

探测器与实验方法

Monte Carlo simulation of the property of a scintillation bar in the multi-neutron correlation spectrometer

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摘要

To perform a kinematically complete measurement of the dissociation reaction for neutron-rich nuclei, a multi-neutron correlation spectrometer is proposed at Peking University. A Monte Carlo simulation code based on GEANT4 is developed for a single scintillation bar which processes not only the energy deposition but also the light propagation in the scintillator and the light collection and conversion to signal at the end of the bar in a realistic way. The simulating method is described in detail in this paper, and the timing and position resolutions and detector efficiency are studied based on the simulation and compared with the experimental results. A new method of crosstalk rejection has been demonstrated to be important for the design of the whole spectrometer.

关键词

[neutron wall](#), [Monte Carlo simulation](#), [neutron halo](#)

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