

First results on the angular resolution of the ARGO-YBJ detector

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Abstract. We present the first results on the angular resolution of the ARGO-YBJ detector in data taking at the Yangbajing Laboratory (Tibet, P.R. China, 4300 m a.s.l.).

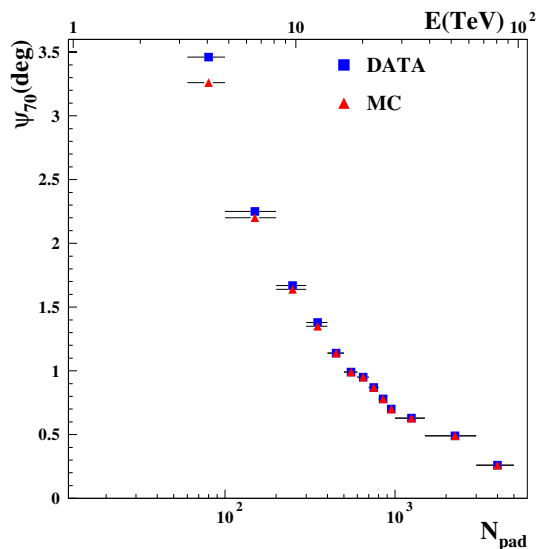


Figure 1. The opening angle ψ_{70} measured via the even-odd method with data from 42 Clusters (squares) is compared, as a function of pad multiplicity N_{pad} (i.e., the sum of even and odd pads), to the MC simulation (triangles). The events have been selected as internal with the procedure described in [1]. The upper scale shows the estimated median energy of triggered events for the different multiplicity bins.

Since December 2004 a carpet of about 1900 m² of RPCs (42 Clusters, $\sim 47 \times 41$ m², corresponding to about 1/3 of the whole central detector) has been put in stable data taking, yet without any converter sheet. As can be seen from the figure, there is a fine agreement of the simulated opening angle with the experimental one. Therefore, we are confident about our reconstruction algorithms. The opening angle is smaller than 0.5° for primary energies greater than ~ 30 TeV. For details concerning the analysis and MC calculations see [1].

References

- [1] Di Sciascio G *et al* 2005 *Proc. Int. Conf. on Cosmic Ray Physics (Pune)* vol 1 (Amsterdam: North-Holland/American Elsevier) p 517.