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Test of hadronic interaction models in the forward region from 10 TeV to 1 PeV with the new Tibet EAS core data

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PoS(ICRC2019)491

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A new hybrid experiment consisting of a high-energy air-shower-core array(YAC), a high-density air-shower array (Tibet-III) and a large underground water-Cherenkov muon-detector array (MD) has been operated by the Tibet ASγ collaboration since 2014. In this hybrid experiment, YAC is used to observe high-energy core events induced by cosmic rays, Tibet-III provides the total energy and the direction of air showers while MD is used to measure the number of muons contained in the air showers. The first step of YAC, called YAC-I that consists of 16 EAS core detectors located near the center of the Tibet-III, has been carried out since May, 2009. In this paper, we will report on the check of hadronic interaction models in the forward region from 10 TeV to 1 PeV by observing EAS cores using (YAC-I+Tibet-III) hybrid experimental data.

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