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Perceptions of the Schrodinger equation SPYROS EFTHIMIADES, Fordham University — The Schrodinger equation has been considered to be a postulate of quantum physics, but it is also perceived as the quantum equivalent of the non-relativistic classical energy relation. We argue that the Schrodinger equation cannot be a physical postulate, and we show explicitly that its second space derivative term is wrongly associated with the kinetic energy of the particle. The kinetic energy of a particle at a point is proportional to the square of the momentum, that is, to the square of the first space derivative 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. Accordingly, we define the wavefunction as the superposition of the virtual waves of the particle. In simple interaction settings we can tell what particle motions arise and can explain the outcomes in direct and tangible terms. Most importantly, the mathematical foundation of quantum mechanics becomes clear and justified, and we derive the Schrodinger, Dirac, etc. equations as the conditions the wavefunction must satisfy at each space-time point in order to fulfill the respective total energy equation.

Spyros Efthimiades
Fordham University

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