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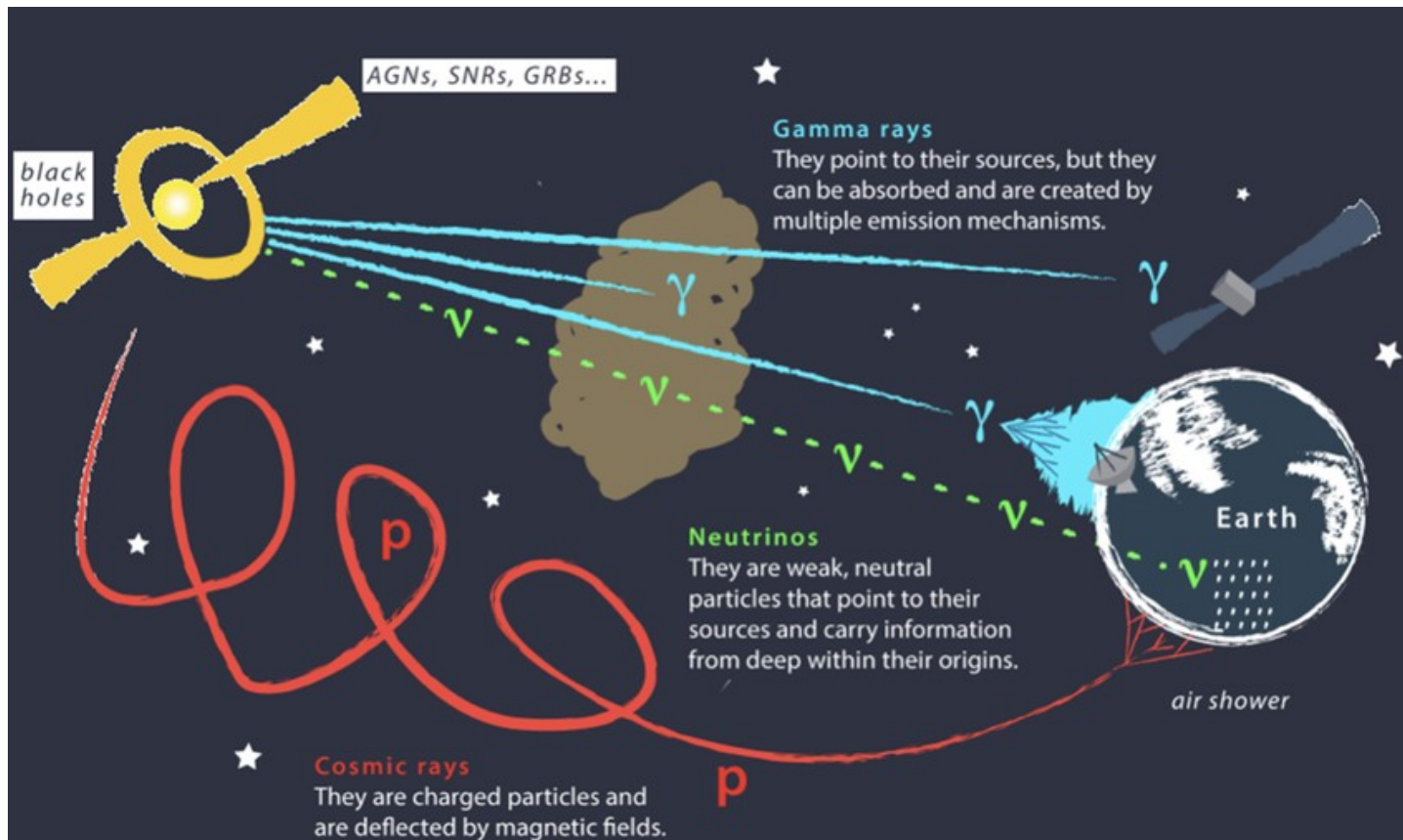


Advancing MWL and MM fitting with the Gammapy software

With Matteo Cerruti, Santiago Pita and Lea Heckmann

Justin Albinet – 03/06/2026 – APC biennale

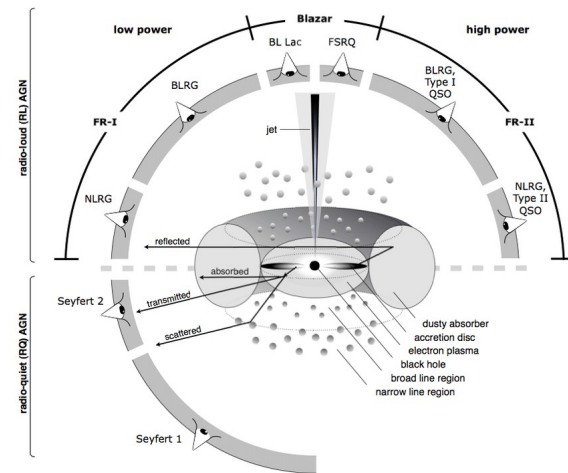
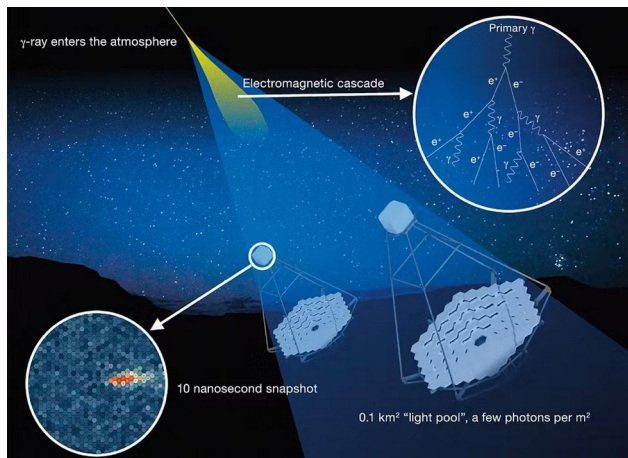
Multi-messenger astrophysics in a nutshell



Studying Seyfert galaxies with CTAO

The Cherenkov Telescopes Array Observatory (CTAO) is an array of telescopes collecting Cherenkov light produced by gamma-ray-induced cascades in the atmosphere.

Detections of very-high-energy γ (~ 10 GeV – 300 TeV)



Active Galactic Nuclei are bright sources at center of galaxies, powered by super-massive black holes.

Seyfert galaxies (non jetted AGNs) show hints of ν emissions (IceCube 2022).

+ detected in γ by Fermi/LAT but not at VHE \rightarrow running simulations of CTAO observations

Multi-wavelength and multi-messenger fitting in Gammapy

Gammapy = official analysis software for VHE instruments.

It can also be used for :

- soft gamma-rays (Fermi/LAT)
- X-rays (NuStar, XRT, SVOM)
- UV (UVOT)
- neutrinos (Km3NeT), being implemented by Antonio Condorelli

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APC is a huge contributor of Gammapy development (Régis Terrier, Bruno Khélifi, Kirsty Feijen, Marie Carrasco, Lea Heckmann, Pierre Pichard)

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Project :

Fitting of any numerical model on physical counts/events (from UV to VHE + neutrinos) instead of estimating flux points

→ reduces assumptions and biases

→ shows better convergence

