Abstract Submitted
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A New Foundation of Quantum Mechanics SPYROS EFTHIMIADES, Fordham University — In traditional quantum mechanics the particle wavefunction is considered as a single entity obtained from postulated equations, e.g., from the postulated Schrodinger equation. We set the foundation of the quantum theory on a more fundamental level by determining the physical origin of the wavefunction. Analyzing particle interactions we realize that particles have multiple virtual motions, and that each motion is accompanied by a wave that has constant amplitude. The wavefunction is the superposition of the virtual waves of the particle. As a result, physical quantities are represented by justified expressions, and we derive the Schrodinger, Dirac, etc. equations as the conditions the wavefunction must satisfy at each point in order to fulfill the corresponding total energy equation. In our approach, quantum mechanics is a physically justifiable and clearly founded theory that can also be introduced in simple conceptual terms.

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