Abstract Submitted
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Quantum Gravity Explanation of the Wave-Particle Duality FRIEDWARDT WINTERBERG, University of Nevada - Reno — A quantum gravity explanation of the quantum-mechanical wave-particle duality is given by the watt-less emission of gravitational waves from a particle described by the Dirac equation. This explanation is possible through the existence of negative energy, and hence negative mass solutions of Einsteins gravitational field equations. They permit to understand the Dirac equation as the equation for a gravitationally bound positive-negative mass (pole-dipole particle) two-body configuration, with the mass of the Dirac particle equal to the positive mass of the gravitational field binding the positive with the negative mass particle, and with the positive and negative mass particles making a luminal Zitterbewegung (quivering motion), emitting a watt-less oscillating positive-negative space curvature wave. Is it shown that this thusly produced Zitterbewegung reproduces the quantum potential of the Madelung-transformed Schrdinger equation. The watt-less gravitational wave emitted by the quivering particles is conjectured to be the de Broglie pilot wave.

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