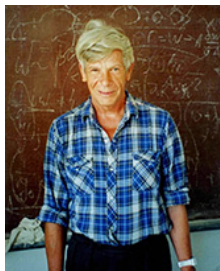


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NRQED for the bound state theory in the Quantum Electrodynamics

Monday, 10 October 2022 15:45 (25 minutes)

A review of the nonrelativistic quantum electrodynamics (NRQED) as applied to the bound state problem is given. The main corrections to nonrelativistic binding energies are derived, such as the relativistic Breit-Pauli Hamiltonian of the leading order ($m\alpha^4$), the radiative corrections of the leading order ($m\alpha^5$). Then it is shown how complex particles (hadrons) can be incorporated in the low-energy QED theory. We consider how higher-order corrections in the fine structure constant α , including contributions of the order $m\alpha^7$, can be obtained and calculated from the NRQED formalism.

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