

23.

THE DOUBLE SLIT EXPERIMENT

Can the principles of “Dynamic Matter” outlined herein be applied to the famous double slit experiment? This one geometric simple experiment embodies the abstract and unexplainable nature of the quantum. Atoms, one at a time, pass through two slits at a defined distance of separation. A target, also at a defined distance, receives each individual atom. Initially the atoms appear to arrive in a random pattern, however, with time and numerous atoms arriving at the target, the classic wave interference pattern emerges. Three significant questions arise:

1. What causes a particle to travel as a wave?
2. With what is this particle interacting to cause interference?
3. Why does a particle detector cancel the wave interference?

Question 1:

As postulated within this treatise, all matter exists in a “dynamic” state. To reiterate this postulate, prior to the Big Bang, all matter was in the form of a singularity. Immediately following the Big Bang, matter did not assume a constant fixed size, but started at a small size and has been expanding for the life of the Universe. This expansion is synchronized with, and is the cause of “time.” (See section 23) It follows that the perpetual expansion happens in quantum increments defined by the Planck constant. From this we deduce that all particles have a “wave” nature inherent to their existence. Whether they are at rest relative to their frame of reference or traveling through space, they have a constant pulsing nature associated with their expansion; a wave nature. (See section 21)

This explanation addresses our first question.

Question 2:

Our second question asks; with what does our particle interfere? In section 18, page 50, we derived a universal scalar field. This field is the result of space being drawn into each planet and star. This is caused by the conversion process of space to mass which fuels the perpetual expansion of matter. The scalar field is space itself, always in motion, and also moving with a quantum nature. This concept has strong similarities to DeBroglie “guide waves.” In an effort to explain the wave nature of all particles, DeBroglie postulated that there perhaps exists “guide waves” upon which any particle in motion must travel. However, as nicely as his guide wave idea addressed the duality of particles, he failed to provide a mechanism to explain their existence. The Dynamic Matter postulate does provide this mechanism.

The double slit experiment consists of two slits. The two slits are separated at a defined distance. The target plate also is a defined distance from the slits. The geometry of these plates

and slits apparently “tunes” the intermediate “scalar field” space between the two plates to be in phase with the wave nature of the atoms passing through the slits. For sake of visualization, this “tuning” of the scalar field to match our double slit experiment can be compared to electromagnetic waves. We are constantly bombarded by electromagnetic waves of a wide spectrum. It is as if space itself has a component of electromagnetic energy. If one wishes to isolate and intercept a wave in the “radio” spectrum, he simply cuts a metal wire to a determinable length. Likewise, if one wishes to isolate a scalar field wave, he “tunes” the slits in his experiment.

By establishing the geometry of our experiment we have isolated a given wave property between our two plates that has a given wavelength. We can now see that when our atom passes through a slit, it then travels the distance between the two plates through a volume of space that now contains DeBroglie’s guide waves. The inherent wave nature of the atom then interferes with the tuned wave of space between the two plates as it travels to the target plate.

This explanation addresses our second question.

Question 3:

It has been assumed that the particle detector affects the particle in some manner to cancel the wave interference. Matter expansion per the “dynamic matter” postulate implies a very stable growth that happens in pulses at a rate defined by Planck. This explains the inherent wave attribute of all particles. It therefore implies that this matter wave attribute would not be affected by our particle detector. The explanation therefore lies with the “DeBroglie guide waves.” Per equation 10.1, page 28, an equivalence of space to mass was derived. This of course also establishes an equivalence of space to energy. The affinity of space to energy is very close. This is also supported by Dirac/Feynman virtual photons. It then follows that the energy beam of the particle detector disrupts the guide wave. This would cancel the interference of both particle beams and once again the particles are deposited on the target plate in two single lines corresponding to the slits.

This explanation addresses question 3.

With this simple geometry defined, there emerges an explanation for the double slit experiment and the quantum nature of our Universe, which has defied an explanation for over one hundred years. This is one of many such postulates that have emerged from the founding postulate of this study that provides an explanation of the conveyance of gravity. While these anomalies merge nicely into the “Dynamic Matter” postulate, experimental proof must be provided to support theory. See section 24 for a simple proposed laboratory experiment.