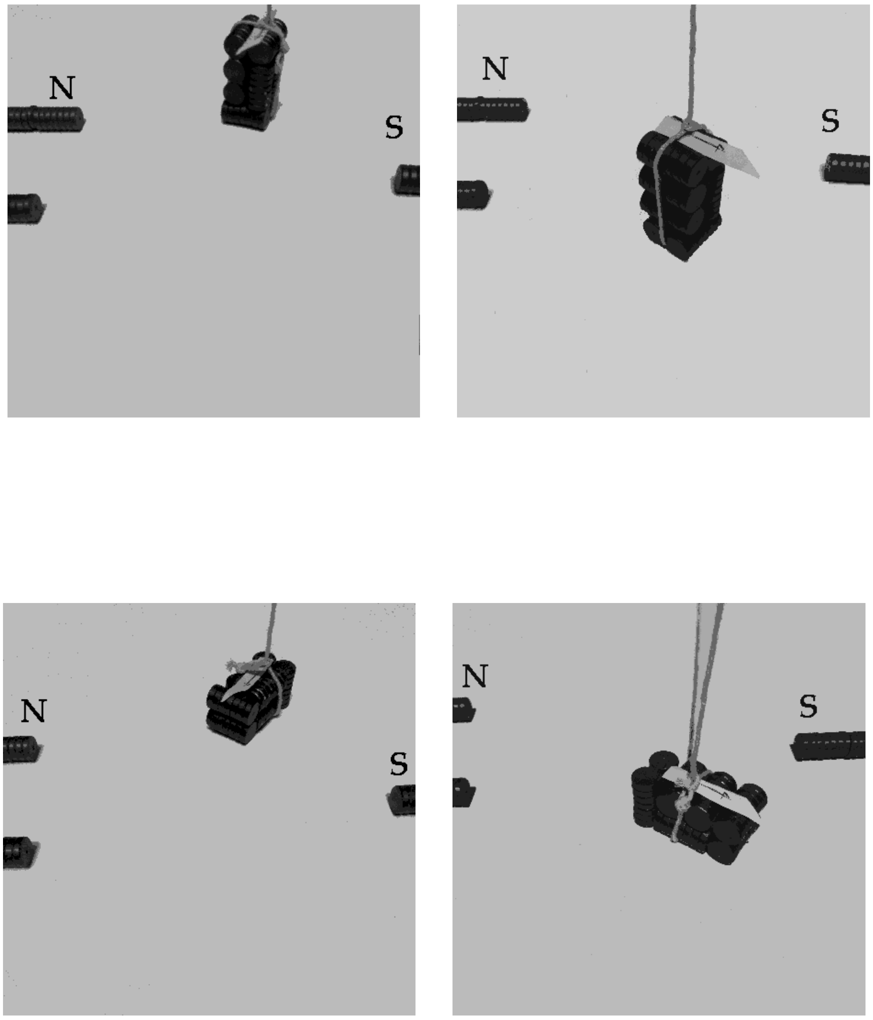

Figure 4: The rotation of the electron in the other two orthogonal axes of the electron. The electron is in the plane of the external magnets.

cause a sideward direction change if the assembly were not constricted by the string tension. The string tension is an analogy to the force on the hods by the plenum to rotate back to the original orientation. As the assembly on the lower side of the external field, the rotation is in the counterclockwise direction.

3 Discussion and Conclusion

The STOE proposal is that the hod has a magnetic field rather than a rotating electric field. Other quantum mechanics bizarre features explained by the STOE are the wave-particle duality, diffraction, interference, entanglement, photon (particle) polarization, inertia, derivation of the Equivalence Principle, and photons and neutrino have the greatest speed of particles (speed of light). The STOE also explained many cosmological mysteries.

The next step in the progression of examining bizarre quantum assumptions is to model charge using the STOE proposals that the universe consists of only two constituents and the Fractal Principle. What is the characteristic of the plenum, hod, or their interaction that produces the observation of charge? Perhaps, how a particle has a positive or negative charge may be found through the electron and positron structural differences.

This is very conceptual. For a century, physics of the small has been math first, interpretation second. Math first has resulted in the bizarre QM features. Perhaps physics should turn to conceptualizing first as the Reality Principle and its corollary, the Fractal Principle, suggests.

A feature of the quantum mechanics model is the model of "spin 1/2" observation of the Stern-Gerlach experiment. The STOE model of the structure of electron using disc magnets as an analogy of hods suggests multiple North–South poles produce the "spin" observation. The electron analogy is placed in an inhomogeneous magnetic field and the change of orientation is photographed. Noting that the re-orientating always occurs implies no electron will travel straight through the magnetic field. Thus, the STOE models another quantum feature, the spin 1/2 effect.

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