Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Type 2 local realism is alive and well in the quantum world JEFFREY BOYD, retired — It is often, but incorrectly said, that there is no local realism in the quantum world. This is wrong because there is a second type of local realism. Type two local realism is drastically different than how most people think of their world, including Einstein. It starts with the idea that we are immersed in a sea of invisible elementary waves, traveling in all directions, at all wavelengths. Whenever a photon or other particle moves, it follows one of these waves in the reverse direction. Although this may sound preposterous, this theory can explain several quantum experiments: Jacques (2007) Wheeler thought experiment with delayed choice, Kim (1999), Quantum eraser experiment with delayed choice, all the Bell test experiments with delayed choice, and the double slit experiment. Using the Theory of Elementary Waves (TEW), all these experiments can, surprisingly, be explained using this unconventional type of local realism, with time going forward.

Jeffrey Boyd
retired

Date submitted: 06 Nov 2011 Electronic form version 1.4