Light diffraction experiments (continued)

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Abstract

The Scalar Theory of Everything (STOE) model of single photon diffraction is a model with photons being directed by plenum forces along their trajectory. Previous papers explored the screen projections of a diffraction pattern from a first mask through second mask slits. The images on a screen by an edge of the second mask also demonstrate correlation of observed pattern and simulation pattern. The STOE is consistent and all other models of diffraction are inconsistent with these observations.

keywords: Interference, Young's experiment, Newtonian Interpretation, STOE

1 INTRODUCTION

Hodge (2015a) developed a model for photon diffraction and interference based on the Scalar Theory of Everything (STOE) model (Hodge 2013). The STOE was developed from cosmological considerations. Equations of motion for a photon were developed using Newtonian mechanics. A computer simulation then calculated the path each photon traveled in single slit and double slit experiments. The simulation patterns were well fit by the Fraunhofer equation.

The Newtonian Interpretation of quantum mechanics is: that matter causes the aether decline in a $1/r$ fashion, that the moving matter causes waves in the aether, that the "diffraction" pattern is in the aether waves, that the aether waves travel much faster than matter (faster than light), that the slope of the aether directs matter, that the wave may be reflected by matter, and that the Schrödinger equation is the energy evolution of the real, aether waves(Hodge 2015c).

The crossing pattern seen in Fig. 1 of the trace of the path of the photons through a single slit is inconsistent with the fan pattern of the Huygens-Fresnel principle. The Newtonian Interpretation includes the reflection of plenum (aether) waves by matter like ocean waves reflected from islands. This combined with faster than light wave speed suggests considering the Ψ^* of the Transaction Interpretation is a reflection wave. This explains the concept that "observation"

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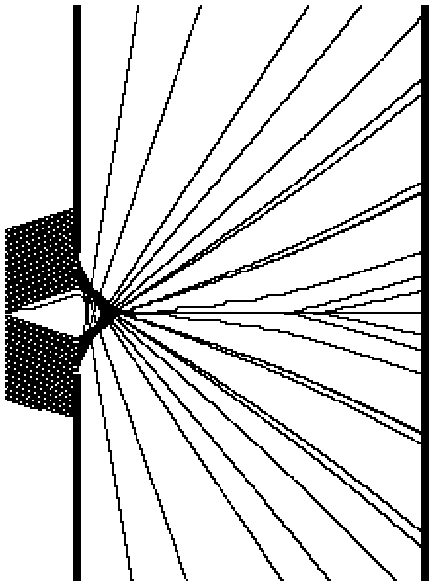

Figure 1: The trace of the path of the simulated photons.

changes the experiment. That is, the introduction of equipment changes the reflection pattern. The reflection of plenum waves model yielded a 97% correlation coefficient between the simulation and the Fraunhofer equation.

Hodge (2015b,c) extended the diffraction experiment to a second mask configuration that rejected the Huygens-Fresnel principle.

This Paper develops predictions of two more experiments that may be conducted with edges as the second mask in section 2. These scenarios were chosen because they make predictions no other model of diffraction make although these experiments are within the bounds of the standard models. The Discussion and Conclusion are in section 3.

2 Edge experiments

The equipment and performance of this experiment is the same as in Hodge (2015b) except the second mask is an edge rather than slits. Figure 2 is a diagram of the experiment.

Figure 3 shows the placement of the edge relative to the diffraction pattern from the first mask (top) and the image on the screen (bottom). Figure 4 is the result of the simulation of this edge configuration.

Figure 5 and Figure 6 shows the input to the simulation for Fig. 3 and Fig. 7, respectively.

Figure 7 shows the placement of the edge relative to the diffraction pattern from the first mask (top) and the image on the screen (bottom). Figure 8 is the

Figure 2: Diagram of the experimental fixtures.

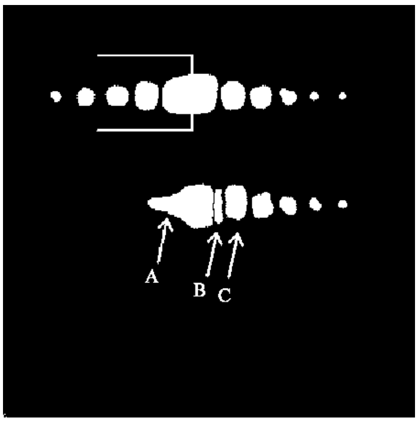

Figure 3: (TOP) The placement of the edge relative to the diffraction pattern from the first mask. (BOTTOM) The image on the screen.

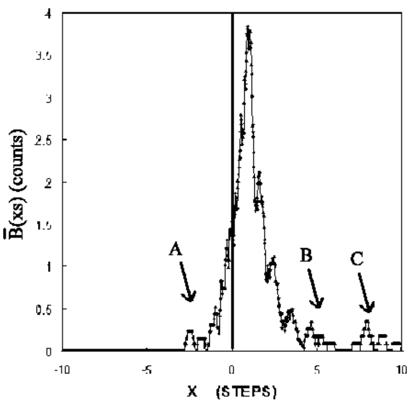

Figure 4: The result of the simulation of this edge configuration. The "A", "B" and "C" are the image points in Fig. 3.

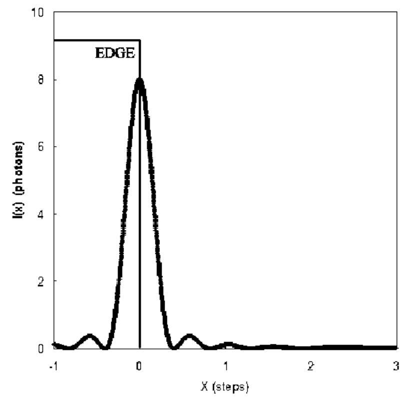

Figure 5: The input to the simulation for Fig. 3. The curve is a plot of the Fraunhofer equation.

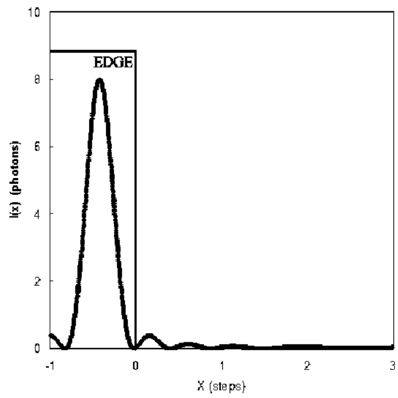

Figure 6: The input to the simulation for Fig. 7. The curve is a plot of the Fraunhofer equation.

result of the simulation of this edge configuration.

3 Discussion and Conclusion

The STOE model provides a link with General Relativity - matter warps the "space" (gravitational ether, plenum) and "space" directs matter.

The STOE model also provides a link between the classical world and the quantum world.

The STOE model assumes waves behave as observed in the Newtonian / classical world. The Huygens-Fresnel principle has the assumption the source point on a wave crest radiate in only the forward direction and not backward. The directional radiation from points is inconsistent with observations in the Newtonian world. Waves translate not reradiate.

The "walking drop" experiments also show a diffraction pattern of a single drop in the experiment at a time. When the drop is between the mask and screen, part of the waves in the medium reflect off the mask and part go through the slit to disappear from influence.

These experiments avoid some of the potential objections to the interpretation of the Afshar Experiment such as the wires collapse the wave function and the existence of the interference pattern in the plane of the wires is inferred rather than experienced (no measurement). However, The STOE model allows the waves to reflect off the wires that alter the plenum field. If the wires are small, this alteration is small.

The resulting mathematics of the STOE model is the same as the end result mathematics of the Fraunhofer model. The difference is the derivation of the STOE model uses observation from the classical world such as the generation

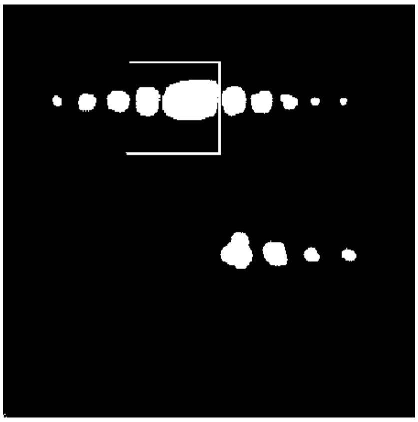

Figure 7: (TOP) The placement of the edge relative to the diffraction pattern from the first mask. (BOTTOM) The image on the screen.

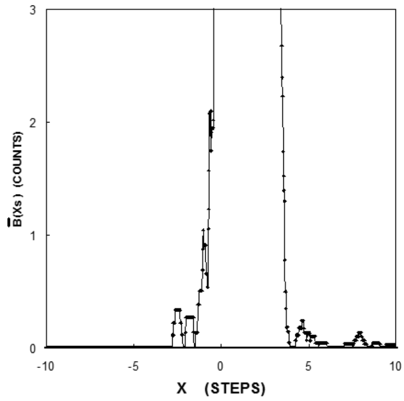

Figure 8: The result of the simulation of this edge configuration.

and reflection of waves. The derivation of the Fraunhofer model uses assumptions not experienced in the classical world such as the "obliquity factor" and the advance of 1/4 period ahead of the wave that produces the waves.

The STOE model (Newtonian Interpretation) simulation is consistent with diffraction experiments.

Huygens-Fresnel principle is inconsistent with the observations in these experiments. Therefore, these experiments falsify the Huygens-Fresnel principle and the wave models based on it. That is, all wave models of light are falsified.

References

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