IBIS Italian team Mission Support

- IBIS is supported with an ASI/INAF agreement starting form August 2016 up to July 2019 (A. Bazzano)

This support is mainly for non permanent positions, Clean Room maintenance and PI support for his duties/travels

- 9 FTE from INAF, all of them are on permanent contracts working on calibration, cross calibration, instrument health monitoring and operation, IBAS and science (GPS, AGN, Galactic Sources, GW etc)

- 2 more FTE working 60% on INTEGRAL/XMM data

- 1 Contract @IAPS for real time data flow and informatics support waiting for the new setup from ESOC

- 1AdR @ IASP, staring from March 1st, shared at 50% with AHEAD Project mainly on PiCsIt calibration and data exploitation

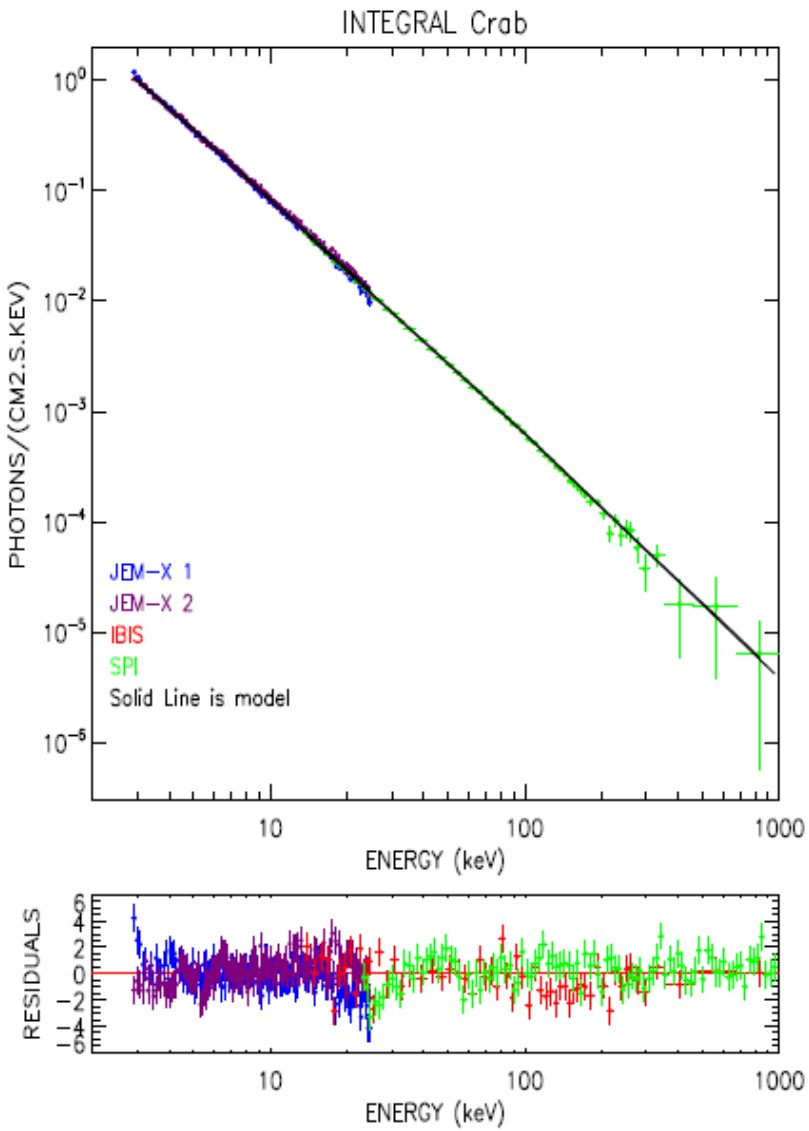
- 1 fellowship, 1 year since May 2016 working on X-ray follow up of INTEGRAL AGNs

- 2 AdR are under going, possibly starting on May 1st, (1 @ IASFBO on X-ray follow up of INTEGRAL source and 1 @IAPS on Radio coverage of INTEGRAL sources)

- 0.5 Fellowship on Nustar-INTEGRAL Cross Calibration (expires on Sept 2017)

INAF will contribute to the 2017 INTEGRAL Workshop

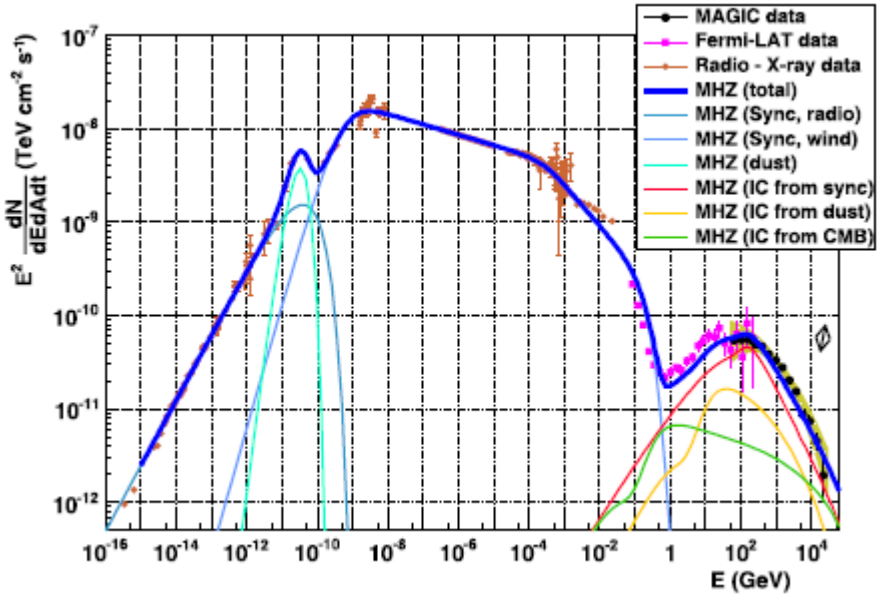
CRAB and RECENT MODEL

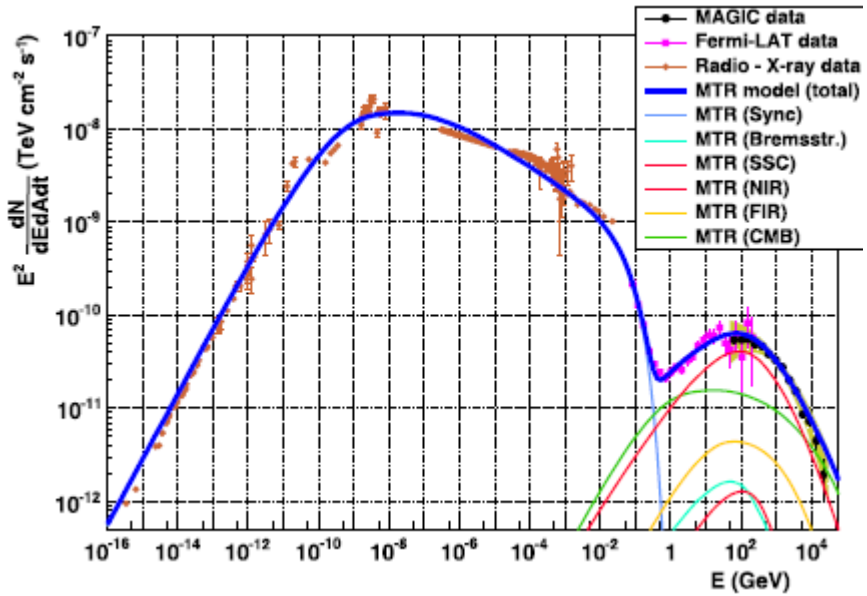


The INTEGRAL CRAB has been reported in Jourdain et al., on behalf of the instruments team, Proceedings of the 7th INTEGRAL Workshop, 2008.

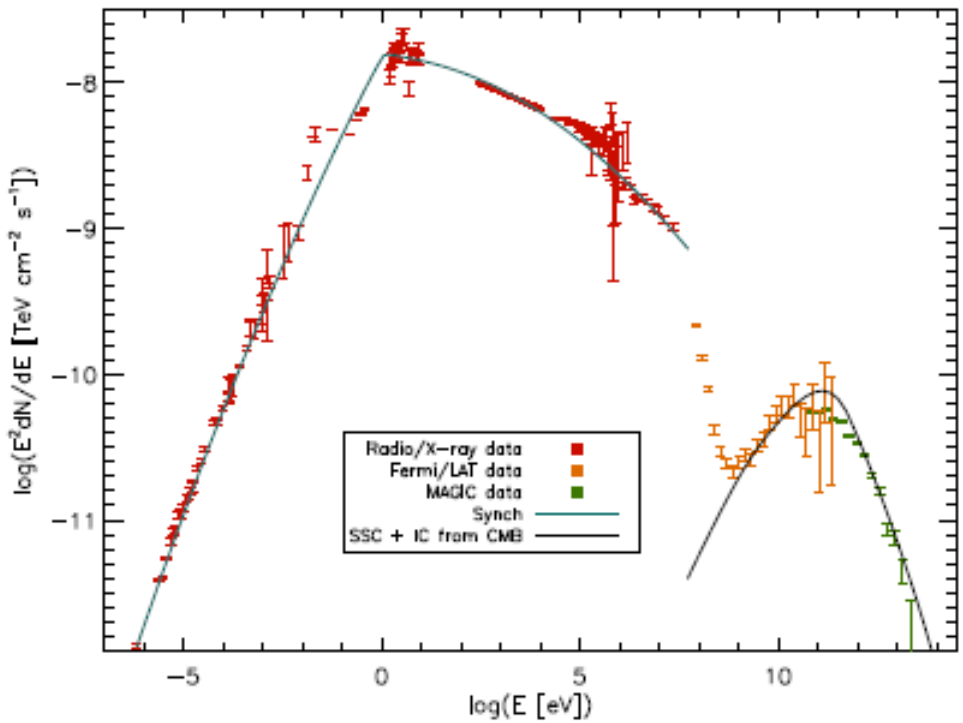
The best fit resulted in an absorbed broken power law with E_{break} and N_h fixed to 0.361×10^{22} cm^{-2}, photon index 1 and 2 are 2.105 ±0.003 and 2.22 ±0.02 respectively.

The paper presented the INTEGRAL status at the time of OSA 7.0 and include Crab pointing in rev. 39-45 (PiCsIt), 300 (IBIS and Jem-X) and 7 revolution for SPI, September 2004-2007.





Figures are from Aleksic et al., 2015, Journal of High Energy Astrophysics and both include INTEGRAL Crab data set as reported in Jourdain et al. 2008.
New data with MAGIC from 50 GeV to 30 TeV have been used to test the 2 models for Crab Nebula. The magneto-hydrodynamic model (Meyer et al., 2010, figure on the left) assuming a spherically symmetry fails in reproducing the Inverse Compton observations (IC peak breadth) implying a non homogeneity of the magentic field in the Nebula.
Time dependent 1D leptonic spectral model (Martin et al., 2012) well reproduce the VHE data but do not provide a good fit by adopting the observed morphology of the Nebula (smaller size at shorter λ), see figure on the right.
So either the IC peak and the SED are not fully explained



The radio and X-ray spectra are compared with the theoretical differential syncrotron spectrum (gren) while the theretical IC specrtum (black) is compared with FERMI/LAT and MAGIC data.

Figure from Fraschetti and Pohl, 2017, astroph1702.00816v1.
Authors developed a simple analytic one-zone model for the broad baseline photon spectrum of Crab Nebula and agreement with observations over the range 10^{-5}-10^{14} eV has been reported. The photon differential energy spectrum is originated by an electron distribution derived from a log-parabola injection spectrum. Only the MeV and a infrared re-brightening (dust contribution) at 0.01-0.1 eV fail to be reproduced.
New INTEGRAL CARB SPECTRUM should be advertised on OSA 11 will be tested so that new comparison for different synchrotron spectrum parameters can better fit the data and constraint the VHE → IS TIME FOR A NEW INTEGRAL CRAB!

Mikhail G. Revnivtsev Prize

It is our intention to propose a memorial award devoted to a young scientist for her/his significant contribution to the promotion of science in the framework of the INTEGRAL Mission. This research has to show an excellent achievement in the High Energy Astrophysics field.

The competition is open to scientists working in worldwide organizations.

Specific relevance will be attributed to results that have obtained a diffuse and large application either because innovative or for their impact and citations.

The research have to be performed in the period 2016-2017 and published by August 2017.
The deadline for application is August 30th this year.

Application should be sent to a email TBD

The prize will cover all the expenses to participate to the next INTEGRAL Conference in 2018.