Two different types of magnetic field

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

Abstract

Such luminaries as Richard P. Feynman and Albert Einstein have noted an asymmetry in application of Maxwell's Equations. The Scalar Theory of Everything (STOE) posits the components of the universe are hods and plenum. An experiment to test Ampere's law and the STOE was performed. The data shows the STOE model is very close to the actual measurements and rejects the classical Biot-Savart Law. The results of the experiments suggest a distinction between magnetic fields caused by hods and magnetic fields caused by plenum resolves the asymmetry.

keywords: STOE, Theory of Everything

1 Introduction

Maxwell's Equations classically describe the relationships of magnetic (B) and electric (E) fields. They suggest two different forms of the action of a magnetic field. When applied to moving bodies, an asymmetry in results arises. If electrons are moving, a magnetic field induces a force related to current and which exerts a force on magnets which are not moving relative to the circuit. When the magnet is moving relative to a circuit, an electromotive force generates a voltage in a circuit $\vec{\nabla} \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$, where $\vec{E}$ is the electric field and t is clock reading (time). This asymmetry is sometimes noted by such luminaries such as Richard P. Feynman and Albert Einstein (Wikipedia). This may also be the source of the inexactness in Maxwell's Equations.

The Scalar Theory of Everything (STOE) suggests the hods have a greater plenum density ρ held at a maximum on one side and a minimum on the other side which is the magnetic effect. The magnetic field of classical physics is a cloud of hods with the same orientation or the divergence of the plenum field. The density of hods is the B intensity. A current of electrons in a wire ejects hods perpendicular to the wire and the current direction. An experiment rejected the Biot-Savart (Ampere's) Law and did not reject the STOE model (Hodge 2018b,c). The STOE modified Biot-Savart Law for a magnetic field

*E-mail: jchodge@frontier.com

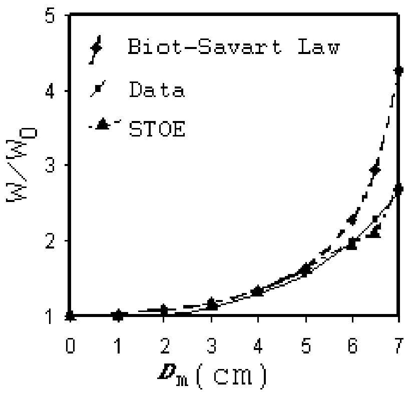

Figure 1: Measured data (solid line) and the STOE calculated data (triangles with dotted line) graph with the Biot-Savart Law calculations added. The $\theta = 0.82$ radians. [from Hodge (2018b)]

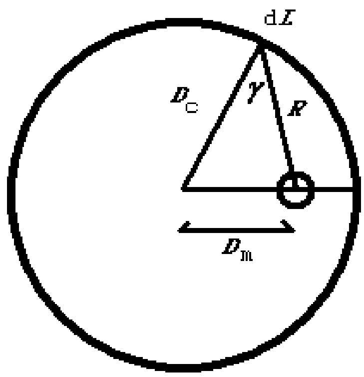

Figure 2: Diagram showing the symbols used when the small, round magnet is in a solenoid. [from Hodge (2018b)]

$\vec{B}_b(\vec{R})$ at a position $\vec{R}$ from a element dL of the wire caused by a current $\vec{I}$ in the wire is

$$\vec{B}_b(\vec{r}) = \frac{\mu_0}{4\pi} \int_c \delta \frac{\vec{I} \mathrm{d}L \times \vec{R}}{|\vec{R}|^3}, \tag{1}$$

where μ_0 is the magnetic constant and the integration is considered to be around the circuit or for an infinitely long wire, $\vec{I}$ is the current through dL, $\vec{R}$ is the vector from the dL to the point being evaluated, and .

$$\begin{aligned} \delta &= 1 \quad \theta > \gamma \\ &= 0 \quad \theta \leq \gamma. \end{aligned} \tag{2}$$

where $\theta = 0.82$ radians and γ are the angles from the normal of $\vec{I}$dL of the spread of the hods and the direction of $\vec{R}$, respectively.

Figure 1 shows the result of the experiment of Hodge (2018b). The calculation of both models at the center of the solenoid are the same because the $\delta = 1$ for all $\vec{I}$dL. When the test magnet is placed closer to the solenoid (larger D_{m}, see Fig. 2) some of the $\delta = 0$ because of the limited diffusion of the emitted hods. Therefore, the STOE model is a good fit for the measured results.

This paper demonstrates the effect of the STOE model of a magnetically induced current in a solenoid. The terms and development of the STOE model may be viewed at Hodge (2018d) and Hodge (2015). The model of the magnet moving and experiment are discussed in section 2. The interpretation of these experiments is presented in section 4. The Conclusion is in section 5.

2 Magnet moving model

Figure 2 is a diagram of that part of the loop (big circle) which has an effect on the magnet (small circle).

The inverse experiment of Ampere's Circuit Law is to have the magnet moving through the loops of the solenoid to induce a voltage in the solenoid.

3 Experiment

(All measurement are ±10% unless otherwise stated).

A solenoid was formed with 60 turns of 22 AWG wire with a diameter of 16 cm ($D_{\mathrm{c}} = 8$ cm) and a height of 9.8 cm. Disc magnets (16mm wide X 5 mm thick) are assembled into a column 5 cm long ("bar magnet"). The bar magnet is dropped through the solenoid and the induced voltage is measured with a voltmeter placed across the leads of the solenoid.

The magnet was first dropped from a height of ≈30 cm through the center ($D_{\mathrm{m}} = 0$) several times. The maximum voltage $V_{\max}(D_{\mathrm{m}} \approx 0\mathrm{cm}) = 0.12$ v was measured. Next, the magnet was dropped from a height of ≈30 cm near the edge of the solenoid several times and the maximum voltage $V_{\max}(D_{\mathrm{m}} \approx 6\mathrm{cm}) = 0.12$ v was measured. Unlike when current moves in the wires, the moving magnet induces a current in the whole solenoid.

4 Interpretation

The comparison of this experiment with the experiment of Hodge (2018c) shows the asymmetry of the measurements near the edge of the solenoid relative to the center measurements. The difference, according to the STOE, is that the Maxwell's Equations are not symmetrical.

There appear to be two different forms of magnetic intensity (B). One is the magnetic intensity B_{h} of the density of hods, each hod having a ρ density of the magnetic poles. The other B_{p} of the plenum caused by the accumulation of the particles' plenum field. Each has a unique characteristic. The B_{h} has the δ distribution character. The B_{p} has the character of a plenum field.

Likewise, the electric intensity has the character of the plenum in the coulomb field in which changes propagate at many times the speed of light (de Sangro et al. 2012) and the character of particles of electrons which have a moving particle density.

Ampere's circuital law is the B_{h}. From this the wave equation for hods is developed . The hod speed $c = \frac{1}{\sqrt{\epsilon_0 \mu_0}}$. Faraday's Law of Induction uses B_{p} which derives the speed of a plenum wave as the speed of the coulomb field.

The B_{p} is like the electric “field” being the density of plenum vortices (cones and rings) (Hodge 2018a). The hods generate vortices in the plenum as they move. The behavior of hods far from the emitting current in antennas is the study of the electromagnetic (EM) field. The description of the EM field from a dipole antenna array is the basis for the STOE model of photon diffraction. Like moving hods, the photons which are a column of hods produce waves of plenum which directs the photons in diffraction experiments (Hodge 2012, 2016)

The essence of Maxwell’s Equations in the STOE is that moving particles produce plenum gradients/waves and that plenum gradients/waves produce moving particles. But classically the B and E are not linked and has lead to the asymmetry. Perhaps, the idea of Maxwell’s Equations should be restated in terms of hods and plenum.

5 Conclusion

The Scalar Theory of Everything (STOE) posits the components of the universe are hods and plenum. An experiment to test Ampere’s law and the STOE was performed. The data shows the STOE model is very close to the actual measurements. The results of the experiments suggest a distinction between magnetic fields caused by hods and magnetic fields caused by plenum resolves the asymmetry.

References

Hodge, J.C., 2012, *Photon diffraction and interference*, IntellectualArchive, Vol.1, No. 3, P. 20,. http://intellectualarchive.com/?link=item&id=597

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

Hodge, J.C., 2016, *Diffraction experiment and its STOE photon simulation program rejects wave models of light*, IntellectualArchive, Vol.4, No. 6, P. 20,. http://intellectualarchive.com/?link=item&id=1603 video: https://www.youtube.com/watch?v=OMAjKk6k6-k

Hodge, J. C. 2018a, *STOE electric charge.* IntellectualArchive, v. 7 (2), p. 1-10. http://intellectualarchive.com/?link=item&id=1917.

Hodge, J. C. 2018b, *Magnetostatics relation to gravity with experiment that rejects Biot-Savart Law.* IntellectualArchive, v. 7 (3), p. 1-8. http://intellectualarchive.com/?link=item&id=1945.

Hodge, J. C., 2018c, *Another experiment rejects Ampere's Law and supports the STOE model.* IntellectualArchive, v. 7 (4), p. 1-5. http://intellectualarchive.com/?link=item&id=1956.

Hodge, J. C., 2018d, *Theory of Everything (STOE)*, http://www.vixrapedia.org/wiki/Theory_of_Everything_(STOE).

de Sangro, R. et al., 2012, Measuring *Propagation Speed of Coulomb Fields*, https://arxiv.org/abs/1211.2913

https://wikipedia.org/wiki/Faraday%27s_law_of_induction.