

EP监测伽玛XRB

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伽玛XRB:

数目少, 前沿热点之一, 辐射机制不清楚

有TeV辐射的伽玛XRB目前发现4个;
喷流还是星风碰撞的激波辐射?

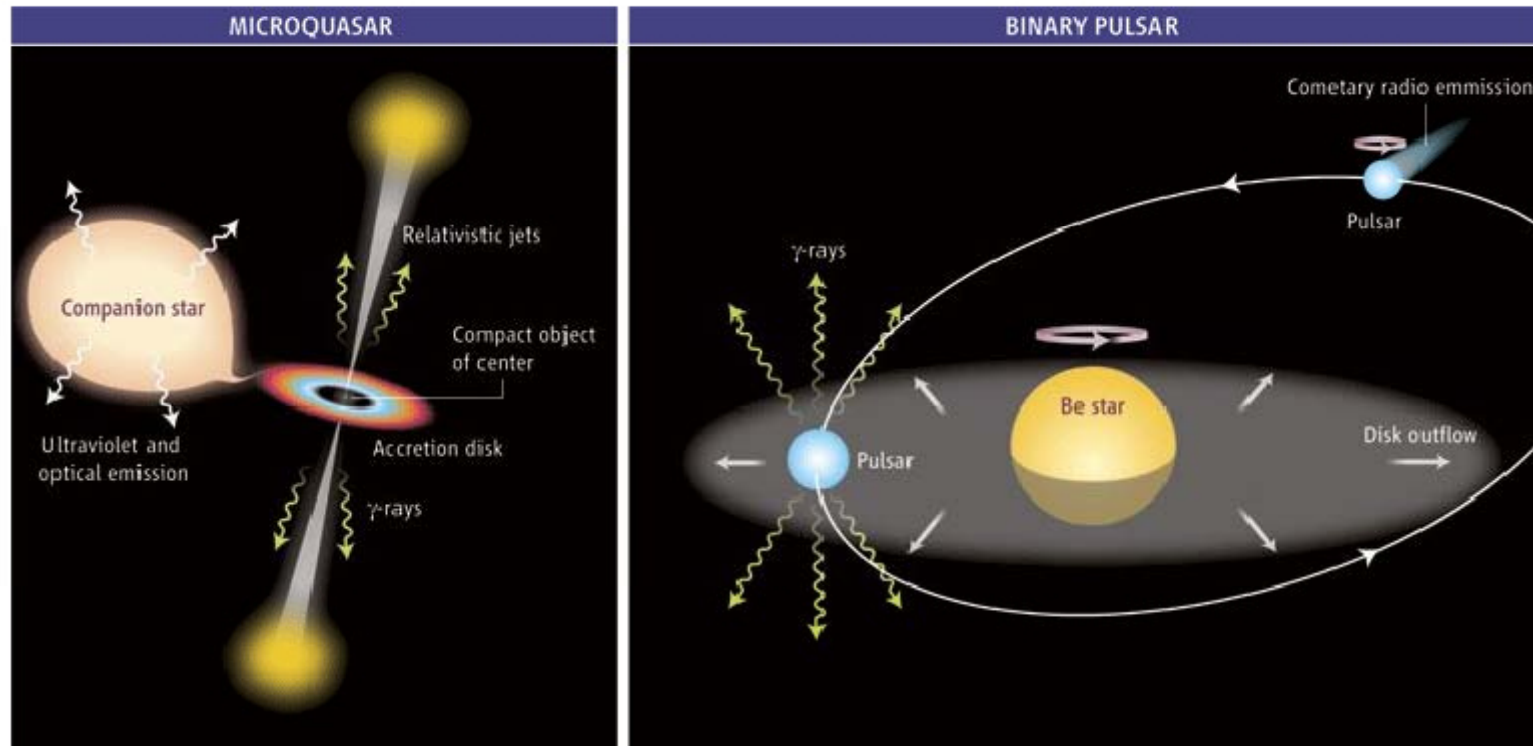
MeV-GeV的XRB: Cyg X-1;Cyg X-3等,
存在吸积盘结构。

XRB currently observed with TeV:

HMXB	companion	compact	orbit	distance	ecc.	super-orb
			(days)	(kpc)		(days)
LS I+61303:	B0V	BH/NS?	26.5	2.0	0.55	1667
LS 5039	O6.5V	BH/NS?	3.9	2.9	0.35	??
PSR B1259-63	B2e	NS(48ms)	1236	1.5	0.87	??

HESS J0632+057

Radio jet: visible from LS I+61303 and LS 5039



Cyg X-1 (O star, 2.5 kpc, 5.6 days orbit, 10.1 solar mass for compact star, radio jet)

PSR 1259-63

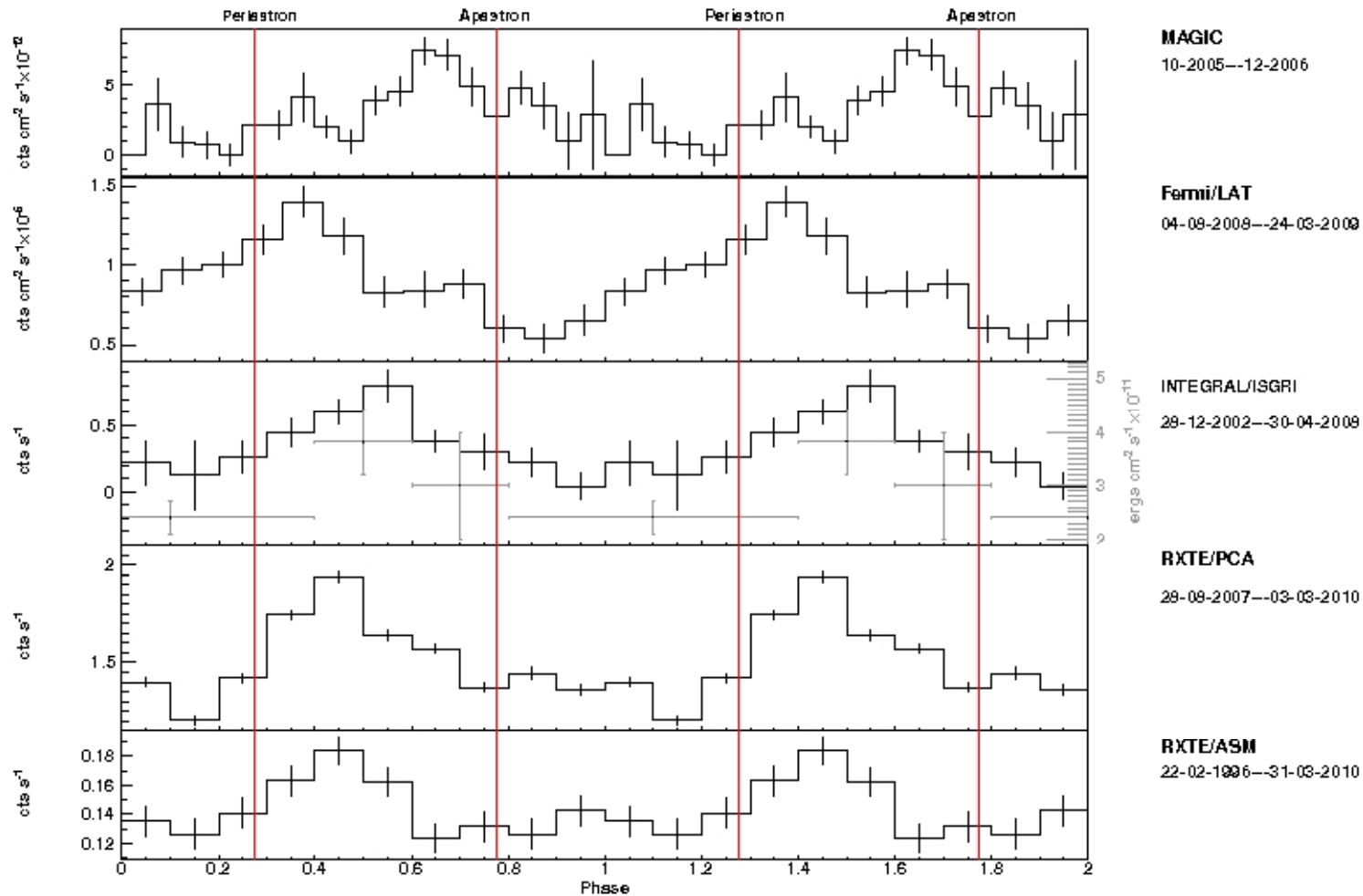
LS 5039 ?(1-3 solar mass for compact star)

LS I+61303?

观测支持非热辐射以及激波模型

伽玛XRB:

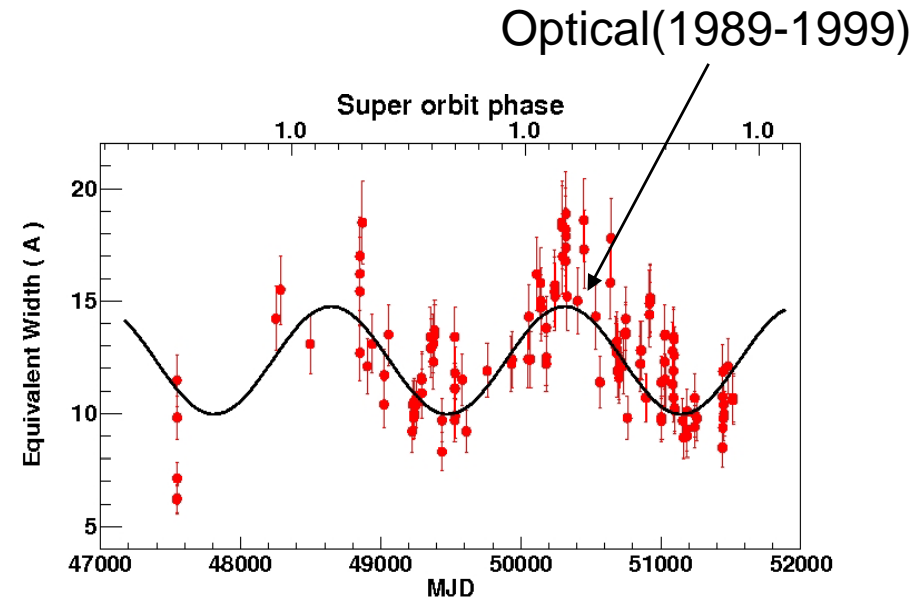
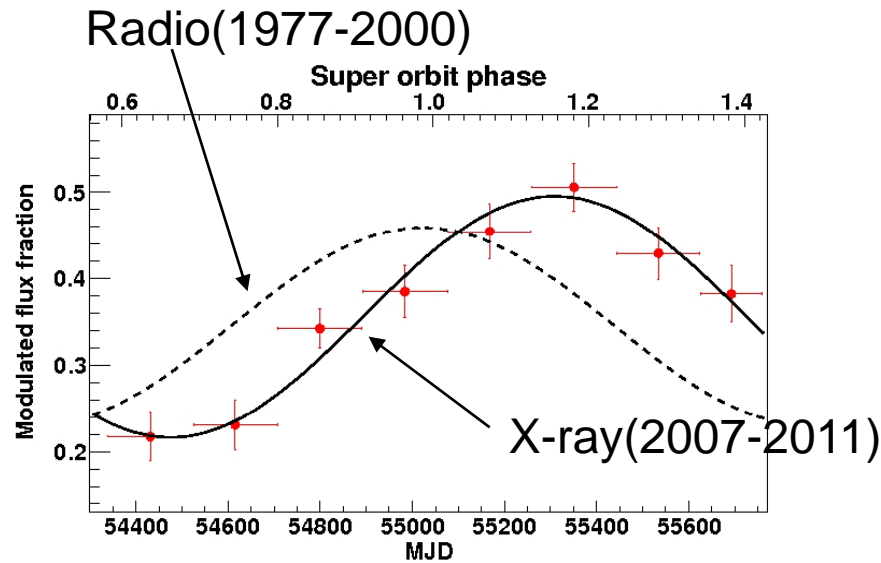
辐射环境复杂, 现象丰富



1.5-30 keV flux peaks close to periastron (more consistent with Fermi)
over time scale of years.

LSI+61303: 多波段轨道 (26.5天) 位相

LS 61303: 星风碰撞? (XTE spent years on it! While for EP a by-product !)

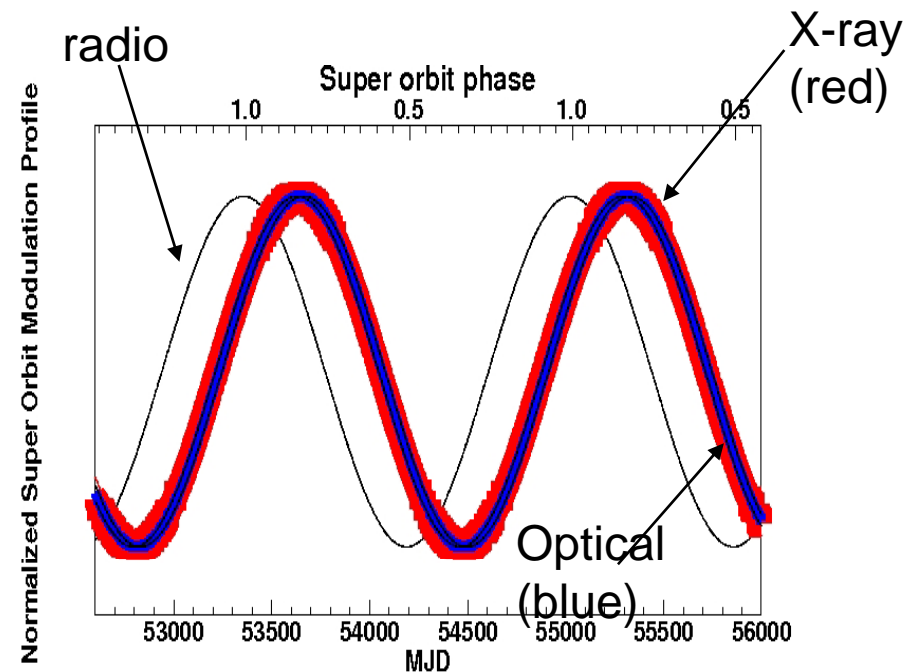


The most interesting results:

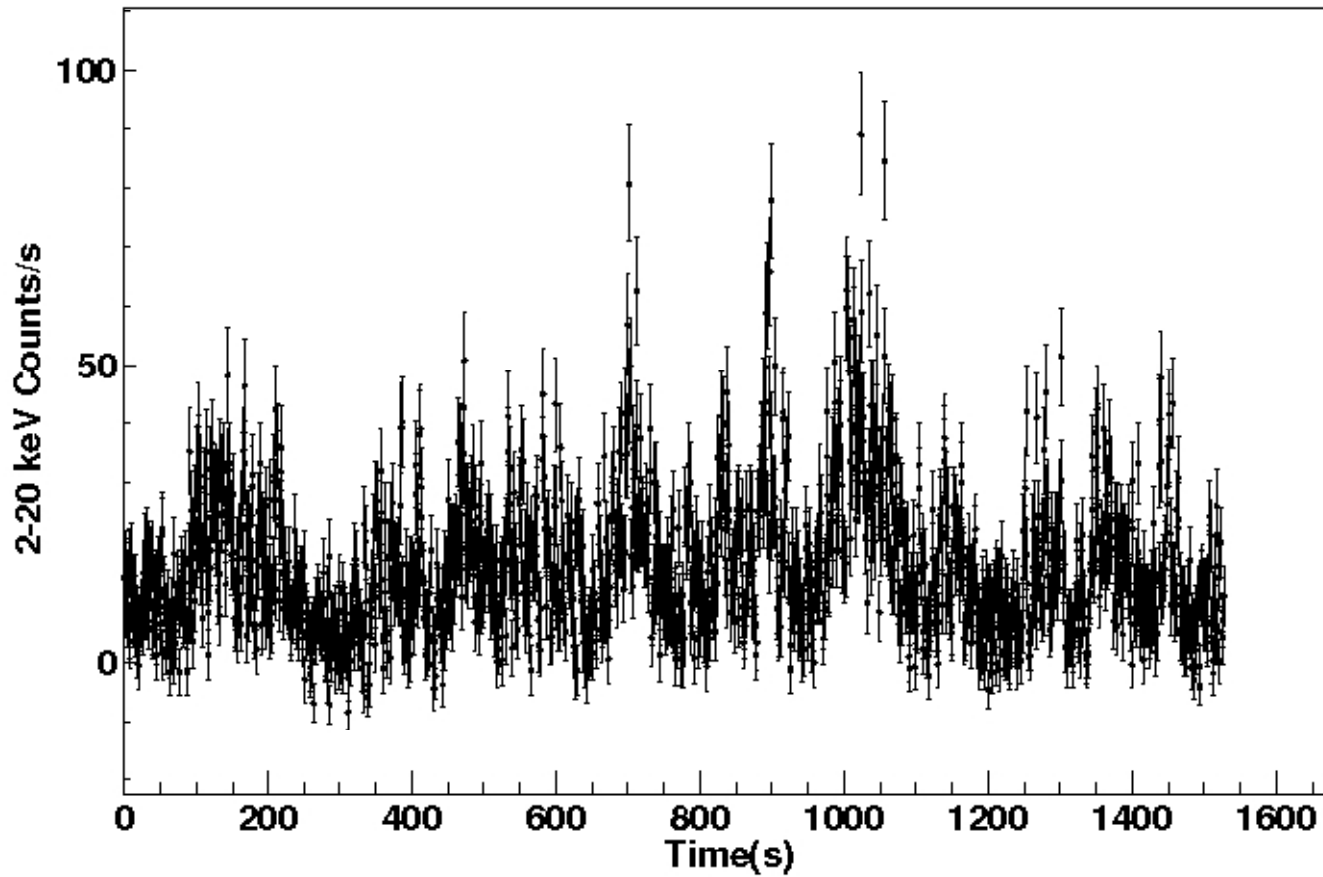
The superorbit at X-rays and optical lag to that at radio by roughly 290 days, or equally 0.17 phase, albeit the obs. from the three bands spanned by years and the overall obs. cover a period of over 30 years.

Strongly clue to this system for its possible nature.

Li, J. et al., 2012, ApJL, 744, 13



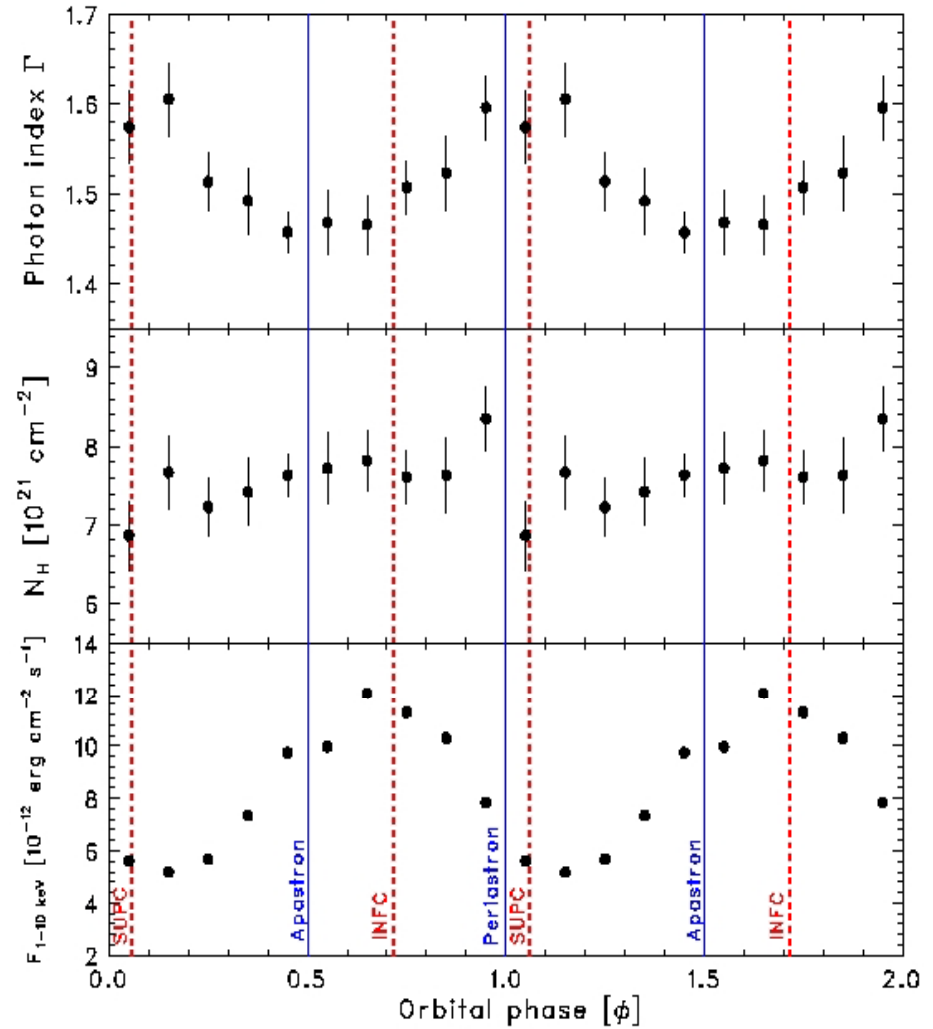
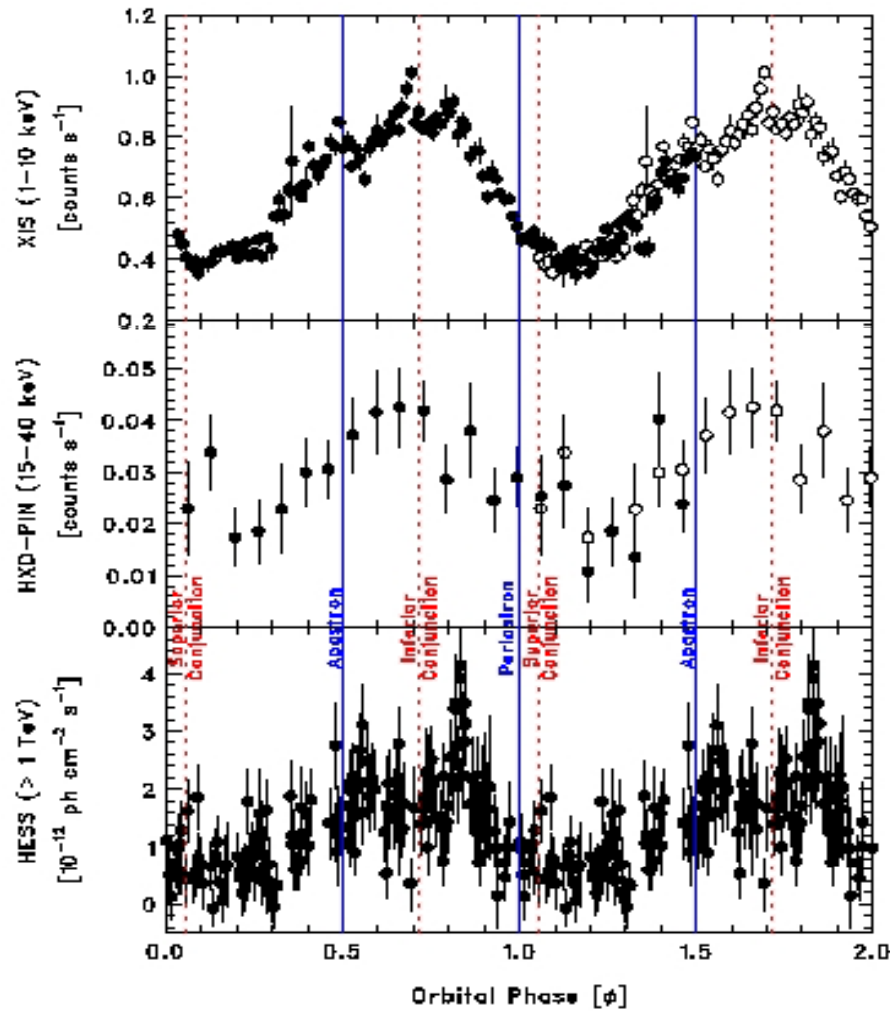
LSI +61 303 Flare



5 flares, 4 around apastron, 1 around periastron; flux variability on time scale as short as ~ 1 second

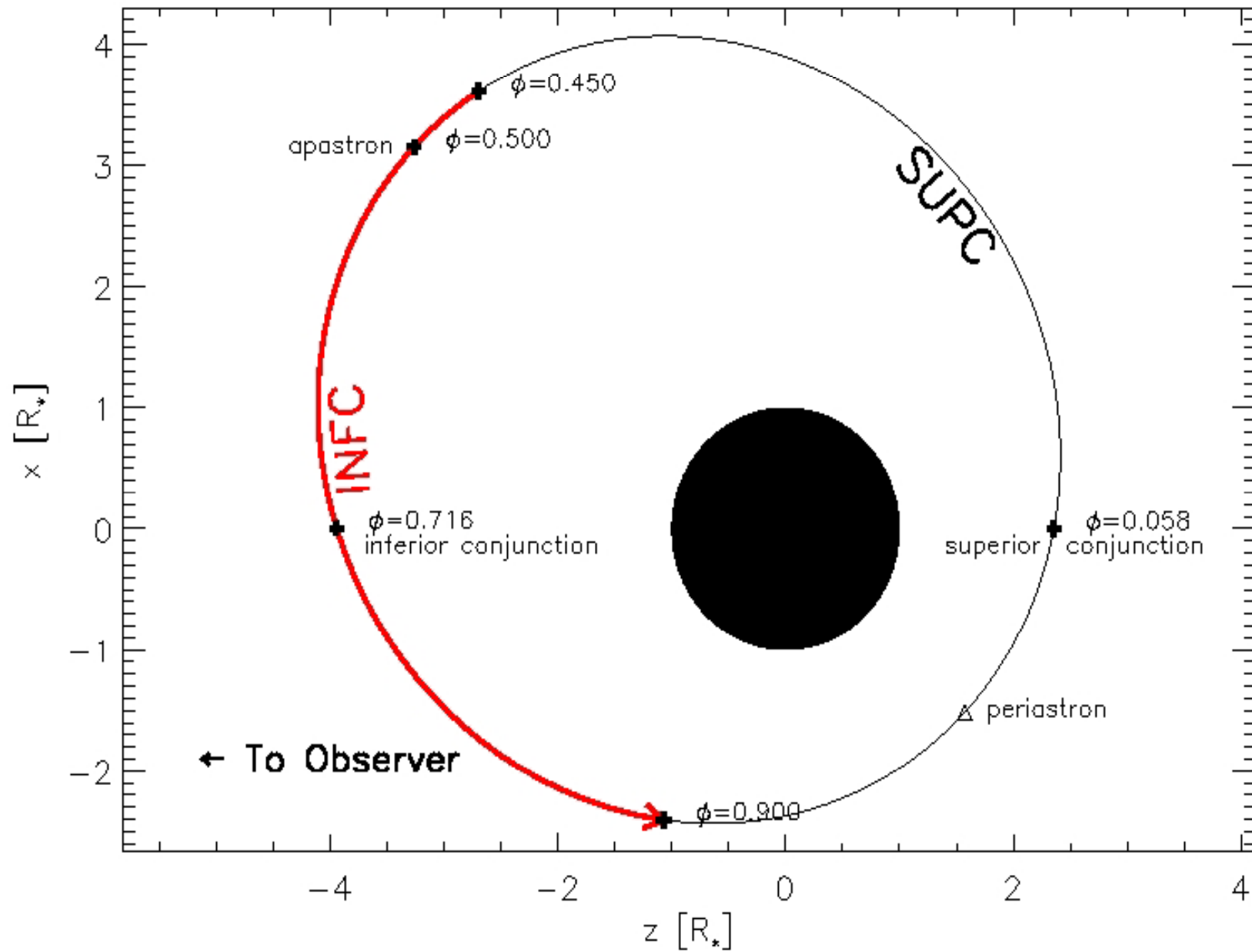
LSI+61303: 软X波段秒级耀发: 磁星? Clumpy的星风?

LS 5039: 多波段轨道位相, 辐射稳定 (1.5个轨道)

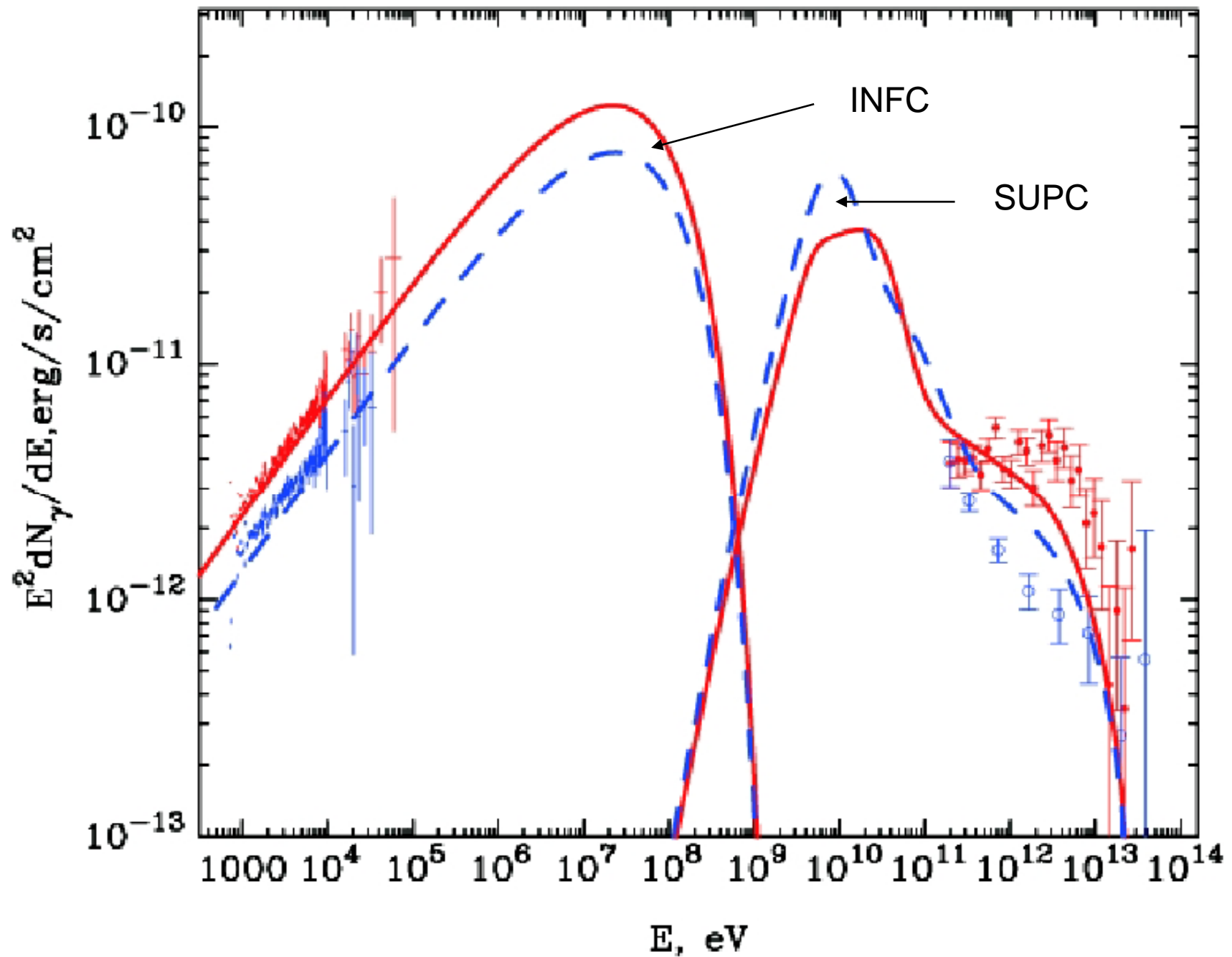


Suzaku obs. 200ks, 2007/9/9-15

(Takahashi et al. 2009 ApJ, 697, 592)

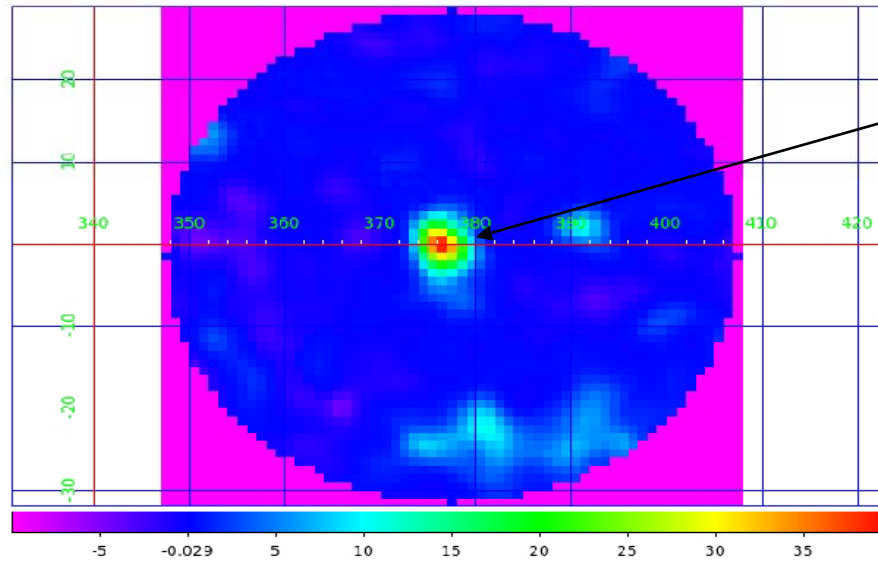


Hoffmann et al., 2009 A&A,494,L37

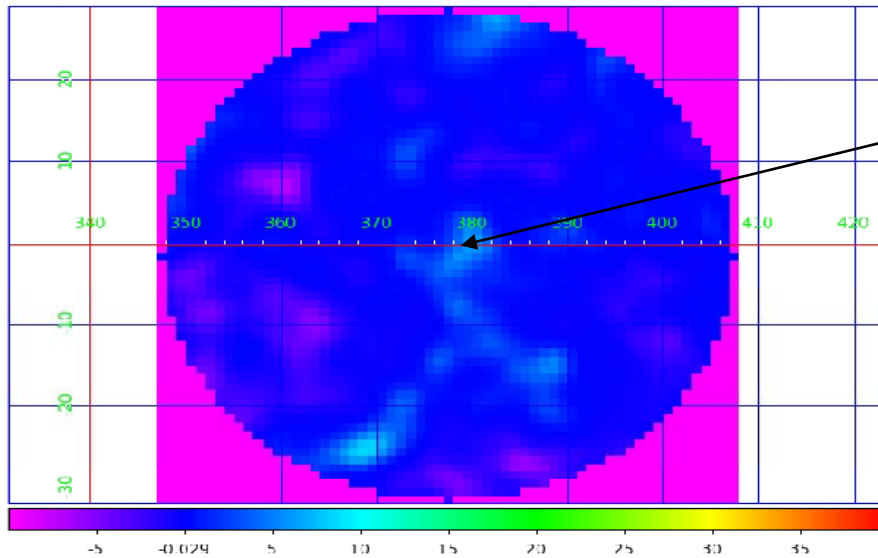


Takahashi et al. 2009, ApJ, 697, 592

COMPTEL Phases 1-6 (1991-1997), 10–30 MeV



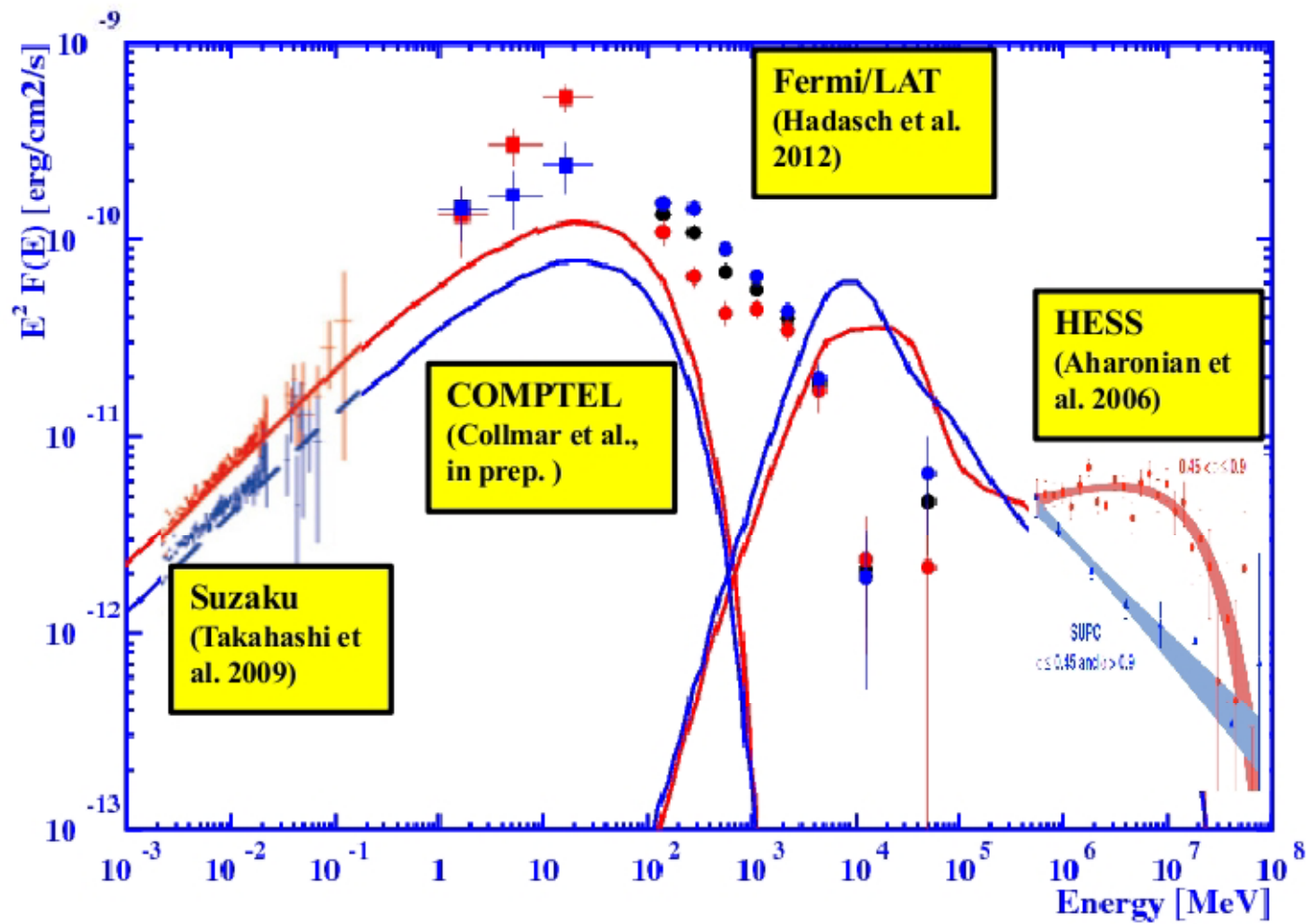
INFC



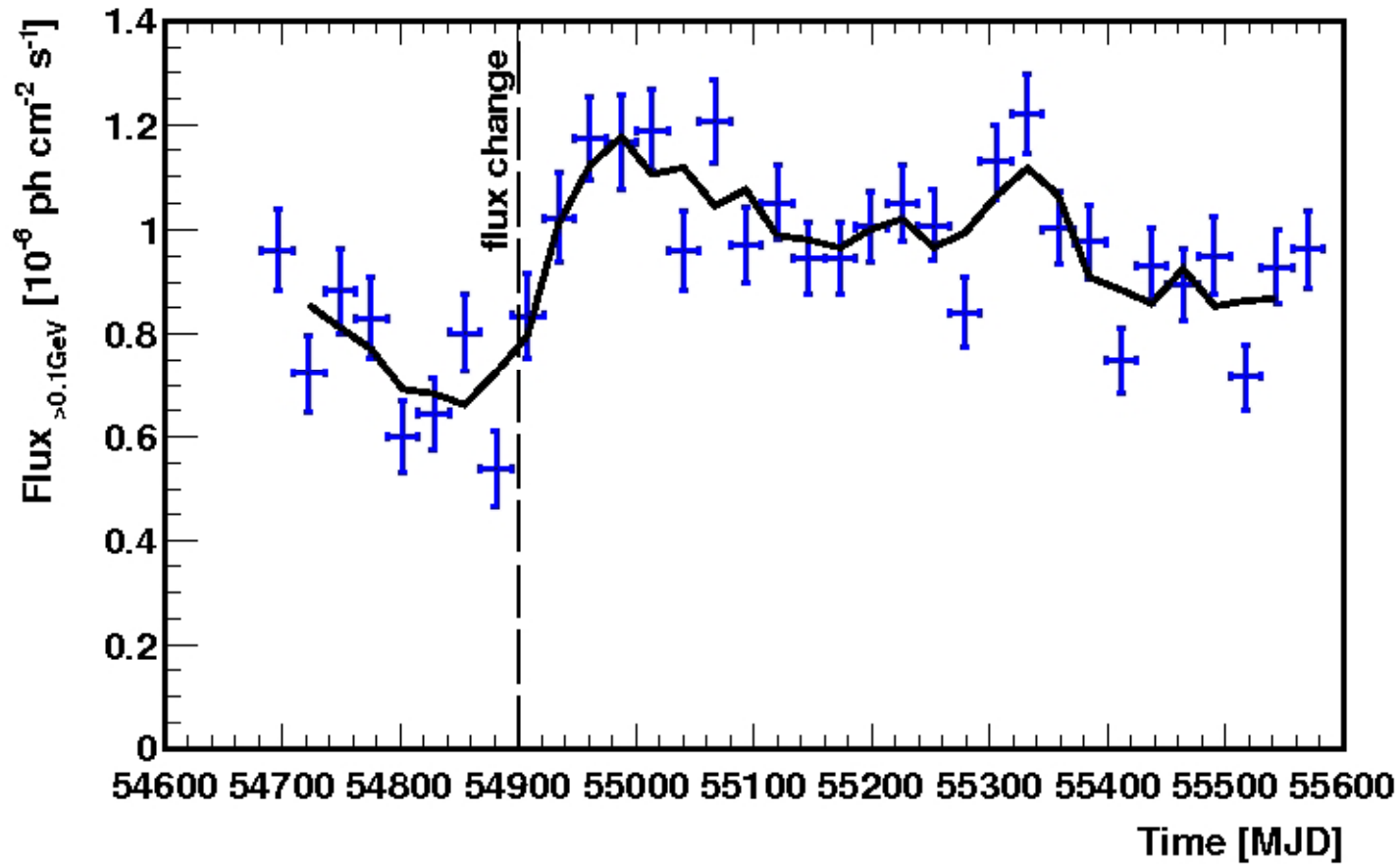
SUPC

Microquasar LS 5039

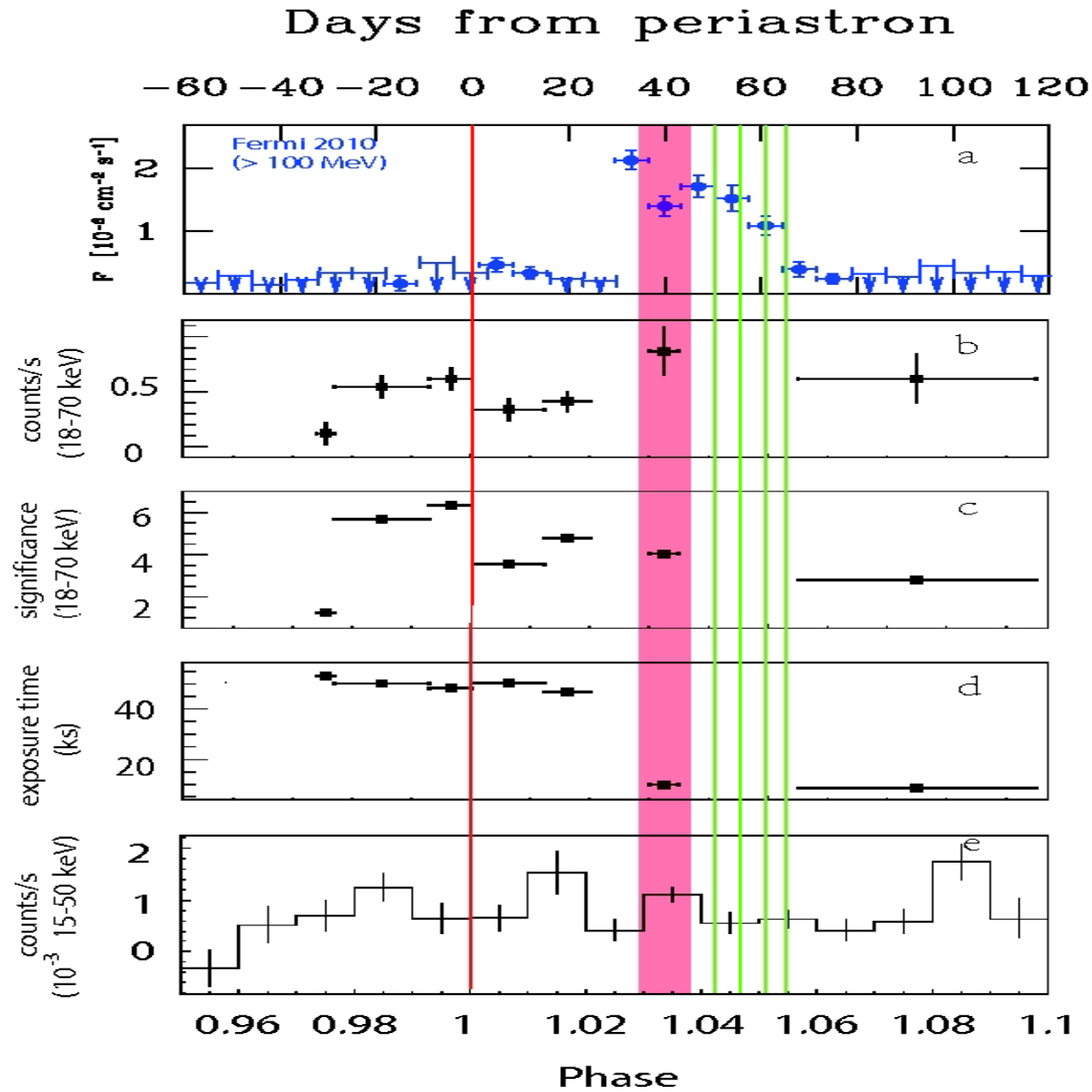
High-Energy SED



LSI+61303 :伽玛流量突变



PSRB1259-63 : 伽玛流量突变



伽玛XRB:

时变尺度几秒到几天，几年（轨道，超轨时间长：几天到几年；耀发：几秒）；

以往大**FOV**（全天监测器）长期监测灵敏度太低（**ASM**，**BAT**）；

成为时变卫星（小**FOV**）单一观测目标，耗时长，灵敏度底（**PCA**）；

聚焦观测（小**FOV**）时间短，无法监测；

大FOV/高灵敏度的EP将大有作为！