

The Electron Spectrum with MAGIC

Tuesday, 27 October 2015 15:00 (15 minutes)

Very high energy ($E > 100$ GeV) cosmic electrons and positrons reaching Earth from beyond the solar system are important tracers of recent energetic events in our galactic neighbourhood. Rapid energy losses due to synchrotron radiation and inverse Compton processes result in typical lifetimes of these energetic particles of less than 10^5 years. Their mean free path in the Galaxy is $O(1-2)$ Kpc. Measurements of the flux distribution of this radiation therefore provide valuable checks in our galaxy for pulsars physics and some of the more exotic dark matter models.

The MAGIC experiment, a stereoscopic system of two Cherenkov telescopes, can measure the total flux of cosmic electrons and positrons at very high energies between a few 100GeV and a few TeV.

Such a measurement will allow to confirm the results provided by other experiments such as Fermi-LAT, AMS2 as well as give a first cross-check of the results from H.E.S.S..

We have analyzed ~ 60 h of MAGIC observations with a field of view of 3.5degrees with improved MC statistics. We applied a dedicated, more aggressive, image cleaning and have improved the quality selection as well as the background normalization. This results in the measurement of the electron-positron flux measurement between 200GeV and 2TeV.

Primary authors: Mrs MALLOT, Kathrin (DESY); Mr PALATIELLO, Michele (Universita di Udine, INFN Trieste); COLIN, Pierre (MPI fuer Physik)

Co-authors: Prof. BERNARDINI, Elisa (DESY); PERSIC, Massimo (Universita di Udine, INFN Trieste)

Presenter: Mrs MALLOT, Kathrin (DESY)

Session Classification: Cosmic Rays

Track Classification: High Energy Cosmic rays