

Electro-weak Bound States

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Beginning with the electroweak Lagrangian, the two-body Green's function can be written for various two body systems. For each possible two body system, the appropriate Bethe-Salpeter equation is derived from which bound states containing any of the particles that are the constituents of the electro-weak theory. In particular, bound states with vector bosons as constituents are described as vector boson-anti-vector boson, etc. The perturbation theory is developed so that one can calculate the energy levels as precisely as desired. Furthermore, discussion of how to obtain the Bethe-Salpeter equation for any spin particles in general, is also discussed. Lowest-order corrections for the electro-weak bound systems is calculated as well.

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