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Investigation of behavior of scintillator detector of Alborz observatory array using Monte Carlo method with Geant4 code

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Abstract

For their appropriate temporal resolution, scintillator detectors are used in the Alborz observatory. In this work, the behavior of the scintillation detectors for the passage of electrons with different energies and directions were studied using the simulation code GEANT4. Pulse shapes of scintillation light, and such characteristics as the total number of photons, the rise time and the falling time for the optical pulses were computed for the passage of electrons with energies of 10, 100 and 1000 MeV. Variations of the characteristics of optical pulse of scintillation with incident angle and the location of electrons were also investigated.

Keywords: cosmic ray (CR), Scintillation detector, Geant4 code, plastic scintillator

For full article, refer to the Persian section