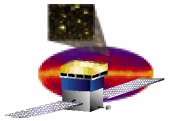
Meeting of the “Blazars and Other AGNs” Science Group

July 19, 2005

The previous meeting addressed the current standing on simulation, analysis tools, preparation of lists of Blazar Candidates.
The review of the on-going effort existing within the group is not complete (see Gino’s talk).

Today’s meeting mainly devoted to a discussion on the organization of the group activity, towards DC2 and the analysis of real data.

More specifically we would like to know how the Group members would like to contribute to the different scientific topics, how many will participate in DC2, and discuss the objectives for DC2.



Blazar studies with the LAT

Post-launch activities, 1 year and beyond

1. Blazar catalog, sample definition

Association with known sources, identification via cross-correlation with radio, X-ray... catalogs,
Statistical studies on the remaining subset

2. Gamma-ray statistical properties of the samples

LogN-LogS, redshift distributions, luminosity function, cosmological evolution, population studies
In addition to BL Lacs and FSRQs, Bright radio-galaxies and Radio-quiet AGNs

3. General properties of GLAST-detected blazars

General properties, spectral parameters:
spectral index, spectral cutoffs, luminosity and spectral variability, duty cycle…

4. Specific Properties of Individual Source (Multiwavelength campaigns)

Study as a function of time: Epeak vs Flux, Epeak vs Index, Index vs Flux, spectral curvature
time lags…

5. Extragalactic Background Light

We need guidance from theorists in the interpretation real data, but also in the preparation of the analysis.

Note: It is anticipated that each topic will be the subject of (at least) one pre-launch paper.

1. Blazar catalog, sample definition

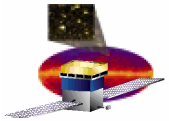
What: Association with known sources
Identification via cross-correlation with radio, X-ray...catalogs
Statistical studies on the remaining subset

Current standing: see Roger's and Paolo's talks at last meeting
related work by the Catalog Group

Objectives for DC2: "full" analysis for one-month worth of data?

To do: Refine the procedure

Who?: Giommi et al., Romani et al.



2. Gamma-ray statistical properties of the samples

What: LogN-LogS, redshift distributions, luminosity function, cosmological evolution
BL Lacs and FSRQs, bright radio galaxies, radio-quiet AGNs

Current standing: Estimates exist (Dermer et al.)

Objectives for DC2: produce the above distributions for the subset of sources identified as blazars
determine flux/upper limits on radio galaxies, radio-quiet AGN (Seyfert…)

To do: define the procedure

Who? Giommi et al., Romani et al.,…..

3. General properties of GLAST-detected blazars

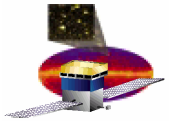
What: General properties, spectral parameters:
spectral index, spectral cutoffs, luminosity and spectral variability, duty cycle…

Current standing: Jim's DC1 results…

Objectives for DC2: "full" analysis with the DC2 sample

To do: define the procedure
variability index, corresponding tools…

Who?



4. Specific Properties of Individual Sources

(most often associated with Multiwavelength campaigns)

What: SED, Epeak vs Flux, Epeak vs Index, Index vs Flux…. as a function of time, interband time lags, comparison to model predictions (SSC, EC…)

Current standing: see Jim's talk at last meeting: Obssim, Likelihood
Checkout results (light curves)
Light curve simulation (G. Tosti's talk)
Variability tools: mostly missing

Objectives for DC2: Identification of high flux sources (Flux >TBD)
Light curves, MW SEDs…

To do: Establish the procedure, the list of sources, MW campaigns…
variability tools, light curves simulations

Who?

5. Extragalactic Background Light

What: establish the EBL density as a function of redshift

Current standing: Existing studies: Chen, Reyes & Ritz
Variety of attenuation models (soon) incorporated in Obssim

Objectives for DC2: Estimate of EBL density
- spectral curvature as a function of redshift for a large "well-defined" sample?
- spectral curvature for "well-selected" (high-redshift) sources?

To do: compile/compare the different proposed methods to extract this density

Who?