The Hydrogen Atom Fundamental Resonance States

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Abstract: In the 1920's, Louis de Broglie's observation that the integer sequence that could be related to the interference patterns produced by the various electromagnetic energy quanta emitted by hydrogen atoms was identical to those of very well known classical resonance processes, made him conclude that electrons were captive in resonance states within atoms. This led Schrödinger to propose a wave function to represent these resonance states that still have not been reconciled with the electromagnetic properties of electrons. This article is meant to identify and discuss the electromagnetic harmonic oscillation properties that the electron must possess as a resonator in order to explain the resonance volume described by the wave function, as well as the electromagnetic interactions between the elementary charged particles making up atomic structures that could explain electronic and nucleonic orbitals stability. An unexpected benefit of the expanded space geometry required to establish these properties and interactions is that the fundamental symmetry requirement is respected by structure for all aspects of the distribution of energy within electromagnetic quanta.

Keywords: Wave function; electron resonance states; elementary electromagnetic particles; electromagnetism; hydrogen atom.

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