PENETRATING CASCADE SHOWERS OBSERVED BY THE EMULSION CHAMBERS AT

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The penetrating characteristics of the cascade showers observed by emulsion chambers at high mountains are studied by comparing with those of simulated showers of (e,gamma)- and of hadronic-origin. The study is applied to the Chacaltaya two-storey chambers of no.18, no.19 and no.22 and also to the Pamir joint carbon chambers. Although each chamber has a differrent structure, we find, in all the chambers, an excess of the number of penetrating showers over the expectations. A possible explanation is given in connection with 'mini-clusters' which are extremely narrow bundle of hadrons and electromagnetic particles.