

Abstract Submitted
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Oil droplet versus electron double slit diffraction¹ ERIC JONES, ADAM LIF, SCOT MCGREGOR, ROGER BACH, HERMAN BATELAAN, University of Nebraska-Lincoln — The double-slit experiments for photons and electrons are considered cornerstones of modern physics. Feynman's account of these experiments is one of the most popular. To get as close to Feynman's description of double-slit diffraction we did some experiments. This includes closing individual slits on demand, and taking a movie of the build-up of the diffraction pattern one particle at a time. In recent work done in Paris [1], macroscopic particle-wave duality with bouncing oil droplets was demonstrated for the first time ever. This may have implications for microscopic or quantum-mechanical particle-wave duality for electrons and photons. We will report on our attempts to reproduce the Paris results, and show new results of the individual droplet trajectories and how they compare to de Broglie-Bohm trajectories.

[1] Yves Couder and Emmanuel Fort, Phys. Rev. Lett. 97, 154101 (2006)

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