Abstract Submitted
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Excited Atom in a Light Resonant Cavit JEFFREY BOYD, Independent — The amount of time an excited atom in a light resonant cavity takes to return to its ground state depends on the size of the cavity. If the light wave that would be emitted by the atom, fits as a standing wave in the cavity, the atom will fall back to its ground state and emit a photon hundreds of times more rapidly. If the wave is longer or shorter than the width of the cavity, the atom remains excited twenty times longer than if it were in no cavity at all. What is the relationship between 3 variables: amount of time the atom remains excited, the length of the wave, and the width of the cavity. To account for these data, the wave needs to be real and exist prior to the atom returning to a ground state and emitting a photon. The wave cannot be a wave packet that is the wave-particle equivalent of the photon, because then the atom would have no way of "knowing" in advance whether the cavity had a width compatible with the energy level of the photon. The evidence is that this wave is both real and pre-existing. This is consistent with the Theory of Elementary Waves (TEW) and not consistent with Quantum Mechanics (QM).

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