ICRC2015

ICRC
The Astroparticle Physics Conference
34th International Cosmic Ray Conference
July 30 - August 6, 2015
The Hague, The Netherlands

Contribution ID: **1187** Type: **Poster contribution**

Rapid variability at very high energies in Mrk 501

Thursday 30 July 2015 15:30 (1 hour)

Flaring states of the BL Lac object, Mrk 501 were observed by the High Energy Stereoscopic System (H.E.S.S.) during 2012 and 2014. Observations in 2014 recorded flux levels higher than one Crab unit and revealed rapid variability at very high energies ($\sim$ 2-20 TeV). The high statistics afforded by the flares allowed us to probe the presence of minutes timescale variability and study its statistical characteristics at purely TeV energies owing to the high threshold energy of approximately 2 TeV. Doubling times of a few minutes are estimated for fluxes, F(> 2 TeV). Statistical tests on the lightcurves show interesting temporal structure in the variations including deviations from a normal flux distribution similar to those found in the PKS 2155-304 flare of July 2006, at nearly an order of magnitude higher threshold energy. Rapid variations at such high energies put strong constraints on the physical mechanisms in the blazar jet.

Collaboration

H.E.S.S.

Registration number following "ICRC2015-I/"

928

Primary author: Dr CHAKRABORTY, Nachiketa (Max-Planck-Institut fuer Kernphysik)

Co-authors: JACHOLKOWSKA, Agnieszka (LPHNE); Dr TAYLOR, Andrew (Dublin Institute for Advanced Studies); ROMOLI, Carlo (Dublin Institute for Advanced Studies); Dr RIEGER, Frank (Max-Planck-Institut fuer Kernphysik); COLOGNA, Gabriele (Landessternwarte); Prof. WAGNER, Stefan (Landessternwarte Heidelberg)

Presenter: Dr CHAKRABORTY, Nachiketa (Max-Planck-Institut fuer Kernphysik)

Session Classification: Poster 1 GA

Track Classification: GA-EX