

PSR B1509-58
(CXC)

G21.5-0.9
(CXC)

Status report:

Standard candle working group

Non-Thermal SNR category

— Restart from a year-long hibernation —

CLOSE-UP OF TORUS

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3C58 (CXC)

Road map (period) [lead]

1. Agree on the data set (today) ... Need to add/remove sources/instruments from the list?
2. Collect data (~ 1 yr).
3. Assign people for every targeted sources and instruments (today).
4. Agree on spectral models, energy ranges, extraction regions, etc. (this week).
5. Generate src/bkg spectra, ARF, RMF (~ 1 yr).
6. Compile the results (~ 1 yr) [MT]
7. Write reports (~ 2 yr) [MT et al.].

Short brush-up (1/2)

- Targets: Spectra (by current missions)
 - with a constant flux ... to be standard candles.
 - with flat power-law ... for covering a wide energy range (0.1-100 keV).
 - at several different brightnesses ... to cover a large dynamic range in flux.
- Purpose and Immediate Goals
 - Norm. and power among instruments.
 - ... Fill in blanks of the comparison tables.
 - Constrain abundance models (lead Kaastra)
 - ... Reduce grating spectroscopy data.

Sample table (Crab)

Satellite	Det	xsect	Abun	E-band for fit	NH 10^{21}cm^2	ph. Index	Norm (2-10) $10^{-8}\text{erg/cm}^2/\text{s}$	χ^2_ν	Observed Flux ($10^{-8}\text{erg/cm}^2/\text{s}$)			
									0.5-2	2-10	20-50	50-100
Suzaku	XIS	bcmc	wilm	1.0-10.0	4.61 ± 0.10	2.070 ± 0.008	2.239 ± 0.012	1.19	-	2.170	-	-
			angr	1.0-10.0	3.19 ± 0.07	2.077 ± 0.008	2.244 ± 0.012	1.19	-	2.169	-	-
	PIN	angr	12.0-70.0	3.19 (fixed)	2.110 ± 0.007	2.267 ± 0.023	1.03	-	-	1.039	-	
RXTE	HEXTE	bcmc	angr	20-240	3.19 (fixed)	2.087 ± 0.008	1.929 ± 0.027	0.99	-	-	0.928	0.657
XMM	pn	bcmc	angr	1.0-10.0	$2.41^{+0.03}_{-0.07}$	$2.107^{+0.004}_{-0.009}$	$1.876^{+0.003}_{-0.006}$	1.31	-	1.827	-	-
INTEGRAL	SPI	bcmc	angr	22-100	3.19 (fixed)	2.123 ± 0.014	\pm	0.7	-	-	1.04	0.73
RXTE	PCA			3-50	3.19 (fixed)	2.114	2.4018	2.63	-	2.320	1.09	-
Swift	BAT	bcmc	angr	30-100	3.19 (fixed)	2.10 ± 0.06	1.74 ± 0.25	0.82	-	-	0.82	0.57

Short brush-up (2/2)

Targets	N_H	Γ	F_{2-10}	Remarks (Status)
	10^{21} (cm^{-2})		(10^{-11} erg $\text{s}^{-1} \text{cm}^{-2}$)	
Crab	3.2	2.1	2200	PWN. Too bright. PL broken? (Table filled. Keep the numbers updated.)
G21.5-0.9	21	1.8	4.4	PWN. Large N_H . Contaminating thermal emission. (Some progress by Plucinsky [Chandra] and Guainazzi [XMM]).
3C58	3.2	2.2	1.0	PWN. Faint. (QL presented by MI at 3 rd IACHEC.)
PSR1509-58	8.8	1.8	7.3	PWN. P=150ms pulsation. Different spectra between the on/off pulse phases. (QL presented by MI at 3 rd IACHEC.)
PKS2155-304	~ 0.1	~ 2.5	~ 10	Blazer. Unpredictable variations. N_H low. PL broken. (Table filled. Draft in progress by MI).

The background of the slide is a dark, almost black, field filled with numerous bright, jagged, and branching lightning bolts. The bolts vary in thickness and intensity, with some appearing as thin, delicate lines and others as thick, glowing streaks. The overall effect is one of dynamic energy and electrical activity.

Any updates in this category?

- (Fill in if any on site).

Data sets (pointed obs. only)

Obs.	Inst.	Crab	G21.5	3C58	PSR1509	PKS2155 (*1)
Suzaku		9	0	0	1	4
XMM		13	1	1	4	4
Chandra	ACIS	14	81	4	8	0
	HRC	0	38	3	1	0
	ACIS (+gr)	26	0	0	0	1
	HRC (+gr)	6	0	0	0	2
Swift		7	10	0	3	0
INTEGRAL		84	1	1	6	0
RXTE		821	1	148	251	0
Fermi		?	?	?	?	0

*1 : Coordinate observations only.

Do we need to add/remove sources/instruments from the list?

Assignments (1/2)

Obs.	Inst.	Lead (Sources). Gothic for agreed.
Suzaku	XIS	Ishida (Crab), Kohmura (PKS2155), Tsujimoto (others)
	HXD/PIN	Ishida (Crab), Kohmura (PKS2155), Tsujimoto (others)
	HXD/GSO	Yamada (all)
XMM	EPIC/MOS	Kirsch (all)
	EPIC/pn	Kirsch (all)
	RGS	Kaastra (all)
Chandra	ACIS	Plucinsky (G21.5), David (), Maeda ()
	HRC	Plucinsky (G21.5), David (), Maeda ()
	ACIS+grating	Plucinsky (G21.5), David (), Maeda ()
	HRC+grating	Plucinsky (G21.5), David (), Maeda ()
Swift	XRT	Cusumano (), Beardmore ()
	BAT	Sakamoto (all)

Assignments (2/2)

Obs.	Inst.	Lead (Sources). Gothic for agreed.
INTEGRAL	IBIS	Nataluci (all)
	SPI	Brandt (all)
	JEM-X	Jourdain (all)
RXTE	ASM	
	PCA	Jahoda, Rothschild (all)
	HEXTE	
Fermi	GBM	
	LAT	