



Contribution ID: 928

Type: **Poster contribution**

H.E.S.S. II Data Analysis with ImPACT

Tuesday 4 August 2015 16:00 (1 hour)

The H.E.S.S. VHE gamma-ray telescope has added a fifth telescope of 600 m² mirror area to the centre of the 4 existing telescopes, lowering its energy threshold to the sub-100 GeV range and becoming the first operational IACT array using multiple telescope designs. In order to properly access this low energy range however, some adaptation must be made to the existing event analysis.

We therefore present an adaptation of the high-performance event reconstruction algorithm, Image Pixel-wise fit for Atmospheric Cherenkov Telescopes (ImPACT), for performing mono and stereo event reconstruction with the H.E.S.S. II array. The reconstruction algorithm is based around the likelihood fitting of camera pixel amplitudes to an expected image template, directly generated from Monte Carlo simulations. This advanced reconstruction is combined with a multi variate analysis based background rejection scheme to provide a sensitive and stable analysis scheme in the sub-100 GeV gamma-ray energy range.

We will present the latest results of the ImPACT analysis on both simulated and real H.E.S.S. II data, demonstrating the behaviour of the ImPACT analysis at the lowest energies.

Collaboration

H.E.S.S.

Registration number following "ICRC2015-I/"

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Author: Dr PARSONS, Robert (Max Planck Institute for Nuclear Physics)**Co-authors:** Mr GAJDUS, Michael (Humboldt University of Berlin); Mr MURACH, Thomas (Humboldt University of Berlin)**Presenter:** Dr PARSONS, Robert (Max Planck Institute for Nuclear Physics)**Session Classification:** Poster 3 GA**Track Classification:** GA-EX