

# Multiwavelength workshop at *Fermi* Symposium 2015

## 1. *Variability in AGN (Jorstad & Marscher)*

- Bad light curve coverage common in AGN
  - good coverage in outbursts of 3C 454.3 & 3C 279
  - bright radio components not always seen related to outbursts
- Theoreticians pay attention to outbursts, need new models
- spotty light curve coverage by *Swift*, missing an X-ray monitor
  - *Astrosat* follow-up observations of flares?
  - still missing IR coverage for good constraints on the synchrotron peak
- Theoretical models have not kept up with data

We need/want:

- more VLBI images
  - new interesting sources
  - polarization data
  - test turbulence reconnection models
  - standard model for light curve analysis with small number of parameters
  - monitor emission lines
  - effort for short time scale variability
- *Fermi* MWL web page & Lister web page & gamma-mw mailing list & MWL wiki?

## 2. *AGN demographics (Lister) <http://tinyurl.com/agndemographics>*

- Unknown in SEDs
  - ranges of peaks, Compton dominance
  - dependence of SED parameters on optical class, jet kinetic power, other properties?
- Luminosity functions: beamed vs unbeamed, optical class?
- Unidentified *Fermi* sources: how many blazars? able to predict SEDs at lower energies?
- What are functional properties of blazars?
  - SED peaks
  - jet Lorentz factor, Doppler factor
  - BLR, no BLR?
- Accretion disk contribution?
- Blazar sequence: no correlations for FSRQs, *Fermi* lacks detection of misaligned sources! (Why are FSRQs low peaked?)
- lacking IR coverage → ALMA calibrator sources are blazars, data available online!

- Long-term behavior: Some bright EGRET sources barely detected in the LAT, dropped by a few magnitudes (why?)
  - quicker release of Flare Advocate information possible for follow-up on ground?
- Better communication necessary!

### 3. SED modeling (Finke)

- Hadronic models ruled out for FSRQs?
- What are possible ways to distinguish hadronic and leptonic models? → further IceCube neutrinos?
- emerging trends: modified blazar sequence, lack of ISPs, use large scale radio power?
- TeV bulk Lorentz factor crisis: decelerating jet or spine-sheath or smooth jet? magnetic reconnection vs. shock acceleration
- one-zone models not viable, but multi-zone models have too many free parameters
- can SED models constrain the location of the  $\gamma$ -ray emission, needs to be outside BLR to not overproduce X-rays

### 4. Observational strategies (Wagner)

- Observe few sources well vs. many sources as good as possible?
- What are critical parameters?
  - luminosities, redshift, Doppler factor
  - thermal photon fields
  - IC peaks
- we lack understanding of BL Lac, FSRQ separation
- what kind of data do we need?
- correlation with optical photon indices (but problem of thermal contribution); spectral hysteresis seen in blazars?
- should we ask for more ToOs (especially Fermi?) → Check for observability by ground-based telescopes before asking for ToO!