

CASCADE SHOWERS ORIGINATED IN JET SHOWERS
DUE TO NEGATIVE PIONS

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ABSTRACT

Cascade showers originated in jet showers occurred by the negative pion beam with the highest energy in an emulsion chamber will be studied for their longitudinal development and lateral structure. The results will be compared with that of 400 Gev protons(#434).

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THE PURPOSE OF THE EXPERIMENT

The cascade showers originated in jet showers¹⁾ have been studying by using data of the emulsion chamber exposed to 400 Gev proton beam (#434). The purpose of the experiment was to observe the longitudinal development and the lateral structure of the cascade showers originated in the jet shower.

We propose to carry out the same kind of experiment as the above by exposing emulsion chambers to negative pion beam. We can investigate the difference between pion-nucleus interaction and proton-nucleus interaction by comparing these cascade showers originated in jet showers. Especially, the discrepancy of these inelasticity distributions to photons would be considered to be important for hadronic physics in the same energy region^{2),3)}.

CONDITIONS REQUIRED IN THIS EXPERIMENT

- 1) Beam: parallel and mono-energetic negative pion beam
- 2) Energy: negative pion beam at the highest energy
- 3) Amounts of irradiation: 10 to 10^2 particles/cm².

DETECTOR

The chamber is composed of nuclear emulsion plates and lead plates which are piled up alternatively. The schematic view of the detector is shown in the figure. The geometrical size of the detector is 10 cm x 10 cm x 8 cm and the total thickness of lead absorber is 13 radiation lengths. Two or three chambers are scheduled to be exposed.

REFERENCE

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SCHEMATIC VIEW OF THE DETECTOR

