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THE NAGOYA COSMIC-RAY MUON SPECTROMETER III

IV TRACK RECONSTRUCTION METHOD

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ABSTRACT

For the measurements of the particle trajectories with the optical or visual detector system, it is one of the general problems to reconstruct the trajectories in real space from their recorded images.

In the Nagoya cosmic-ray muon spectrometer (1), muon tracks are detected by wide gap spark chambers and their images are recorded on the photographic film through an optical system of 10 mirrors and two cameras. For the spacial reconstruction, 42 parameters of the optical system such as the angles of mirrors should be known to determine the configulation of this system.

It will be almost impossible to measure these many parameters directly with usual technics. In order to solve this problem, we applied the inverse transformation method. In this method, all the optical parameters are determined from the locations of fiducial marks in real space and the locations of their images on the photographic film by the non-linear least square fitting.

reference.

1. Kamiya,Y. et al., paper presented to this conference, HE 5.2-2.