

On Unification of the Electromagnetic, Strong and Weak Interactions

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Abstract : In this paper, we show new wave equations, and by using the equations, we concluded that the strong force and the weak force are not fundamental, but they are quantum effects for electromagnetism. This result is different from the current scientific understanding about strong and weak interactions at all. So, we introduce three evidences for our theory. First, we prove the asymptotic freedom phenomenon in the strong force by using our model. Second, we derive the nuclear shell model as an approximation of our model. Third, we prove that the leptons do not participate in the strong interactions, and we prove the short ranges of weak and strong interactions. So, our model is consistent with the current understanding of physics. Finally, we introduce the electron-positron model as the basic ingredients for protons, neutrons, and all matters, so we can study all particles interactions and nuclear interaction as many-body problems of electrons and positrons. Also, we prove the violation of parity conservation in weak interaction as evidence of our theory in the weak interaction. Also, we calculate the average of the binding energy per nucleon.

Keywords : new wave equations, the strong force, the grand unification theory, hydrogen atom, weak force, the nuclear shell model, the asymptotic freedom, electron-positron model, the violation of parity conservation, the binding energy

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