Supersymmetric Quantum Mechanics

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Abstract

Supersymmetry is a symmetry that relates bosons to fermions. In this paper I have studied how one can make a theory supersymmetric and what the simplest supersymmetric extension is. Starting out with Classical Mechanics I introduced a fermionic variable to the theory and looked at the implications of such a variable for the theory. After quantizing the model I studied what the structure of the Hilbert Space is in a supersymmetric theory. Finally, I have also applied the theoretical findings to the Harmonic Oscillator as we know it from Quantum Mechanics.