

Hartree-Fock approximation in quantum electrodynamics

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A new approach to the bound-state problem in the frame of quantum electrodynamics is proposed, with special emphasis on the electron-proton bound states. It is an alternative approach to the usual one, which is based on the Bethe-Salpeter equation, and does not contain the ambiguities and unfamiliar features inherent in the Bethe-Salpeter theory. This approach is based on a straightforward generalization to quantum electrodynamics of the well-known Hartree-Fock approximation for the nonrelativistic theory of many-electron atoms. © 1971 The American Physical Society.