



GLAST LAT Science Group: Unidentified Sources, Population Studies, and Other Galaxies

Co-ordinators: Patrizia Caraveo & Olaf Reimer

Coordinate deep multi-wavelength studies of the error boxes of the unidentified GLAST sources and correlate with potential counterpart populations; determine the heterogeneity of the population and correlate with source characteristics (e.g. time variability; spectral index, etc.). Search for emission from other galaxies, particularly nearby galaxies such as M31, ULIRGs, and from clusters of galaxies; determine source spectra and/or set upper limits

Consequence: a diversity in approaches

(1) Multifrequency campaigns on unidentified LAT sources

-> timecritical due to required advance in proposing

Chandra - Cycle 8

	January	February	March <i>Cycle 8 Proposal deadline</i>	April	May	June <i>Cycle 8 Peer Review</i>
2006	July	August	September	October <i>Chandra Fellows Symposium</i>	November <i>Cycle 8 Observations start Chandra Fellows Applications due</i>	December <i>Cycle 9 CfP</i>

XMM-Newton - AO5

Anticipated time line for next Announcement of Opportunity

The planned key milestones for the fifth XMM-Newton "Announcement of Opportunity" have been established. Within this AO5 a new call to submit proposals for observations to be performed with the XMM-Newton observatory will be issued.

To be prepared for this, please find below the anticipated time line:

Announcement of Opportunity	05 September 2005
Due date for proposals	14 October 2005 (12:00 UT)
Final OTAC approved programme	early January 2006

For approved proposals only:

Start of phase II proposal submission	23 January 2006
Closure of phase II proposal submission	17 February 2006

Start of AO5 observations	May 2006
---------------------------	----------



realistically for 1st year:

LAT collaborators propose jointly for the best among of the still unidentified EGRET sources, where the actual follow-up observation will be refined by the early incoming LAT data.

tbd: survey of candidates with missing MWL coverage

Access to lower subscribed but useful MWL data (Patrizia -> SWIFT)

TOO slot problematic (specific input needed beforehand to make a compelling scientific case)

Large/dedicated program slot unrealistic to be created before LAT in orbit

Road to success? Define specific scientific impact by probing particular hypothesis on the nature of such sources (PWN, μ QSO ...)

MULTISCIENCEGROUP EFFORT

MWL connection (Brendas talk on MILAGRO, likely followed by others via VRVS on results and potential gain from the IACTs etc.)



(2) Population Studies

an indeed challenging task considering the wealth of LAT sources, in particular in the Galactic Plane

Goal: Identify new source populations with common statistical standard, as unbiased as possible

What it is not:

Finding an interesting object where we suspect it belongs to a new class of gamma-ray emitters and call that a discovery of a new gamma-ray source population

tbd:

Survey of expected and potential astronomical source population believed to be detectable at LAT sensitivity.



(3) Other Galaxies

Investigating the apparent top candidates of various suggested gamma-ray emitters: *Galaxy Clusters, Starburst Galaxies, Local Group Galaxies, MicroQSOs, Star Forming Regions, Binary Systems of Massive Stars...*

If found, happy!

If not, u.l. and constraint to our current understanding.

tbd:

Substantiating the available literature on these sources for an assessible and dynamic base of information.

Consensus on best candidates addressing the resp. scientific problem.

Expect regular VRVS meetings to be announced/agenda my email and confluence!

ANTICIPATED PAPERS

Category I Papers	Category II Papers	Data Collection	Comment Column
Source population study corresponding to 1st year LAT catalog		Year 1	
Separate in-depth variability studies on unidentified LAT sources		Year 1	
Prominent EGRET UNIDs in the LAT era		Year 1	
	In-depth investigation of prominent individual UNIDs from catalog	Year 1-5	
Galactic Center source		Year 1	
Search for gamma-ray emission from predicted source classes above LAT sensitivity		Year 1-5	
1st new source population established		Year ?	
further new source population established		Year ?	
Local Group Galaxies		Year 1	
	in-depth for individuals (LMC, SMC, M31)	Year 1-5	
Starburst and (U)LIR Galaxies		Year 1	
	in-depth for individuals (NGC253, Arp220, Mrk231)	Year 1-5	
Galaxy Clusters		Year 1	
	in-depth for individuals (Coma, Virgo, A2199, A1759)	Year 1-5	
Microquasars		Year 1	
	in-depth for individuals (LS5039, LSI+61 303)	Year 1-5	
Binary/Stellar Wind Systems (not microquasars)		Year 1	
	in-depth for individuals (Cyg X-3, SS433, Eta Carinae, WR140, WR147)	Year 1-5	