

Exploring the covariant form factor for spin-1 particles

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The spin-1 particles is an admirable two quarks bound state system to understand electromagnetic properties from hadronic states. These systems are generally relativistic, and therefore, need an approach using quantum field theory. In the present work, we will use both the quantum field theory at the instant form, as well, quantum field theory on the light-front-(LFQFT). In general, it is used to calculate the electromagnetic properties of spin-1 vector particles in the LFQFT formalism, with the plus component of the electromagnetic current. In the present work, we used, in addition to the plus component of the electromagnetic current; the minus component of the current, and we use that components o the current, to extract the covariant form factors; showing that to have an equivalence between these we need to add non-valence terms to the electromagnetic current, in order to restore the covariance, and obtain exactly the same results when using the instant form quantum field theory.

Author: DE MELO, João Pacheco (Laboratório de Física Teórica e Computacional - UCS - UNICID)

Orateur: DE MELO, João Pacheco (Laboratório de Física Teórica e Computacional - UCS - UNICID)

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