Wave-Particle Duality

by William Gray

Abstract

Matter's wave nature is well established experimentally and is the basis for Quantum Physics but no theory has explained its origin. This paper shows that wave behavior is an effect of Relativity on space by particle motion. It does this by showing that because of Pauli's Exclusion Principle particles bond in pairs with harmonic oscillations proportionate to their velocity. It goes on to show that Bohr omitted relativistic effects on the nucleus which cause the electron's spin 0 orbital precession and that Schroedinger's equations are discontinuous because he differentiated the angular momentum out of the electron's continuous orbital motion.

The paper also shows that the electron relativistic effects on the nucleus is the cause of Heisenberg's Uncertainty in the electron's motion, that this effect is cancelled in Bosonic Condensations and results in atomic matter wave coherence, and that the relativistic effects of daughter particles results in the instantaneous Parity Certainty between them that communicates a Heisenberg Uncertainty of one daughter particle to the other.

And finally the paper shows that an orbital electron's wavelength is too dissimilar to a photon's for a wave superposition transfer of energy but energy transfer from a photon's electric field to an orbital electron will occur in the 8 revolutions needed to align a photon's field in one quadrant and a precessing orbital electron's field. These relations taken in their entirety indicate that the wave nature of particles is not a property of the particles but a relativistic effect of their motion on space.