

MASS COMPOSITION ABOVE $4 \cdot 10^{17}$ EV USING HAVERAH PARK ARRAY

M. Ave, J.A. Hinton, J. Knapp, M. Marchesini and **A.A. Watson**

Department of Physics and Astronomy, University of Leeds, Leeds LS2 9JT, UK.

At Haverah Park experiment a number of measurements were made which are relevant to determine mass composition. These parameters, sensitive to the longitudinal development of the showers, were: the steepness of the water-Cerenkov lateral distribution function (LDF) characterized by η , the 10-50% rise time of the signal, and the $\mu/Cerenkov$ ratio (the ratio of the muon signal to the total water-Cerenkov signal).

Early attempts to extract the mass composition were thwarted by the very poor agreement with simulations. Using Corsika simulations we are able to reproduce the data and fit the mass composition using the 3 parameters mentioned above.