

Abstract Submitted
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On the Klein-Gordon equation using the dispersion relation of Doubly Special Relativity YESE J. FELIPE, California State University, Los Angeles — The theory of Doubly Special Relativity or Deformed Special Relativity (DSR), proposes that there is a maximum energy scale and a minimum length scale that is invariant for all observers. These maximum energy and minimum length correspond to the Planck energy and the Planck length, respectively. As a consequence, the dispersion relation is modified to be $E^2 = p^2c^2 + m^2c^4 + \lambda E^3 + \dots$. Previous work has been done to express Quantum Mechanics using the dispersion relation of DSR. Solutions of the free particle, the harmonic oscillator, and the Hydrogen atom have been obtained from the DSR Schrodinger equation. We explore how the DSR Klein-Gordon equation can be consistently approximated in the non-relativistic limit in order to derive the DSR Schrodinger equation.

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