8 meetings so far: How can we improve?

Agenda & Minutes

- **Tuesday October 4, 2005** (9:00 PDT, *CenA)*
  - Science Goals (Chuck Dermer)
  - Blazar Sequence (Paolo Giommi)
  - LAT performance (Benoit Lott)
  - Minutes
- **Tuesday September 20, 2005** (9:00 PDT, *Cygnus X)*
  - Science goals (Anita Reimer)
  - Some comments on MW needs (Paolo Giommi & Gino Tosti)
  - Getting prepared for DC2 (All)
  - Minutes
- **Tuesday September 13, 2005** (9:30 PDT, *Crab)*
  - Blazar variability from GLAST Data , Fig.1 , Fig.2 (Jeff Scargle)
  - Science goals and associated observations (Greg Madejski)
  - MW needs/contacts (All)
  - Minutes
- **Wednesday August 31, 2005** (Face-to-face meeting, SLAC)
  - Discussion on Multiwavelength observations (All)
  - Low frequency Monitoring of Blazars (Gino Tosti)
  - Blazar Log-Parabolic spectra and EBL (Paolo Giommi)
  - EBL (Luis Reyes)
  - Minutes
- **Friday August 19, 2005** (9:30 PDT, *Crab)*
  - Preparation of the collaboration meeting (All)
  - Simulated Blazar Survey (Paolo Giommi)
  - Minutes
- **Tuesday July 19, 2005** (9:30 PDT, *Geminga)*
  - Discussion on the organization (All)
  - Blazar Light Curves Simulation (Gino Tosti)
  - Minutes
- **Friday July 8, 2005** (9:30 PDT, *Cygnus X)*
  - Summary of DC2 Software Workshop at GSFC (slides by Julie McEnery)
  - Generalities (All)
  - Simulation and Analysis Tools for LAT Blazar Studies (Jim Chiang)
  - Glast Blazars: Preparation and Anticipation (Roger Romani)
  - Blazar catalogs at ASDC (Paolo Giommi)
  - Minutes
- **Tuesday June 14, 2005** (9:30 PDT, *Geminga*)
  - Overview of the Group Activity (All)
  - Minutes

Next face-to-face: the day before the DC2 kickoff meeting?

Science Goals

Science goal (1): Does the "blazar sequence" scheme hold for a large sample of objects?

Science goal (2): Are SSC models in trouble for the HBL-type blazars?

Science goal (3): Are single-zone synchrotron + Compton models applicable?

Science goal (4): Are synchrotron and Compton components produced co-spatially?

Science goal (5): What is the content of the innermost part of the relativistic jet?

Science goal (6): Total charged particle content / kinetic energy of the blazar jets as compared to the radiative output

Science goal (7): Are gamma-ray flares related to dissipation of magnetic energy?

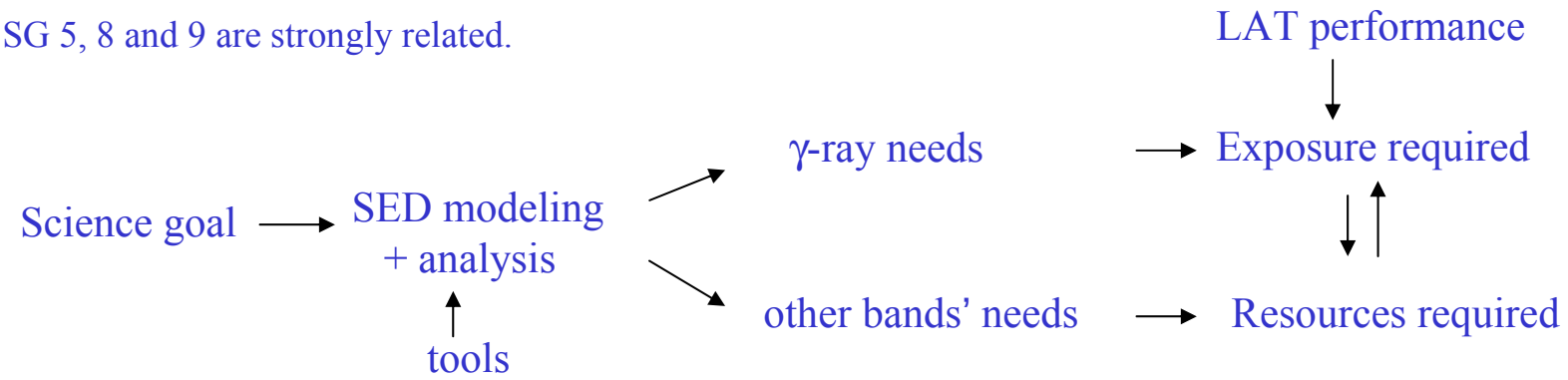
Science goal (8): Do blazars and radio galaxies accelerate ultra-high energy cosmic rays?

Science goal (9): Tests of the Compton-scattered CMBR interpretation of extended X-ray (Chandra) jets

Science goal (10): Energization Sites and Bulk Relativistic Speeds of Blazar Jets

Science goal (11): Constaints/hints on matter composition of gamma-ray emitting jet region

Remark: SG 5, 8 and 9 are strongly related.



"Blazar studies" (to be merged with Science Goals?)

1. Blazar catalog, sample definition (identification)
   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
   Estimate of contribution of non-resolved blazars to the Extragalactic Diffuse Background

3. General properties of GLAST-detected blazars
   spectral and temporal properties:
   spectral index, spectral cutoffs, luminosity and spectral variability, duty cycle…
   Connection between g-ray activity and jet structure (VLBA)

4. Specific Properties of Individual Source (Multiwavelength campaigns)
   See Science Goals

5. Extragalactic Background Light

Sources of special interest

Source name	Comments	redshift
3C273	nearby FSRQ	0.158
3C279	bright FSRQ	0.538
Mkn421	TeV BL Lac	0.03
Mkn501	TeV BL Lac	0.033
M87	nearby AGN, misaligned blazar, TeV source	0.004
Cen A	closest radio galaxy	~0
PKS2155-304	TeV BL Lac	0.117
PKS1622-297	bright FSRQ	0.815
PKS2005-489	TeV BL Lac, soft spectrum (index=4)	0.071
ON+231	nearby BL Lac	0.102
3C66A	well-studied BL Lac	0.444
PKS 0637-752	FSRQ	0.651
3C454.3	bright FSRQ	0.859
4C+71.07	High z FSRQ with strong IC emission	2.172
PKS 0528+134	Another high z FSRQ with strong IC emission	2.07
0716+714	well Studied BL Lac	>0.3
BL Lac	Prototype of BL Lacs	0.069
1H 2354-315	TeV BL Lac	0.165

Should we launch a “Adopt a blazar” program?

MW observations

Wavelength band	Time scale				Facilities	Facility contact	LAT contact	Res. needed	Notes/Details
	Pre-launch	Survey/ follow-up	Contemporaneous	Simulta-neous					
Optical/NIR/ Radio	X	X	X	X	WEBT	Massimo Villata	Gino Tosti	Post-doc	Consortium of Observatories
Optical/NIR	X	X	X	X	REM	Emilio Molinari	Gino Tosti		60 cm telescope (La Silla)
Optical/NIR	X	X	X	X	LIVERPOOL	Carole G. Mundell	Gino Tosti		200 cm telescope (La Palma - Spain)
Optical	X	X	X	X	PERUGIA-AIT	Gino Tosti	Gino Tosti		40 cm telescope (Perugia)
Radio/optical			X	X	EVN-Bordeaux	Patrick Charlot	Benoit Lott		VLBI Network/60 cm telescope
Optical	X	X	X	X	GTN	Gordon Spear	Gino Tosti		Consortium of Observatories
Optical	X	X	X	X	Tuorla/KVA	Leo Takalo	Stefano Ciprini		100cm Tuorla tel. / 60cm KVA tel. (phot/pol)
Optical/NIR/ pol	X	X	X	X	NOT	Tapio Pursimo	Stefano Ciprini		250cm Nordic Optical Telescope (opt/NIR phot/polarim/spectrogr/)
Radio	X	X	X	X	Metsähovi	Merja Tornikoski	Stefano Ciprini		14 meter single dish Metsähovi Radio Observatory (2-150 GHz)

Dave Thompson requested that we fill out this table. Any problem there?
Paolo and Gino are writing up the MW observation plan.

Preparation for DC2

- SLAC: E. do Couto e Silva, G. Madejski, R. Cameron, B. Lott
- Perugia: G. Tosti, P. Lubrano, S. Ciprini, A. Cucchiara, L. Furhmann
- ASI: P. Giommi + 2 people
- GSFC: L. Reyes, J. Scargle
- CENBG: Th. Reposeur, D. Smith
- Stockholm Observatory: S. Larsson, F. Ryde

The data set for ST Checkout 3 is available, and contains 55 days worth of data. Virtually all analyses to be performed for DC2 can be done right now! And the results can be checked against the truth…

Science Tools: Likelihood, intensity maps, count maps…

Other existing tools: Light curves, variability analysis…

Goals of DC2

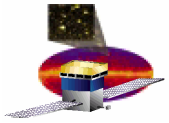
1. Blazar catalog, sample definition
   Source Identification in collaboration with the Catalog Group

2. Gamma-ray statistical properties of the samples
   - LogN-LogS, redshift distributions, luminosity function
   - population studies: BL Lacs and FSRQs
     bright radio galaxies
     radio_quiet galaxies

3. General properties of GLAST-detected blazars
   - spectral index
   - spectral cutoffs
   - luminosity and spectral variability
   - duty cycle…

4. Specific Properties of Individual Source
   For the brightest sources: spectral evolution with time, flux
   non-simultaneous SEDs

5. Extragalactic Background Light
   Rough estimate of EBL density (if enough bright, high-redshift, high-energy sources…)



Interaction with other groups

Calibration and Analysis Methods: Eduardo, Julie

Catalogs: Roger, Paolo

Diffuse (Galactic + Extragalactic) and Molecular Clouds: Jim?

Unidentified Sources, Population Studies, and Other Galaxies: Rob

Multiwavelength Coordination Group: Roger, Greg, Gino

What is going on in other groups that is relevant to this group?

Other works in progress

Prescription for the identification of blazars (FoM-Blazar region):
P. Giommi, R. Romani

Update of predictions concerning blazar populations: C. Dermer, R. Romani

LAT capabilities from the blazar perspective: J. Chiang, B. Lott

Relevant Documents and Papers