



Contribution ID: 99

Type: Poster

Simulation Response of B₄C-Coated PPAC for Thermal Neutrons Using GEANT4 Monte Carlo Approach

Wednesday, 23 May 2012 11:26 (0 minutes)

In this work, we report a technique employed for the detection of thermal neutrons using the parallel plate avalanche counter (PPAC). In order to make the detector sensitive to thermal neutrons a thin layer of $^{10}\text{B}_4\text{C}$ has been coated on the forward electrode of the PPAC configuration. Upon falling on the converter coating, charged particles were generated via the $^{10}\text{B}(n,\alpha)^7\text{Li}$ reaction. In this simulation study, thermal neutrons have been simulated using the GEANT4 MC code, and the response of the detector has been evaluated as a function of neutron energy.

For a better understanding of the simulation response, the performance of the detector has been found using the two different physics list i.e., QGSP_BIC_HP and QGSP_BERT_HP.

The obtained results predicted that such boron-carbide based PPAC can be potentially utilized for thermal neutron detection. A complete description of the detector configuration and the simulation results are also presented.

Primary author: Dr JAMIL, M (Institute for Advanced Physics, Dept. of Physics, Konkuk University)

Co-authors: Prof. RHEE, June-Tak (Konkuk-University); Prof. JEON, Y.J. (LCD Research Lab; Department of Chemistry, Konkuk University)

Presenter: Prof. RHEE, June-Tak (Konkuk-University)

Session Classification: Front End, Trigger, DAQ and Data Management - Poster Session

Track Classification: P4 - Front End, Trigger, DAQ and Data Management