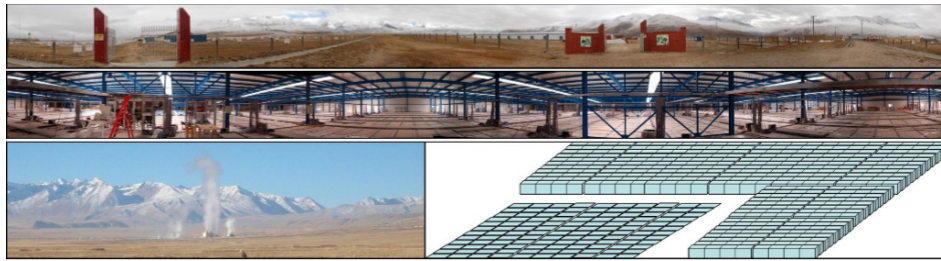


## 4th Workshop on Air Shower Detection at High Altitude



Contribution ID: 27

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# Hybrid measurement of Cosmic Ray light component spectrum by using ARGO-YBJ detector and Cherenkov telescope

*Friday, 1 February 2013 16:25 (35 minutes)*

Using two Wide Field-of-view Cherenkov Telescopes and the RPC array in the ARGO-YBJ experiment at 4300m a.s.l., cosmic hydrogen and helium nuclei above 100 TeV have been well separated from the all cosmic rays. The image shape measured by the Cherenkov telescopes and the lateral distributions of shower particles in few meters from the cores measured by the RPC array provide sufficient sensitivity to tag showers as induced by nuclei not heavier than

helium. The flux of those nuclei as a function of shower energy up to 800 TeV is measured.

A very uniform energy resolution about 25% throughout the whole energy range is achieved by combining the well measured geometric parameters by the fully covered RPC array and the Cherenkov photon fluxes by the telescopes. This results in a natural extension of the spectrum measurement by the ARGO-YBJ experiment above 5 TeV which has a good agreement with the CREAM experiment. From 100 to 800 TeV, the spectral index is found to be  $-2.69 \pm 0.06$ ,

agreeing with the ARGO-YBJ result. No significant structure in the spectrum has been observed after combine both results.

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**Session Classification:** The High Altitude opportunities II