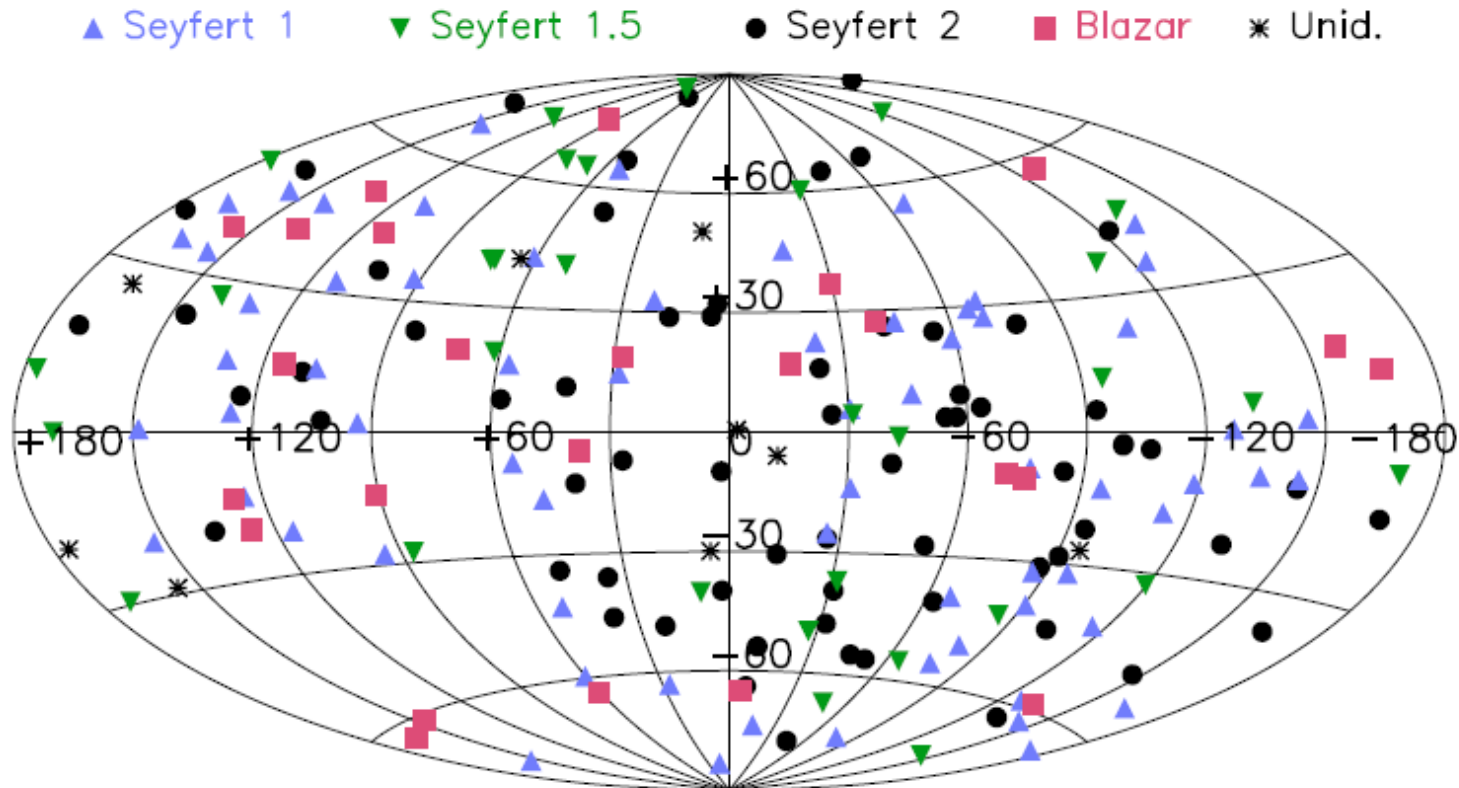


# Active Galactic Nuclei

Seyferts & Blazars



# 199 AGN Detected by



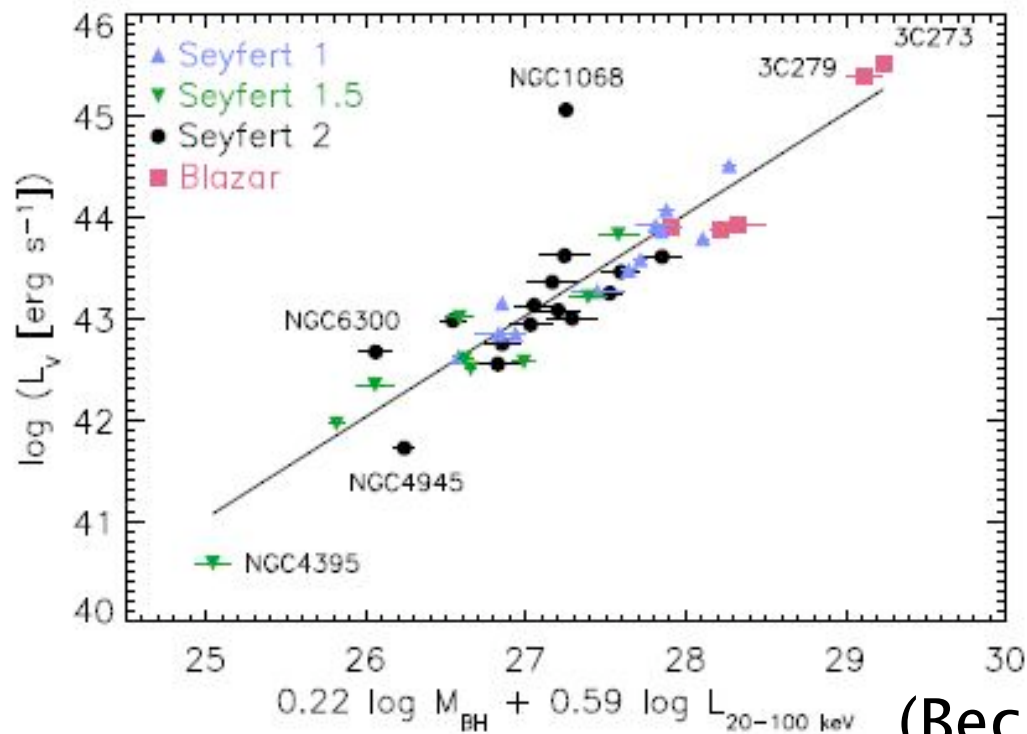
(Beckmann et al. 2009: Second INTEGRAL AGN Catalog)

- 148 AGN with significant spectral extraction
- 57 AGN with optical variability studies

# A New Fundamental Plane

Second INTEGRAL AGN Catalog reveals  
a new Fundamental Plane between  
**optical, X-rays, and black-hole mass:**

$$L_V \sim L_X^{0.6}$$



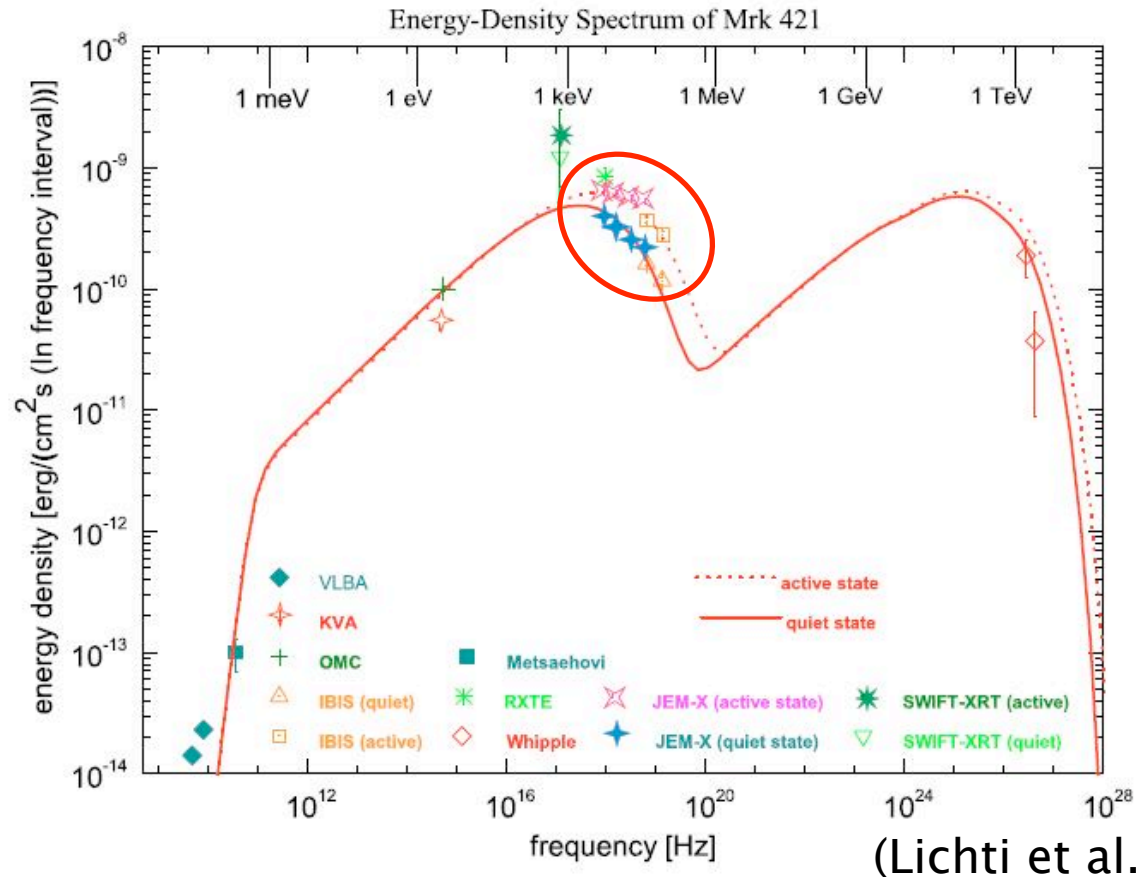
(Beckmann et al.  
2009)

# Seyfert Galaxies and the CXB

- INTEGRAL detects obscured AGN, including Compton thick ( $N_{\text{H}} > 10^{24} \text{ cm}^{-2}$ ).
- Fraction of Compton-thick AGN smaller than expected from population synthesis models
- Compton-thick AGN account for only 9 % of the hard X-ray

# Blazars

- In High-Frequency BL Lac objects, INTEGRAL is essential to cover the high-energy end of the

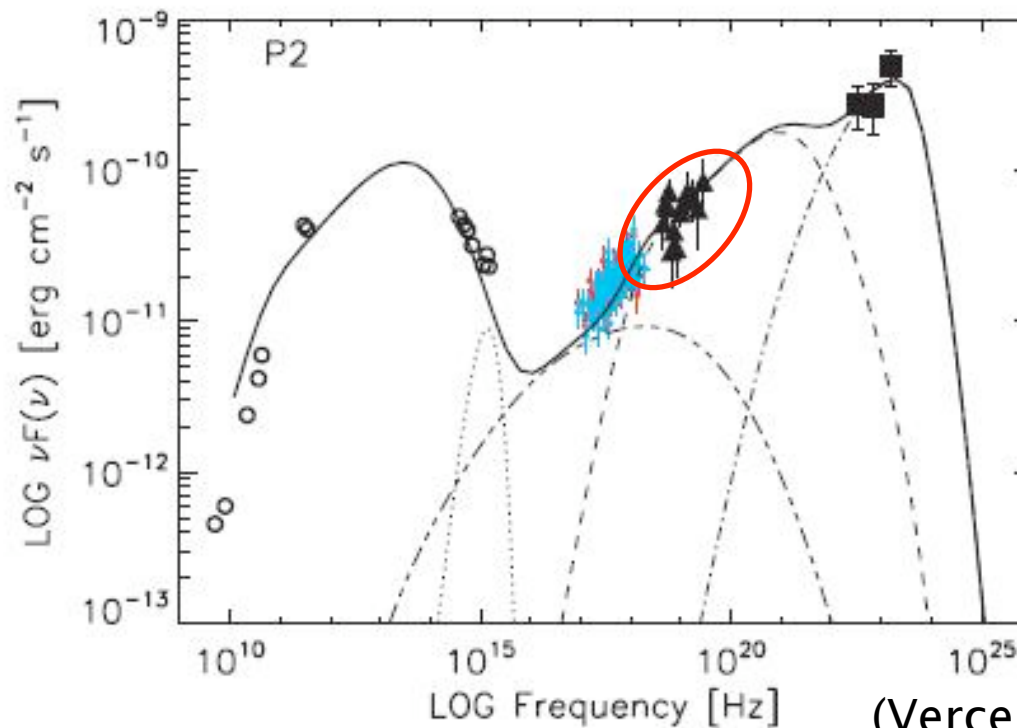


- Variability restricted to the high-energy ends of the SED components  $\rightarrow$  Flaring due to variations in the acceleration efficiency

# Blazars

- In Low-Frequency BL Lac objects and Flat-Spectrum Radio Quasars, INTEGRAL is essential to cover the low-energy end of the Compton (or

3C 454.3



- Constrains particle number at low energies, where the majority of particles are ->

# Future AGN Science with

- Synergy with Fermi and AGILE
- Synergy with 3<sup>rd</sup>-generation Cherenkov Telescope Facilities: VERITAS, MAGIC, HESS
- INTEGRAL is the only currently operating instrument to cover the hard X-ray / soft  $\gamma$ -ray band, essential to constrain particle content in blazar jets
- INTEGRAL has already participated in several Fermi multiwavelength