

SILICON STRIP-DETECTOR WITH A POLYETHYLENE CONVERTER AS A POSITION SENSITIVE DETECTOR FOR A NARROW BEAM OF FAST NEUTRONS

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The possibility of using the silicon strip-detector coated with a polyethylene film for the coordinate determination of fast neutrons has been discussed. The accuracy of the fast neutron coordinate determination is dependent on peculiarities of the interaction of neutrons with polyethylene and the accuracy of the registration of the recoil protons produced by fast neutrons in a polyethylene film, i.e. energies and angular distributions of the recoil protons and characteristics of tracks produced in the detector. The average charge collected on strips as a function of coordinates of incident neutrons has been calculated. It is shown that the most important for the best charge collection and accuracy of the coordinate determination is the choice of the interstrip distance. The other factors influencing on the coordinate determination (the distribution of the electrical field in the detector, the ratio of the track length to the interstrip distance) have been discussed.

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