

Abstract Submitted  
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**Rethinking Alain Aspect's Bell test experiment with delayed choice** JEFFREY BOYD, Retired — John Bell proposed that Einstein's idea of local realism violates the predictions of quantum mechanics for two correlated particles traveling in opposite directions. A long history of experiments have confirmed Bell's ideas and refuted Einstein's. The watershed experiment by Alain Aspect's team published the first such experiment with delayed choice in 1982. This poster explores Aspect's research with a different assumption: that waves are not the same as particles, indeed waves often travel in the opposite direction as particles. This Theory of Elementary Waves TEW is an alternative to QM, keeping quantum mathematics but providing a different picture of what the quantum world looks like. TEW has some features of a local and some features of a nonlocal theory. We claim that TEW (1) can explain the result of that 1982 delayed choice experiment; (2) TEW does not involve any concept of entangled photons; (3) the predictions of TEW differ from the predictions of Einstein, Podolsky, Rosen and Bohm by five standard deviations; and (4) TEW lies outside the jurisdiction of Bell's Theorem.

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