Abstract Submitted
for the NEF19 Meeting of
The American Physical Society

The Double Slit Experiment Viewed as an Unsolved Math Problem.[1] JEFFREY BOYD[2], Retired — If the double slit experiment were an unsolved math problem, an applied mathematician might devise an fortuitous plan of attack. This APS member is such a mathematician. Searching for ignored peculiarities, we discover empirical evidence that sometimes particles follow zero energy waves backwards. This is counterintuitive, and we will postpone addressing how that is possible. What if there were such waves involved in a double slit experiment. Every point on the target screen would emanate waves, they would go through the two slits and interfere at the particle gun. At random, and based on the strength of the interference, a particle would choose one particular wave to follow backwards. After that the mechanism would become deterministic, with no further wave interference. The particle would follow its wave with a probability of one and make a dot at that point where its wave originated. It is easily proved that this would reproduce the mathematics and the pattern on the target screen. If we take a wave described by Feynman, and turn it around, we would have a model for the wave we seek. It is easily shown that the amplitudes of these waves form a linear vector Hilbert space. It is easily shown that these could be Schroedinger waves. Schroedinger waves have zero energy; they carry probability amplitudes instead. Three new axioms arise: 1. Wave function collapse occurs before measurement; 2. there is no wave particle duality; 3. Waves and particles travel in opposite directions.

[1]NA
[2]This is being considered by the Quarterly Journal of Applied Mathematics.

Jeffrey Boyd
Retired

Date submitted: 06 Sep 2019 Electronic form version 1.4