Contribution ID: **87** Type: **not specified**

Two-particle disintegration processes in covariant approach

Wednesday 22 July 2015 17:20 (20 minutes)

We provide a method to construct covariant two-particle nonlocal matter field disintegration amplitude. One is a sum of traditional pole series and the regular part. We explore the deposits of regular part of amplitude, and its physical sense. In the amplitudes regular part achieved absence of the singularity when fragments are scattered at right angle.We use covariant approach with conserved EM current, which gives the ability to include strong interaction into QED. Therefore, we receive the ability to describe disintegration processes of nonlocal matter fields applying standard Feynman rules of QED. Inclusion of phase exponent into wave function receives a physical sense while we deal with the dominance of strong interaction in the process. We apply Green's function formalism to describe disintegration processes. General analysis of electro-break up process of compound scalar system is given. Precisely conserved nuclear electromagnetic currents at arbitrary q^2 are received. The only undefined quantity in theory is vertex function parameterization. Therefore, we have the opportunity to describe electron scattering processes taking into account minimal necessary set of parameters. A transition from virtual to real photon considered in photon point limit $q^2 \to 0$. Total expression for matrix element of disintegration process received. Observables are calculated and compared with experimental data for disintegration of ^{3}He and ^{3}H in the proposed approach. For this processes $\Sigma-$asymmetry energy dependence at the right angle was predicted.

Author: Mr KUZNIETSOV, Philip (Institute of Electrophysics and Radiation Technologies NAS of Ukraine)

Presenter: Mr KUZNIETSOV, Philip (Institute of Electrophysics and Radiation Technologies NAS of Ukraine)

Session Classification: Student talks