

Séminaire LAL

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vendredi 15 septembre 2017 à 11h00

High-energy electrodynamic processes with « half-bare » electrons

In normal conditions electrons are surrounded by a Coulomb field.

When a relativistic electron interacts with matter or external fields it can lose part of its electric field (become “half-bare”) and be in such state within macroscopically large distances. Such modification of the electron’s field can be observed when the particle interacts with matter again. In this case the properties of radiation emitted by the particle and the value of its ionization loss will be different. For example, in the case of relativistic electron multiple scattering in amorphous medium such modification results in the Landau-Pomeranchuk-Migdal and Ternovsky-Shul'ga-Fomin effects of the electron bremsstrahlung suppression. In the present report different effects in electromagnetic radiation (transition, parametric X-rays) and ionization loss of half-bare electrons and electron-positron pairs are considered. The conditions for experimental observation of such effects are discussed. The experiment devoted to investigation of transition radiation by half-bare electron, planned to be conducted at LAL-Orsay, is discussed as well.

Salle 166 - Bât. 200, Orsay

Thé et café seront servis 15 mn avant le séminaire

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