

Performance and Geant4 simulation of the upgraded focal plane polarimeter 2nd-FPP

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We have designed and upgraded the focal plane polarimeter 2nd-FPP to improve the position and angle resolution. Four MWDCs were newly introduced. The experiment with protons of polarization $P=0.99$ by p-C elastic scattering at 65 MeV was performed at RCNP in order to evaluate the overall performance. The position resolution of about 0.34 mm has been achieved, which is about two orders of magnitude better than that obtained from plastic scintillator information. This better resolution is useful to separate p-C elastic events from p-p scattering events at large angles. The resulting effective analyzing powers at angles larger than 60 degrees are consistent with the design values based on p-C analyzing powers. However, those at small angles are significantly small, and thus we have been developing a Geant4 simulation to evaluate the contribution effect of p-p scattering contribution. In this contribution, the experimental results and the progress of the Geant4 simulation to introduce the polarization effects will be presented.

Presentation type

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