

## Gravitational Frequency Shifts for Photons and Particles

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**Abstract :** The research, in this case, considers the integration of the Quantum Field Theory and the General Relativity Theory. As two successful models in explaining behaviors of particles, they are incompatible since they work at different masses and scales of energy, with the evidence that regards the description of black holes and universe formation. It is so considering previous efforts in merging the two theories, including the likes of the String Theory, Quantum Gravity models, and others. In a bid to prove an actionable experiment, the paper's approach starts with the derivations of the existing theories at present. It goes on to test the derivations by applying the same initial assumptions, coupled with several deviations. The resulting equations get similar results to those of classical Newton model, quantum mechanics, and general relativity as long as conditions are normal. However, outcomes are different when conditions are extreme, specifically with no breakdowns even for less than Schwarzschild radius, or at Planck length cases. Even so, it proves the possibilities of integrating the two theories.

**Keywords :** general relativity theory, particles, photons, Quantum Gravity Model, gravitational frequency shift

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