THE AVERAGE MASS NUMBER OF PRIMARY COSMIC RAYS AROUND THE KNEE REGION DERIVED FROM GRAPES III ARRAY AT OOTY

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We analyzed one year data of Air Shower (10^4<Ne<10^6) (number of showers 3x10^8) observed with GRAPES III experiment during 1999 and 2000. Our Air shower array consists of 217 scintillation detectors (1m^2 each) and 16 muon detectors (35 m^2 each). Those large muon detectors, total area of 560m^2 can give good statistics in estimating the number of muons even for small Air Showers. We present the following results, muon lateral density distribution, relation between muon size and electron size and muon multiplicity distribution with A.S. size. Those results are compared with simulation (Corsika code with QGS Jet model) for primary energy between 10^13 eV and 10^15 eV. We found the model with gradual increase in average mass number with their primary energy fit well our observed data. Energy spectrum of primary cosmic rays deduced from muon and electron data is also presented.