HESS J1857+026 and MSH 11-62 table and plots for MODE Workshop at Nançay

In this page you will find the plots and table that I would like to include in a talk at Nançay (11/21/2011-11/24/2011) waiting for approval. Link to the website page : http://www.obs-nancay.fr/mode2011/

HESS J1857+026

The first part of the talk deal with HESS J1857+026 (https://confluence.slac.stanford.edu/pages/viewpage.action?pageId=108695188 , https://confluence.slac.stanford.edu/pages/viewpage.action?pageId=100515585). Here are the plots I would like to show :

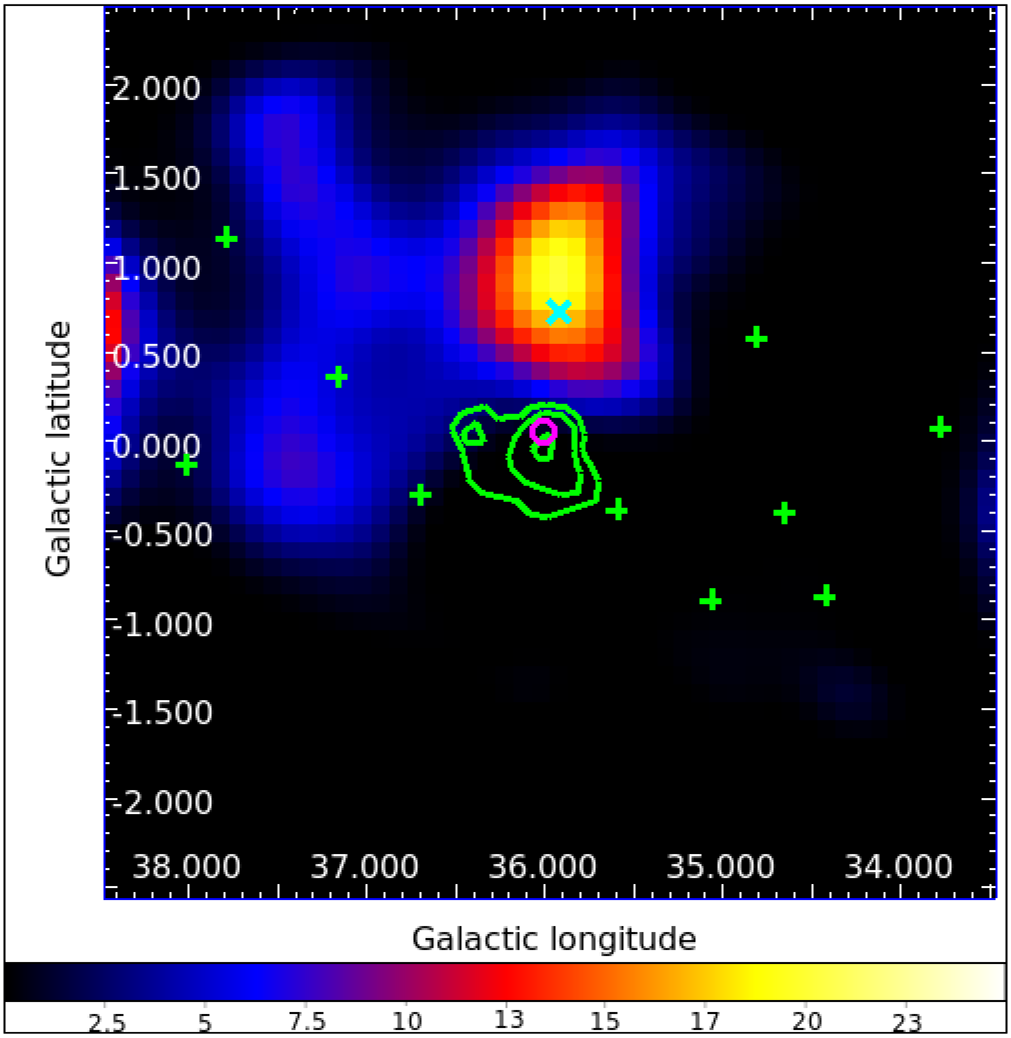

Fig. 1. TS maps computed by pointlike. The green crosses represent the sources of the 2FGL catalog included in the model. Whereas the blue X represents the source we added in the model. The green contours represent the HESS data (Aharonian et al., 2008). The magenta circle represents the position of PSR J1856+0245. TS map obtained between 0.1 and 1.3 GeV. This figure shows the residual excess taken into account in our model (cyan cross).

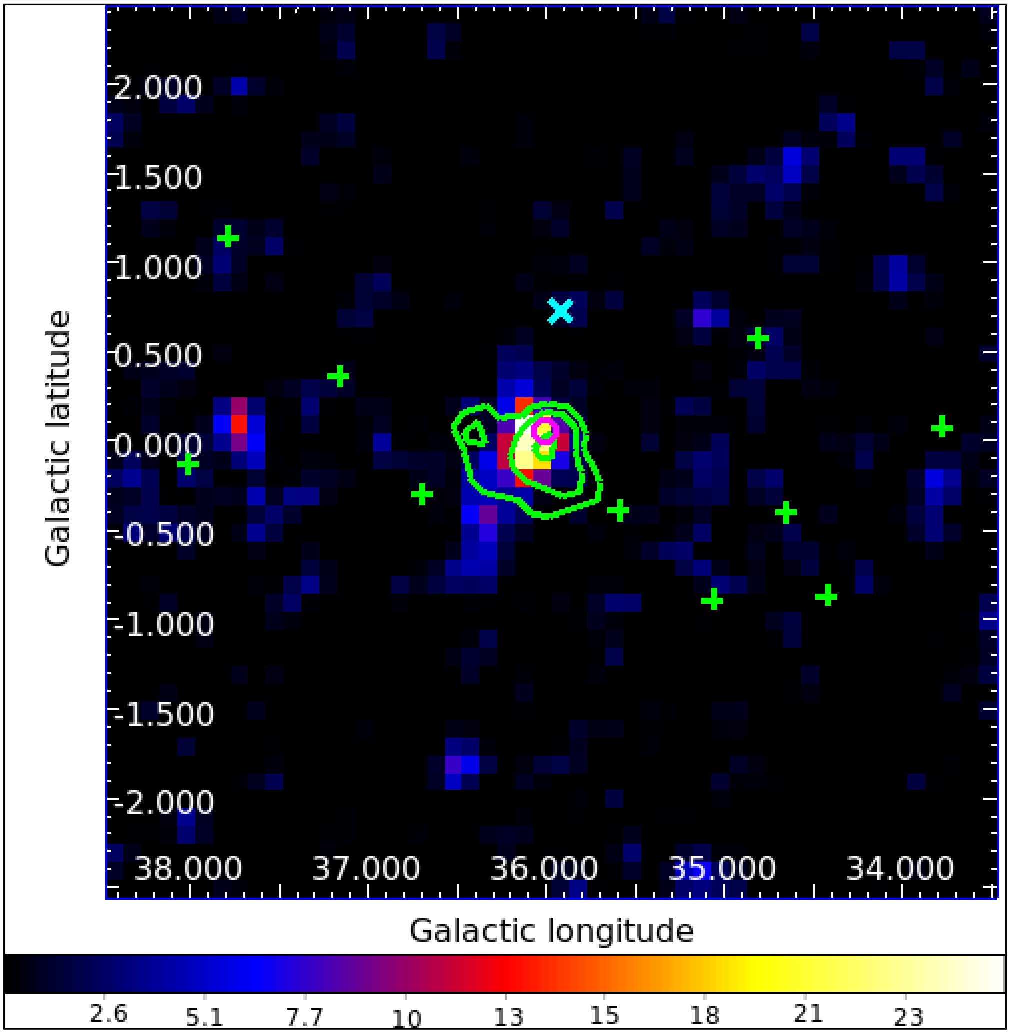

Fig. 2. TS maps computed by pointlike. The green crosses represent the sources of the 2FGL catalog included in the model. Whereas the blue X represents the source we added in the model. The green contours represent the HESS data (Aharonian et al., 2008). The magenta circle represents the position of PSR J1856+0245. TS map obtained between 10 and 300 GeV. The position of the Fermi excess is consistent with that of HESS. Note that HESS J1857+026 is not included in the model.

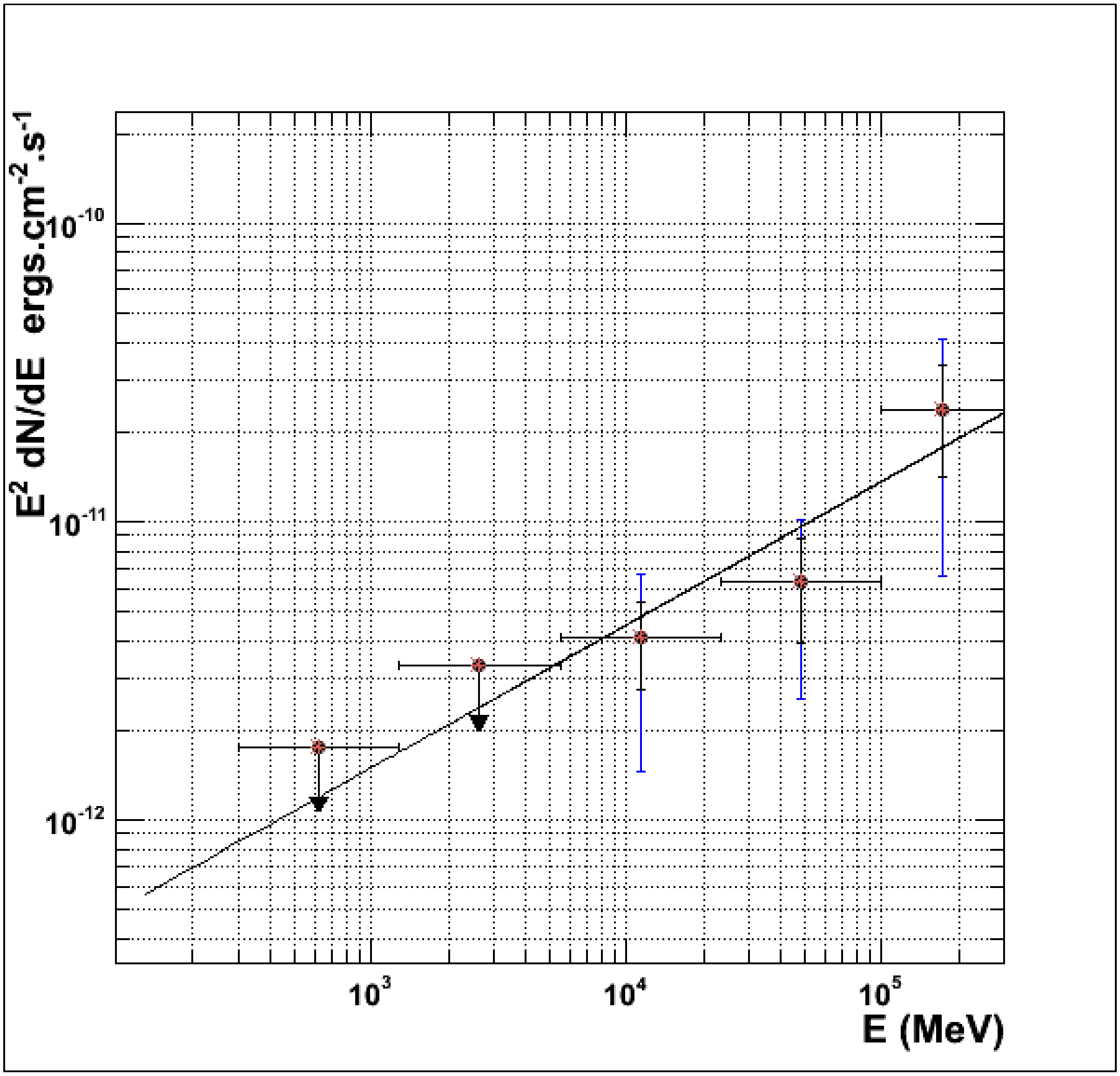

Fig. 3. LAT spectral points obtained using gtlike. The black and blue error bars corresponds respectively to the statistical and systematic error bars. The black line correspond to the best fit obtained using gtlike.

Int Flux (10^{-9}ph/cm^2/s)	Index	Lower limit (MeV)	Upper Limit (GeV)	TS
5.79±0.75±3.11	1.52±0.16±0.55	100	100	38.7

Tab. 1. Best fit parameters obtained using gtlike.

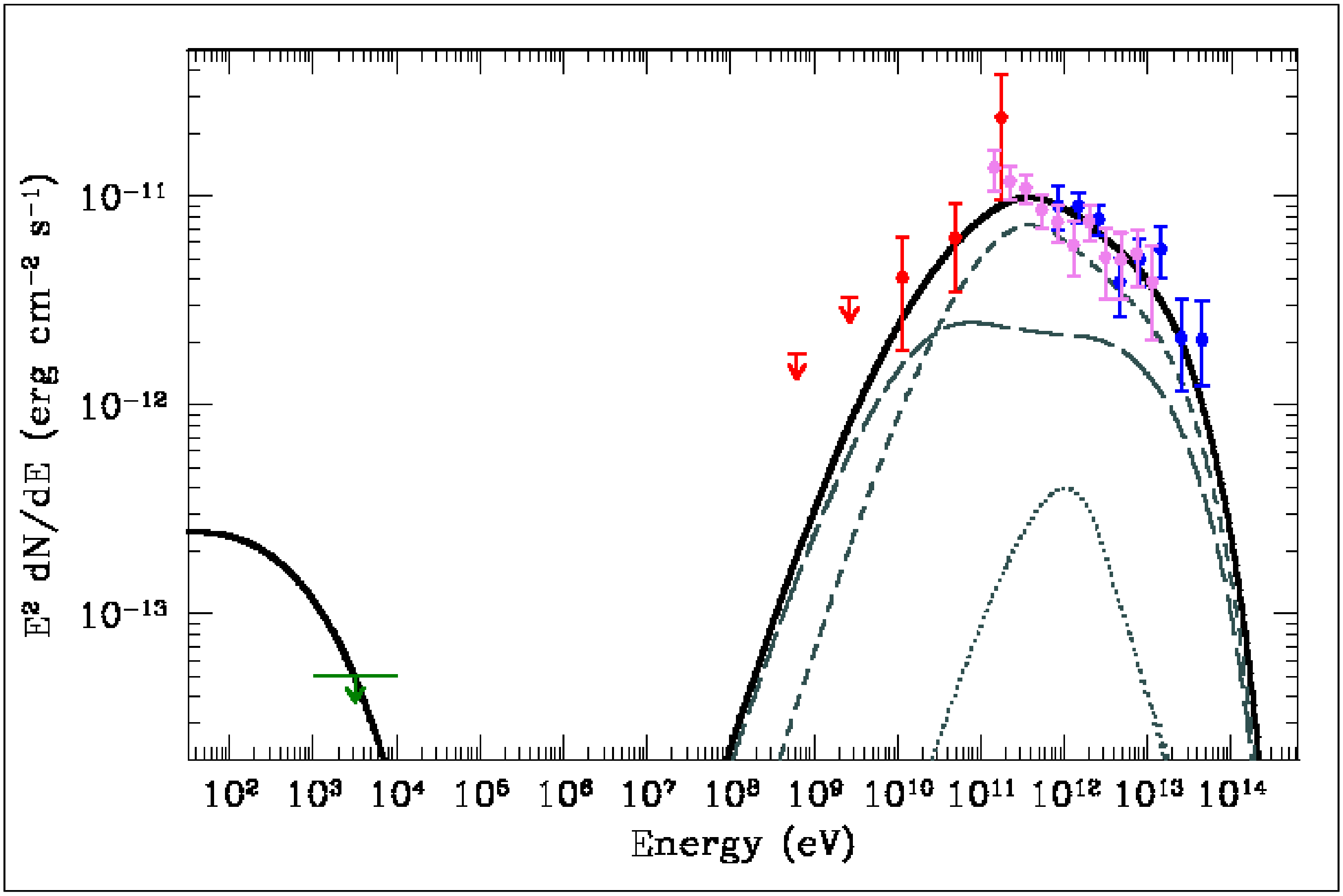

Fig. 4. Spectral energy distribution of HESS J1857+026 with a a relativistic Maxwellian plus power-law electron spectrum. The X-ray flux upper limit obtained using Chandra(green), LAT spectral points (red), MAGIC points (violet) (Klepser et al. 2011), and H.E.S.S. points (blue) (Aharonian et al. 2008) are shown. The black line denotes the total synchrotron, inverse Compton and pion decay emission from the nebula.Thin curves indicate the Compton components from scattering on the CMB (long-dashed), IR (medium-dashed), and stellar (dotted) photons.

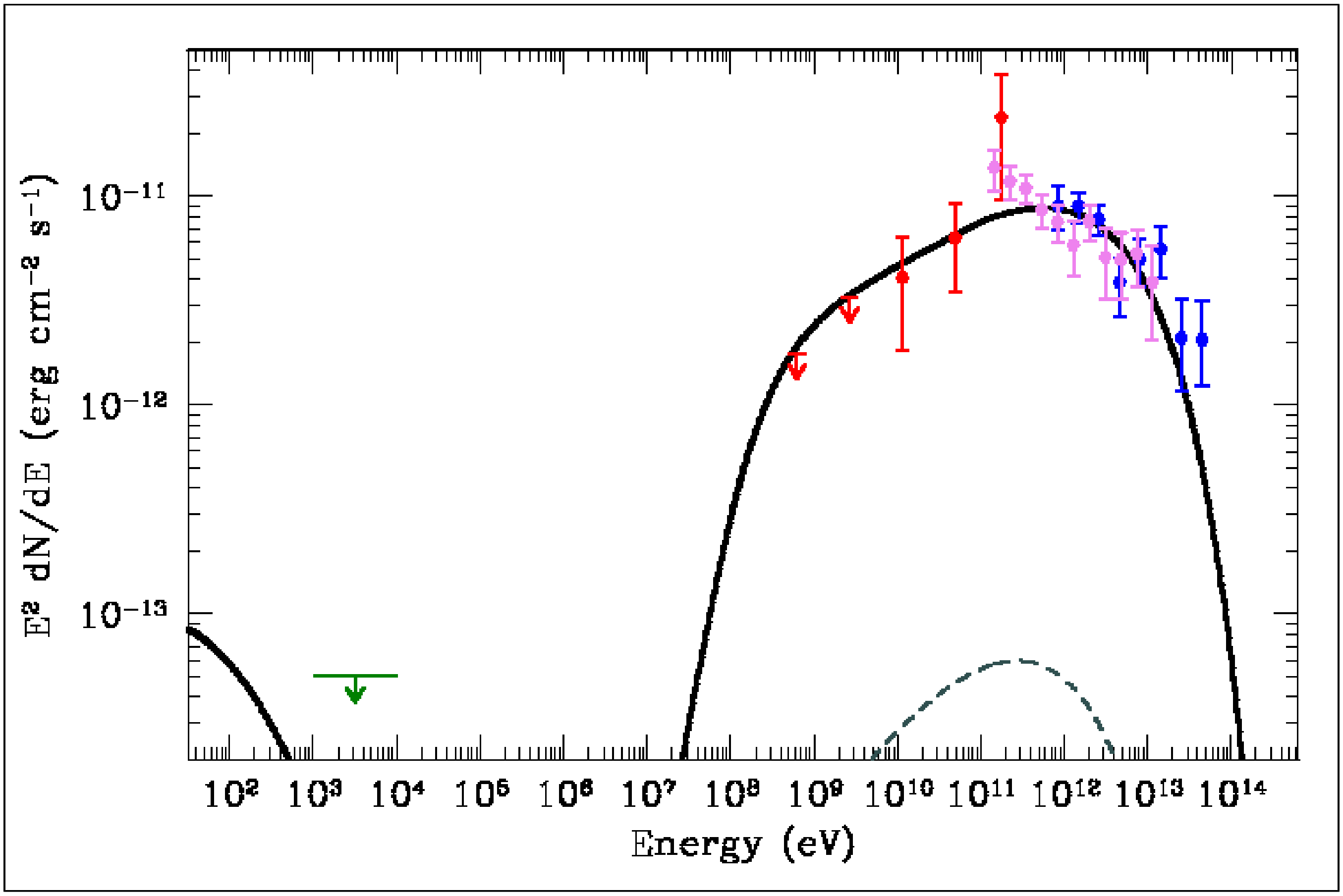

Fig. 5. Spectral energy distribution of HESS J1857+026 with an exponentially cuto power-law proton spectrum. The X-ray flux upper limit obtained using Chandra(green), LAT spectral points (red), MAGIC points (violet) (Klepser et al. 2011), and H.E.S.S. points (blue) (Aharonian et al. 2008) are shown. The black line denotes the total synchrotron, inverse Compton and pion decay emission from the nebula.Thin curves indicate the Compton components from scattering on the CMB (long-dashed), IR (medium-dashed), and stellar (dotted) photons.

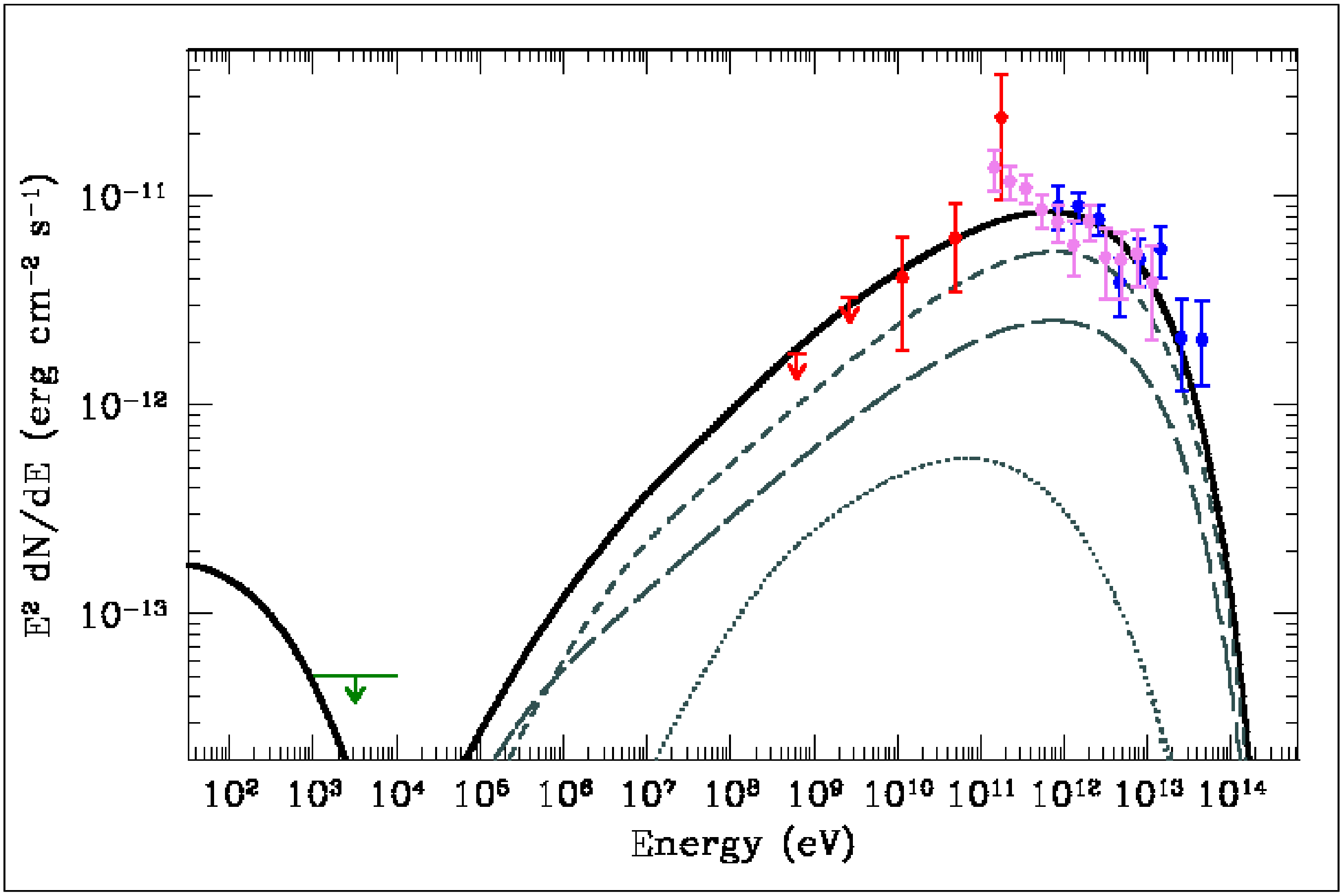

Fig. 6. Spectral energy distribution of HESS J1857+026 with a simple exponentially cuto power-law electron spectrum. The X-ray flux upper limit obtained using Chandra(green), LAT spectral points (red), MAGIC points (violet) (Klepser et al. 2011), and H.E.S.S. points (blue) (Aharonian et al. 2008) are shown. The black line denotes the total synchrotron, inverse Compton and pion decay emission from the nebula.Thin curves indicate the Compton components from scattering on the CMB (long-dashed), IR (medium-dashed), and stellar (dotted) photons.

MSH 11-62

The second part deal with MSH 11-62 : https://confluence.slac.stanford.edu/display/Glast/MSH+11-62. Here are the plots I would like to show :

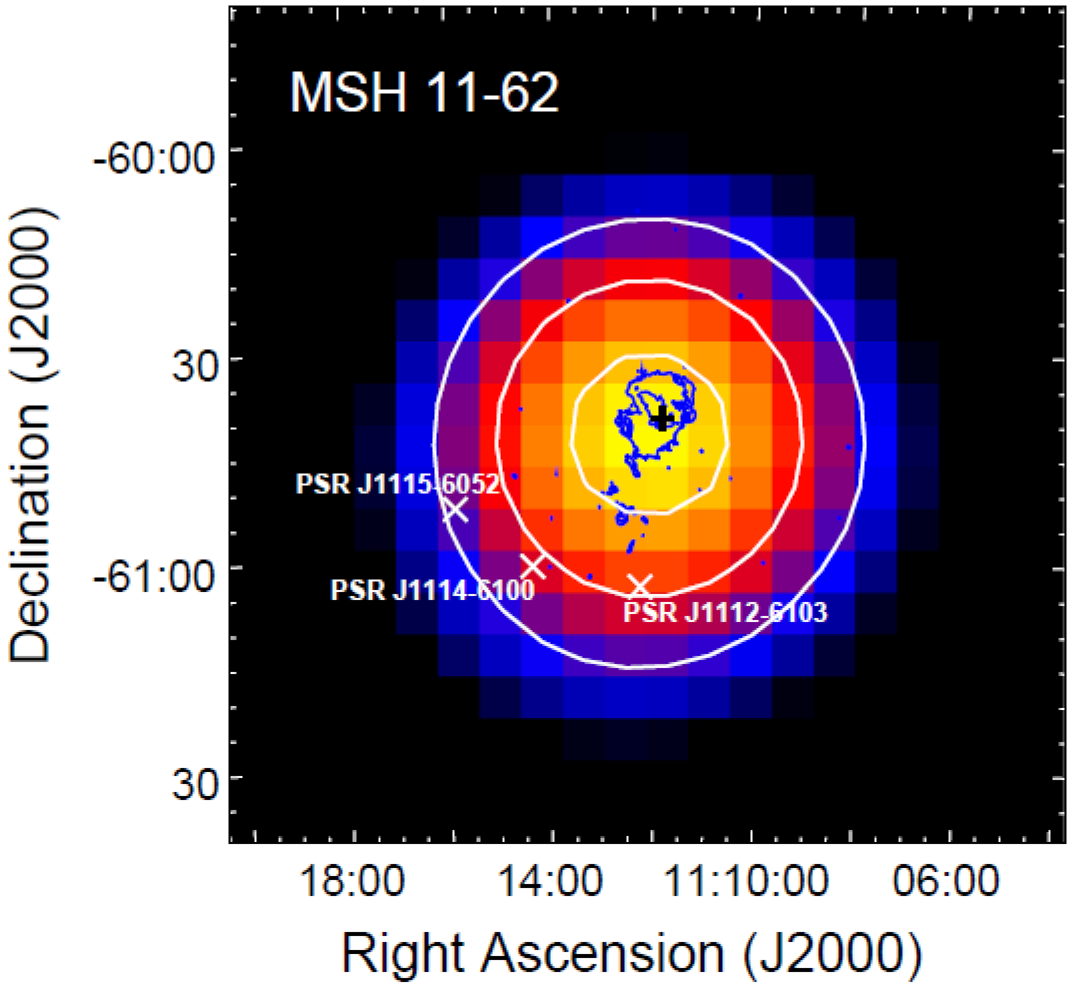

FIG. 7.— TS map of *Fermi* LAT emission from MSH 11–62. Blue contours correspond to the radio emission, and white contours represent the 13, 15, and 17 σ significance levels of the flux. Positions of nearby pulsars with $\dot{E} > 10^{32}$ erg s^{-1} are indicated

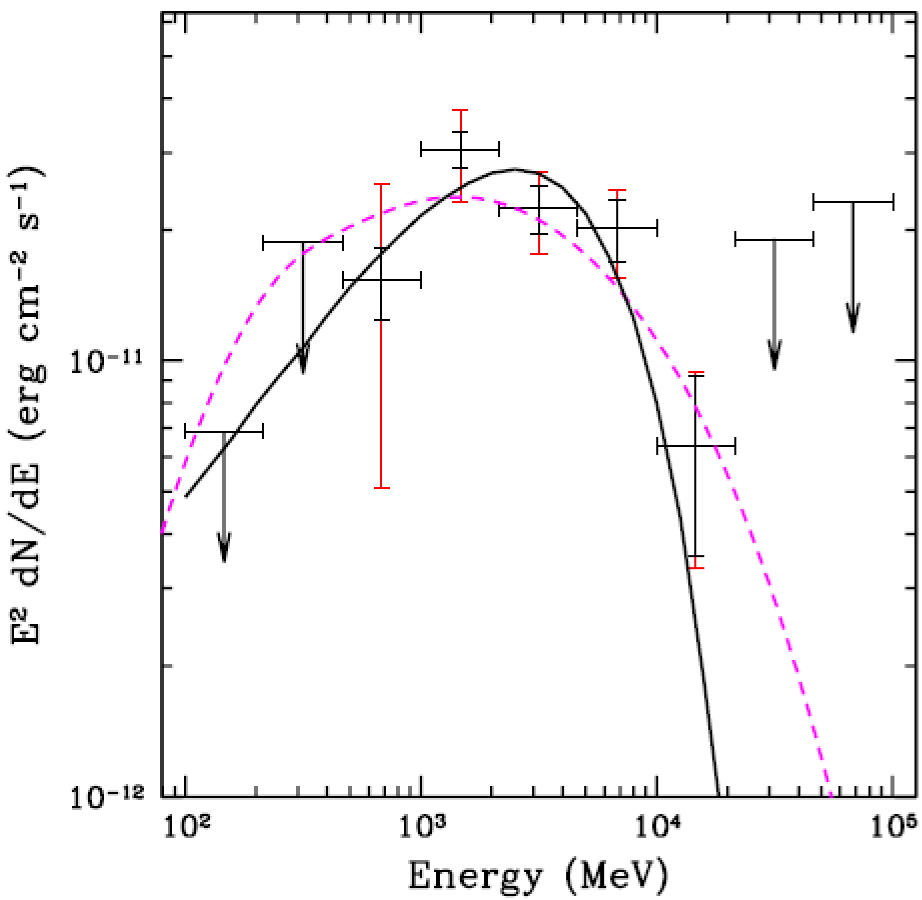

FIG. 8.— *Fermi* LAT spectrum of MSH 11–62. Black error bars correspond to statistical errors, while red error bars include systematic errors as well. The solid curve corresponds to the best-fit model for a power law with an exponential cutoff. The dashed magenta curve corresponds to a pion-decay model assuming a power law proton spectrum with an exponential cutoff. See Section 5.2 for discussion.

Prefactor ($\times 10^{-12}$ /cm^2/s/MeV)	**Index**	**Cut off (GeV)**
6.49±1.81	1.23±0.20	3.23±0.92
Scale (MeV) frozen	**Int Flux (>100 MeV) (10-6 /cm2/s)**	**TS**
2311.7	6.26±1.19	432

Tab. 1 . Best fit parameters obtained using gtlike for MSH 11-62. The errors correspond to both statistical and systematics added in quadrature.

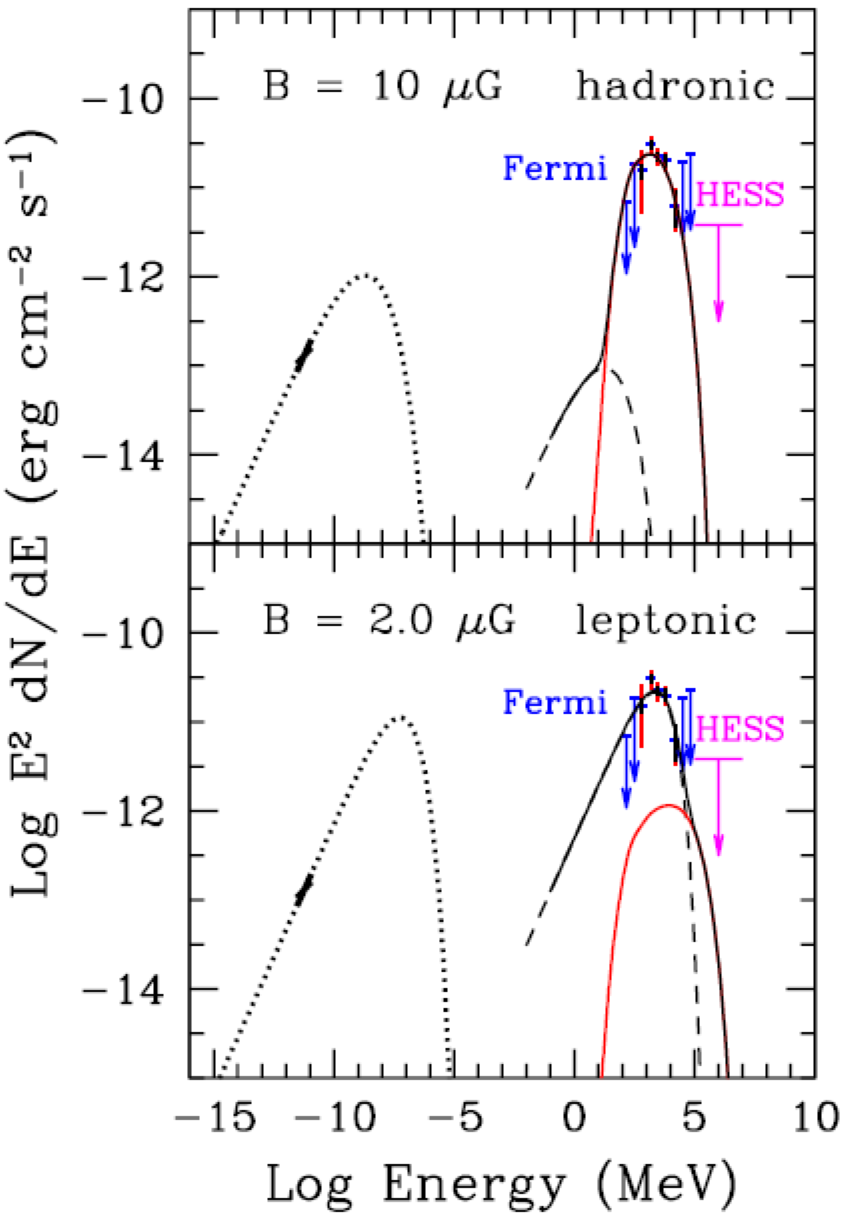

FIG. 10.— Models for the broadband emission from MSH 11–62 under the assumption of dominant hadronic (upper) and leptonic (lower) processes for the observed γ-ray emission. The dotted curves correspond to synchrotron emission, and the dashed curves correspond to IC emission. The red curve represents γ-ray emission from pion decay, and the solid black line represents the summed γ-ray components.

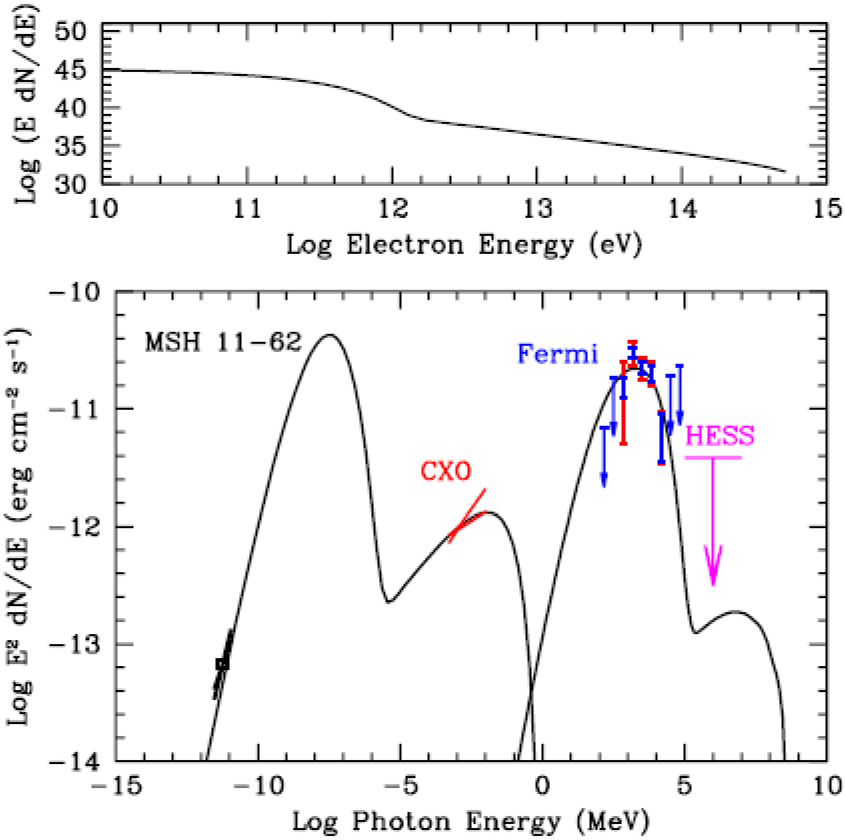

Fig. 11.— Models for the nonthermal emission from MSH 11–62 (lower panel) under the assumption that the γ-ray emission is produced entirely by the PWN. The upper panel shows the associated electron distribution, which is modeled as an evolved Maxwellian distribution with power law tail.

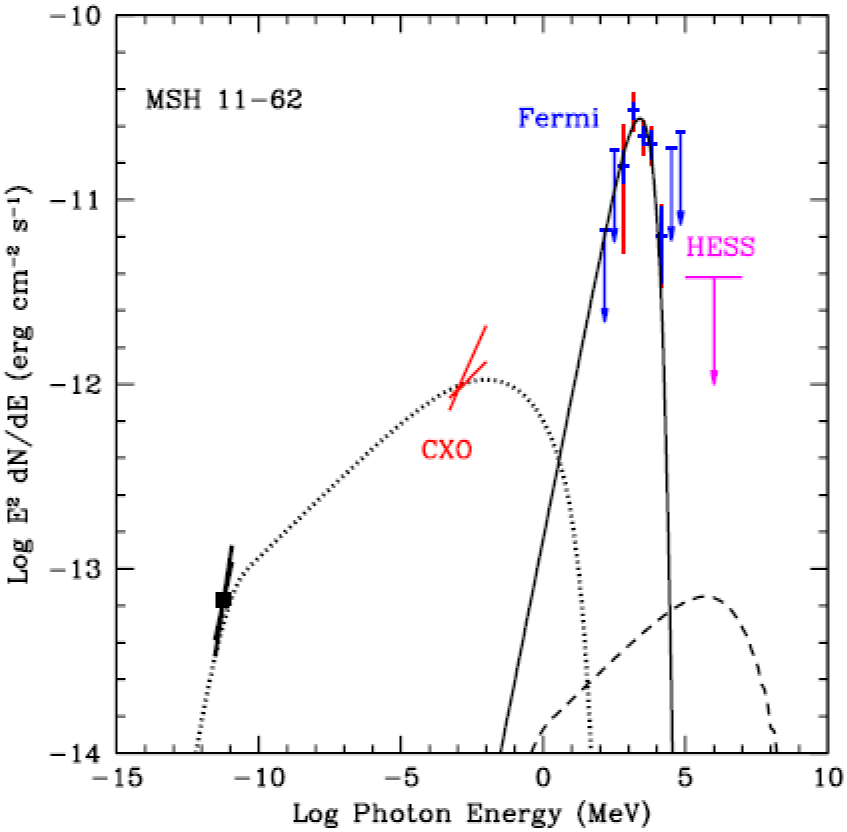

FIG. 12.— Model for the PWN emission from MSH 11–62 under the assumption that the γ-ray emission arises from the pulsar. Parameters for the model are given in Table 2.