



Contribution ID: 35

Type: **Poster**

PS1-03: Single Photon Annihilation of Positrons in the Channeling Regime

Monday, October 6, 2014 5:00 PM (1h 30m)

It is well known that the energy and momentum conservation laws forbid positron-electron annihilation, producing the single photon only. It can produce two photons in vacuum, or the process is possible with a participation of the third body.

The situation can be essentially changed in a single crystal when one or the both leptons are moving in the channeling regime when the transverse motion of a particle is bound. It appears the possibility of the single photon positron-electron annihilation process, described by the Feynman diagram with the single vertex only. In this report we analyze the different configurations of the single photon positron-electron annihilation process when one or the both leptons are in channeling regime and outline the conditions when the one-photon process may be a source of the high energy gamma-radiation.

Primary author: Prof. KALASHNIKOV, Nikolay (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russia)

Co-author: Dr OLCHAK, Andrei (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russia)

Presenter: Prof. KALASHNIKOV, Nikolay (National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russia)

Session Classification: PS: Poster Session