GRB-SF Science Team Agenda

GLAST LAT Collaboration Meeting
October 23-24, 2002

Two GRB-SF Breakout Sessions	**General Topics**
#1 Wednesday, October 23 13:45–16:00	Primarily technical aspects: simulations, on-board LAT GRB Trigger, Alert, etc. Goals are: to discuss unresolved implementation details, confirm task assignments, estimate associated milestone dates, and confirm communication links with flight SW implementers.
#2 Thursday, October 24 8:45–12:00	Primarily science aspects: GRB Physical Model, Quantum Gravity Goals are: to discuss current & future details included in the code for GRB physical model, and to discuss GRBs observed by GLAST as possible tool for probing quantum gravity predictions

GRB core simulation SW group:

Sandhia Bansal	SB
Jerry Bonnell	JTB
Johann Cohen-Tanugi	JCT
David Band	DLB
Marc Kippen	MK
Francesco Longo	FL
Jay Norris	JPN
Julie McEnery	JM
Nicola Omodei	NO
Jeff Scargle	JDS

GRB-SF Breakout Session #1: Simulations, On-board LAT GRB Trigger, Alert

Wednesday, October 23 13:45–16:00

A. Simulations	**Assignees**	**Est. Date**
1. GRBmaker		
(a) discuss & resolve required output format for synthetic GBM bursts	JPN, MK	
(b) complete GBM code translation to C++	SB, JPN	
(c) finish & test procedure for addition of LAT GRB signal and background	JTB, JPN	
(d) create sets of LAT & GBM synthetic bursts w/ background; post sets of burst files, and C++ code, on ftp site	JTB	
(e) implement modifications to GRBmaker pulse clustering refined pulse-width energy dependence spectral softening across burst duration duration and E_{pk} dependences on peak flux redshift-dependent attenuation by IR background energy & redshift-dependent temporal dispersion	JM, JPN	
2. GRBsim – simulations based on physical model, discussed in GRB-SF Breakout Session #2		

B. On-board LAT GRB Trigger	**Assignees**	**Est. Date**
1. Strawman trigger algorithm, LatGRBtrig_1		
(a) complete testing and validation	JTB, JPN	
(b) implement option in GLEAM to reproduce/approximate on-board TKR & CAL reconstructions	JCT	
(c) perform sets of trigger runs, varying parameter values: one run: {burst set ⊗ background-to-trigger interval delay ⊗ event window ⊗ background rate, form ⊗ maximum cluster radius}	JTB, FL	
2. Modifications to strawman trigger algorithm		
(a) explore spatial modifications	FL	
(b) explore temporal modifications	JDS	

C. LAT GRB Alert	**Assignees**	**Est. Date**
1. Generation of GRB localization		
(a) utilize simulations and on-board TKR reconstruction, optimizing localization accuracy	FL	
(b) utilize alert contents and ground TKR reconstruction, optimizing localization accuracy	JTB, JPN	
2. GBM → S/C → LAT communication		
(a) study use of GBM localization for ID of LAT photons	FL, NO	
(b) study use of GBM temporal information for ID of LAT photons	JPN, JDS	
(c) study use of GBM spectral information for ID of LAT photons	DLB, JTB	
3. Considerations on GBM & LAT telemetry shares		
(a) compare GBM & LAT trigger efficiencies	FL, MK, JTB	
(b) compare GBM & LAT localization accuracies	FL, MK, JTB	
4. Definition of LAT alert contents		
(a) generate localization definition	FL, NO	
(b) generate temporal definition(s)	JPN, JDS	
(c) generate spectral definition(s)	DLB, JTB	

D. Communications with flight & ground SW groups

1. on-board CAL & TKR reconstruction, w/ LAT flight SW representative	JCT, FL
2. LAT GRB trigger implementation, w/ LAT flight SW representative	JPN
3. GBM $\rightarrow$ S/C $\rightarrow$ LAT communication, w/ GBM flight SW & Project operations representatives	JPN
4. LAT alert: site of generation of localization on-board vs. MOC	JPN
Demo: Graphical User Interface for GRB display (last item Wednesday, or probably, first item Thursday)	NO

GRB-SF Breakout Session #2: Physical Model, Quantum Gravity

Thursday, October 24 8:45–12:00

E. Physical Model	**Assignees**	**Est. Date**
1. description of code current features	NO	
2. discussion of additional desired features jet geometry, radiation processes, fireworks model, etc.	NO, All	
3. physical model as analysis tool: (a) data → model, parameter characterization mechanism	JDS	
(b) model/data comparison, likelihood fitting engine	DLB, et al.	
4. use of BATSE & Swift data for model development	All	
(a) GRB spectral/temporal analysis tools, Swift era	DLB	
(b) CONT+MER (16-channel BATSE) data for use	JPN	

F. Quantum Gravity	**Assignees**	**Est. Date**
1. introduction of discussion	FL/NO	
2. GBM+LAT data analysis approach (a) simulations	FL, JTB, MK, JM	
(b) algorithm	All	