Abstract Submitted
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A neutron interferometer experiment that Quantum Mechanics cannot explain JEFFREY BOYD, Retired — Neutrons enter an interferometer, are divided, then intersect each other, where there is interference [1] Detectors are located outside. Bismuth slows neutrons. Between 0 and 20 mm of it is put in the upper stream. With 2 or 4 mm of bismuth there is some slowing, evident by less interference. As the thickness of bismuth increases, eventually all interference dies out. The upper wave packet is so slow that the lower wave packet has already departed from the interferometer. The experiment is repeated with one change: an "analyzer crystal" is placed in front of the detector. Logically there is no way that this change, outside and downstream from the experiment, could affect interference that previously occurred. Yet the change is profound: the full amplitude of interference is restored even with 20 mm of bismuth. The authors cannot explain it and chalk it up to "Wheeler's smoky dragon." The experiment can easily be explained by TEW (Theory of Elementary Waves): the waves go in the opposite direction. Waves start at the detector, travel backwards and then a neutron follows the ray backward to the detector from which that ray originated.

[1] Kaiser, Clothier, Werner, et al., Physical Review A, 45, (1992), 31.

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