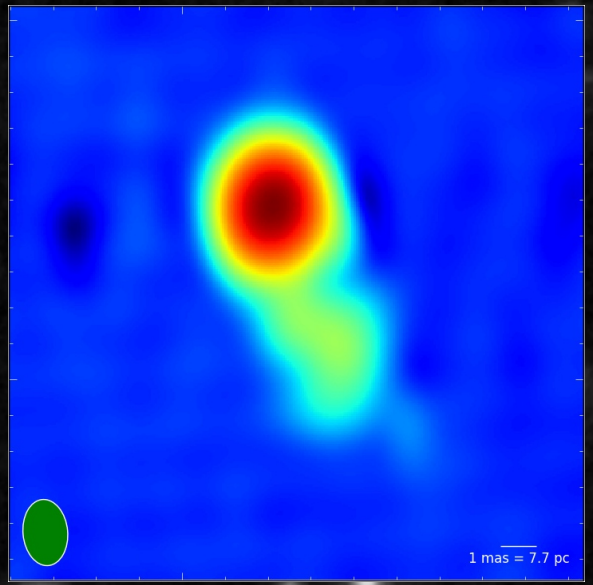
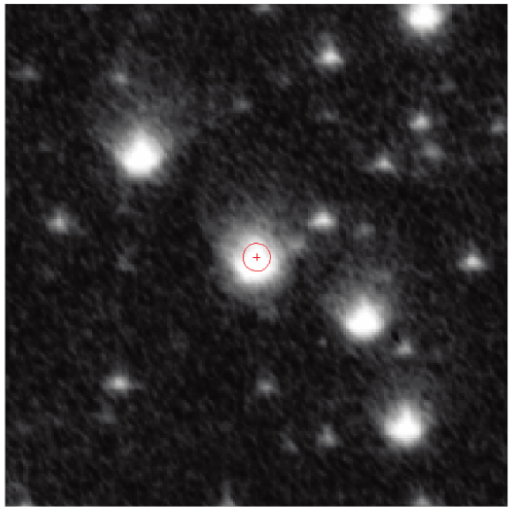
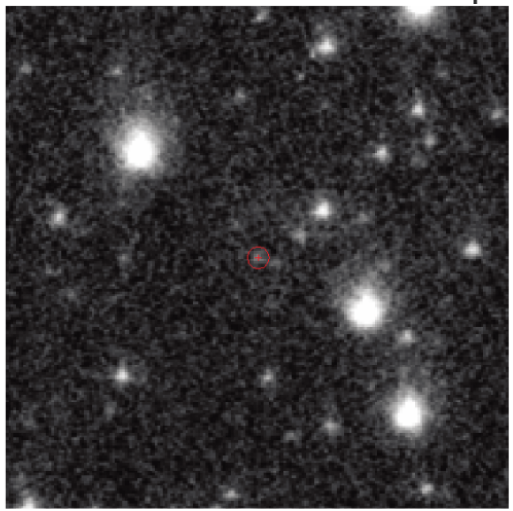
Kirill Sokolovsky

research highlights



GCVS, photoplates





Mira-type variable TT Cas (indicated by the red marker) imaged with the 40cm astrograph at maximum on 1975-08-07 (B=11.7) and minimum on 1971-08-24 (B=17.4).

Home / WebObs / Search / Results

WebObs Search Results

Showing *25* observations by *SKA* before *January 2, 2000*

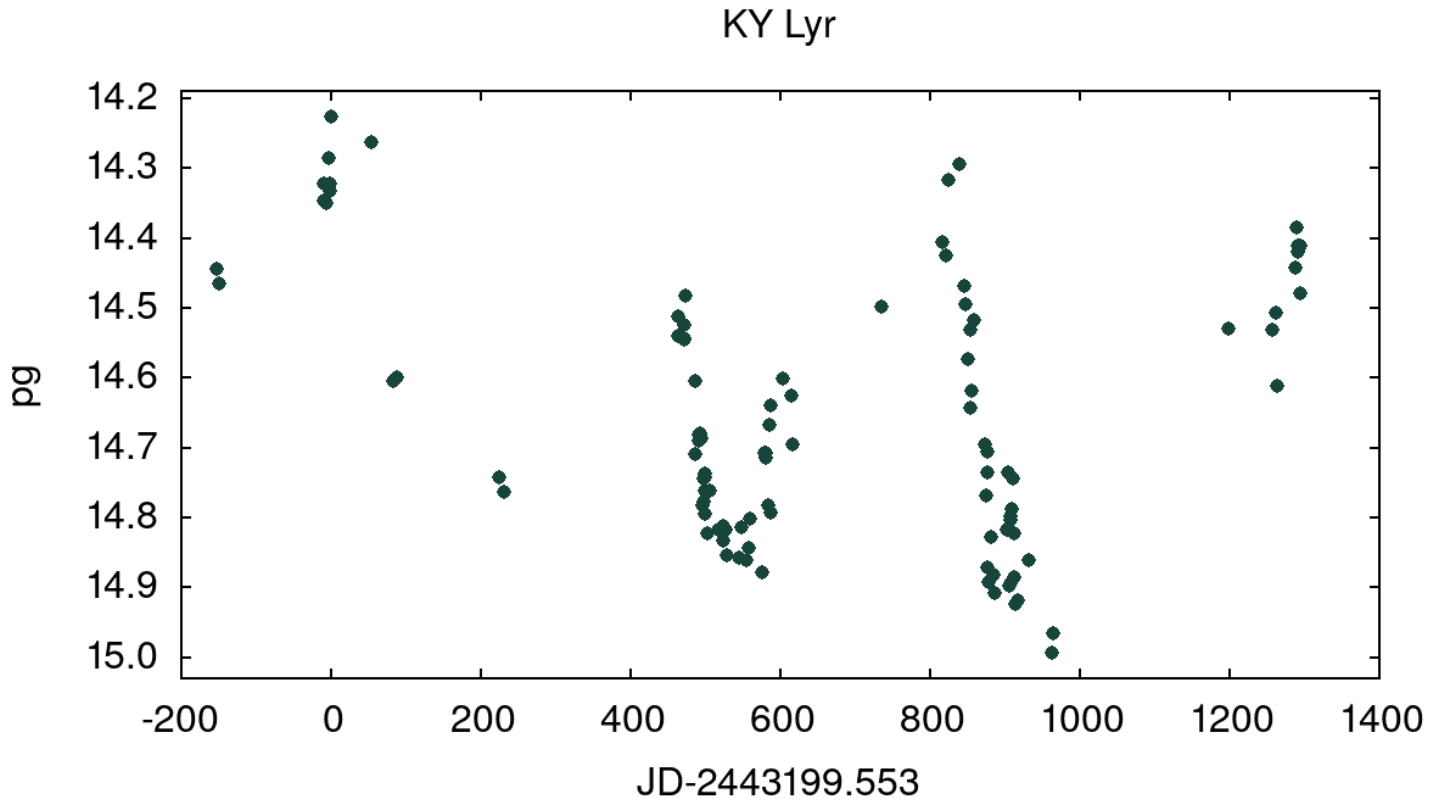
Plot a Chart · Generate a Light Curve · Search VSX

			Star	JD					
☐	Edit	Delete	XY LYR	2451456.3125					
☐	Edit	Delete	XY LYR	2451455.3125					
☐	Edit	Delete	XY LYR	2451454.2917	1999 Oct. 02.79170	6.5	—	Vis.	SKA	Details...
☐	Edit	Delete	XY LYR	2451453.2500	1999 Oct. 01.75000	6.5	—	Vis.	SKA	Details...
☐	Edit	Delete	XY LYR	2451452.2917	1999 Sep. 30.79170	6.5	—	Vis.	SKA	Details...
☐	Edit	Delete	VY UMA	2451451.3472	1999 Sep. 29.84720	6.0	—	Vis.	SKA	Details...
☐	Edit	Delete	VY UMA	2451451.3368	1999 Sep. 29.83680	6.0	—	Vis.	SKA	Details...
☐	Edit	Delete	XY LYR	2451451.2986	1999 Sep. 29.79860	6.6	—	Vis.	SKA	Details...
☐	Edit	Delete	XY LYR	2451450.3125	1999 Sep. 28.81250	6.4	—	Vis.	SKA	Details...

How to find a variable star?

Construct lightcurves of all sources, find which stand out:

- **smooth**
- high scatter
- periodic



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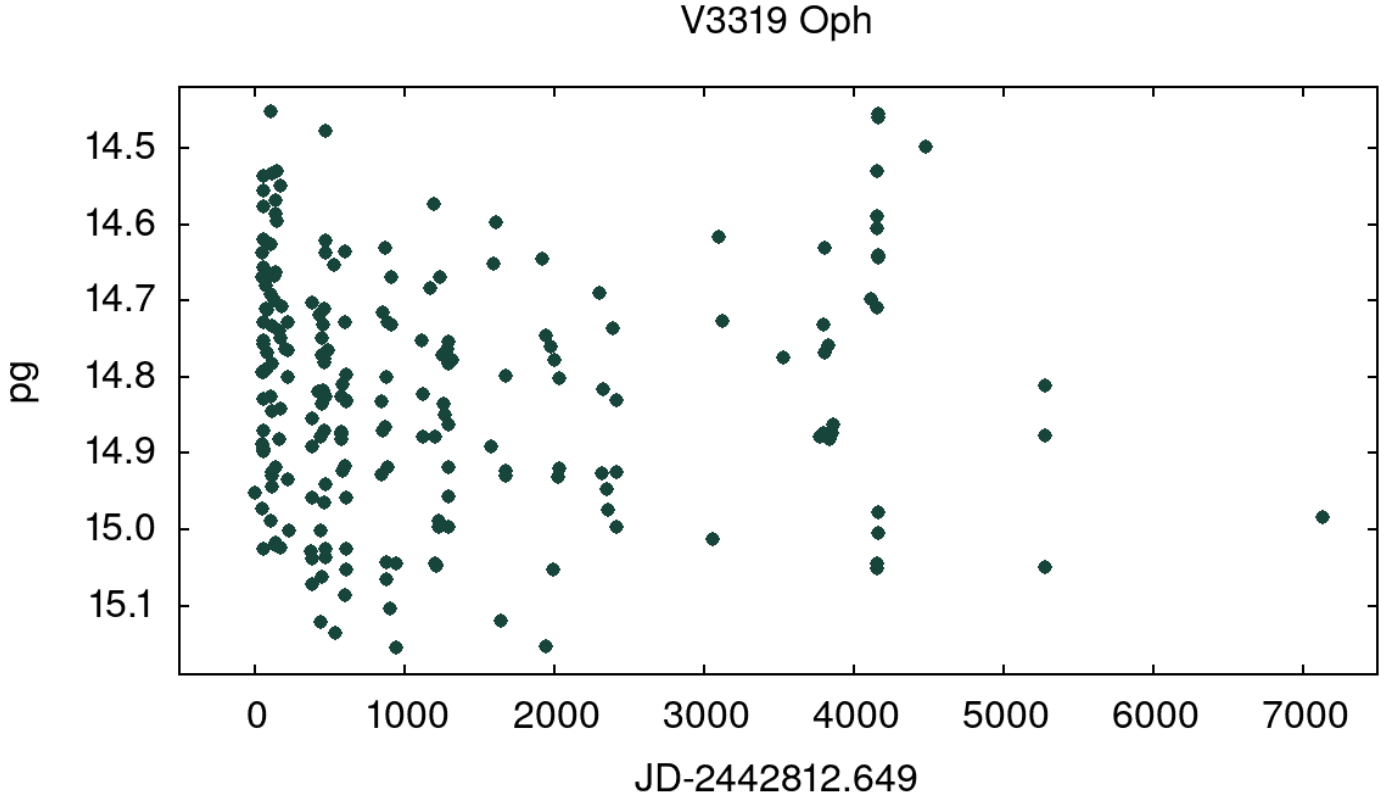

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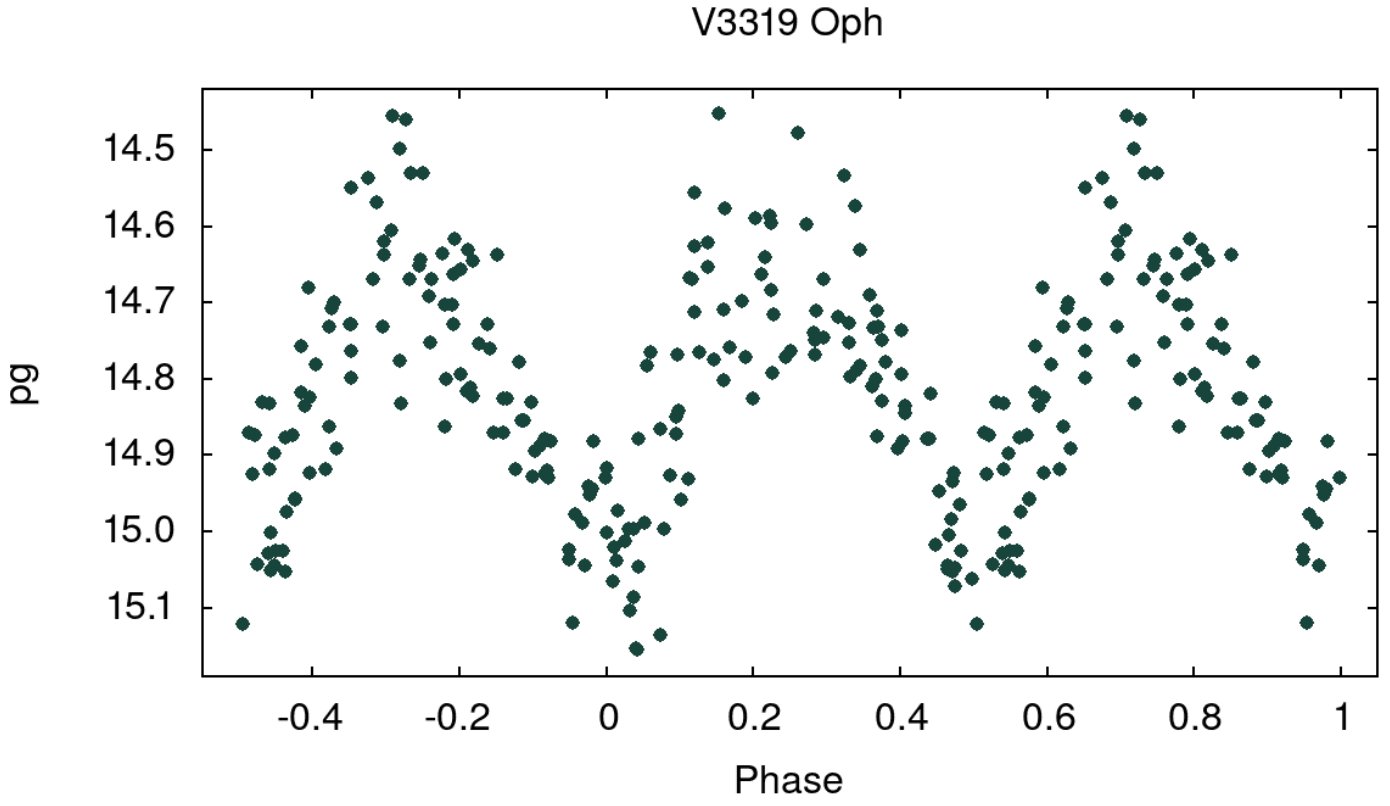


Variability Search Toolkit (VaST)

Design goals:

- Find variable sources in a series of sky images
- Support photgraphic and CCD images
- Can be used interactively or as pipeline
- Modest hardware requirements = lots of big images

Open source - comments and contributions welcome!
https://github.com/kirxkirx/vast
http://scan.sai.msu.ru/vast/

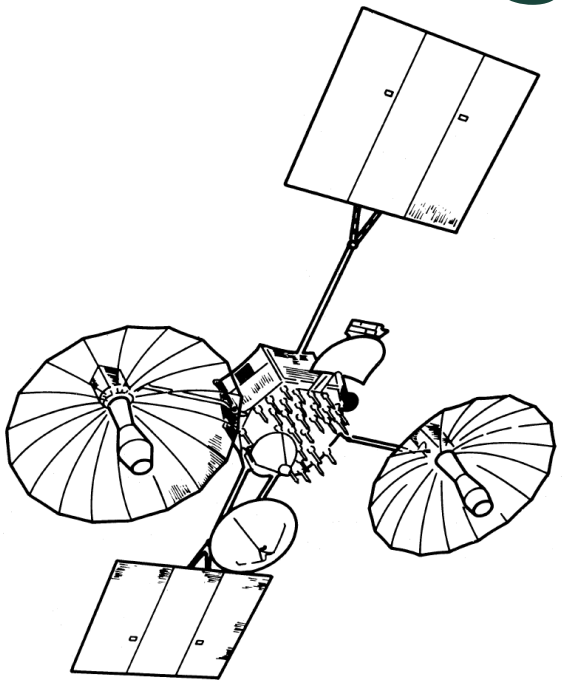
RadioAstron

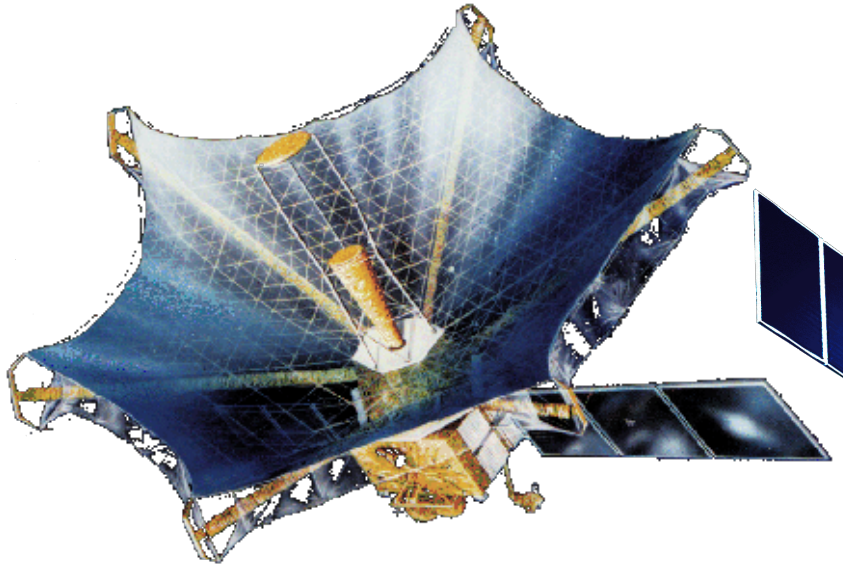
Russian-led Space-VLBI mission to study radio sources at extreme angular resolution.

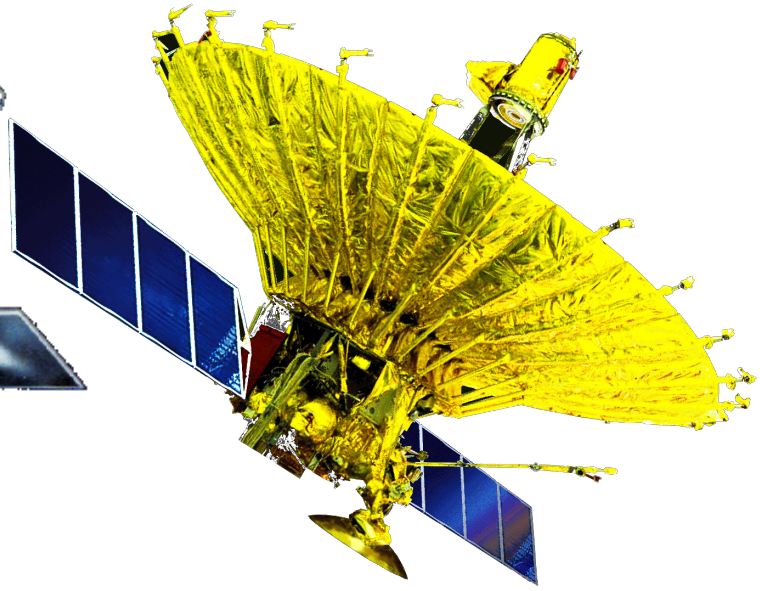
My role:

- **compute source visibility conditions**
- **plan observations**
- **schedule ground-based radio telescopes**

Space-VLBI history







TDRSS

1986-1988

λ (cm) = 13, 2

Dmax (D⊕) ~2.4m

fringe tracking

VSOP

1997-2003

18, 6, ~~1.3~~

~2.4

imaging

RadioAstron

2011-2019

92, 18, 6, 1.3

27

both

nature astronomy

LETTERS

https://doi.org/10.1038/s41550-018-0431-2

A wide and collimated radio jet in 3C84 on the scale of a few hundred gravitational radii

G. Giovannini[1,2*], T. Savolainen[3,4,5*], M. Orienti[2], M. Nakamura[6], H. Nagai[7], M. Kino[8,9], M. Giroletti[2], K. Hada[9], G. Bruni[2,5,10], Y. Y. Kovalev[5,11,12], J. M. Anderson[13], F. D'Ammando[1,2], J. Hodgson[14], M. Honma[9], T. P. Krichbaum[7], S. S. Lee[14,15], R. Lico[1,2], M. M. Lisakov[11], A. P. Lobanov[5], L. Petrov[12,16], B. W. Sohn[14,15,17], K. V. Sokolovsky[11,18,19], P. A. Voitsik[11], J. A. Zensus[5] and S. Tingay[20]

The jet of radio galaxy 3C 84 is well collimated at 300 RG!

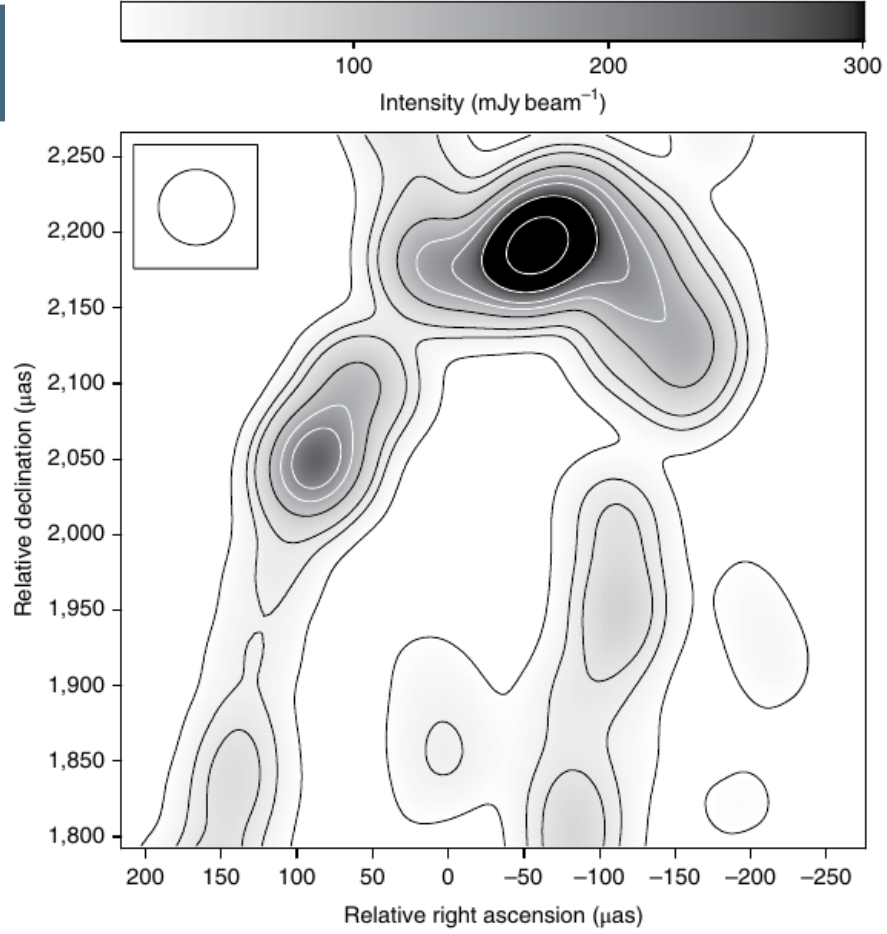
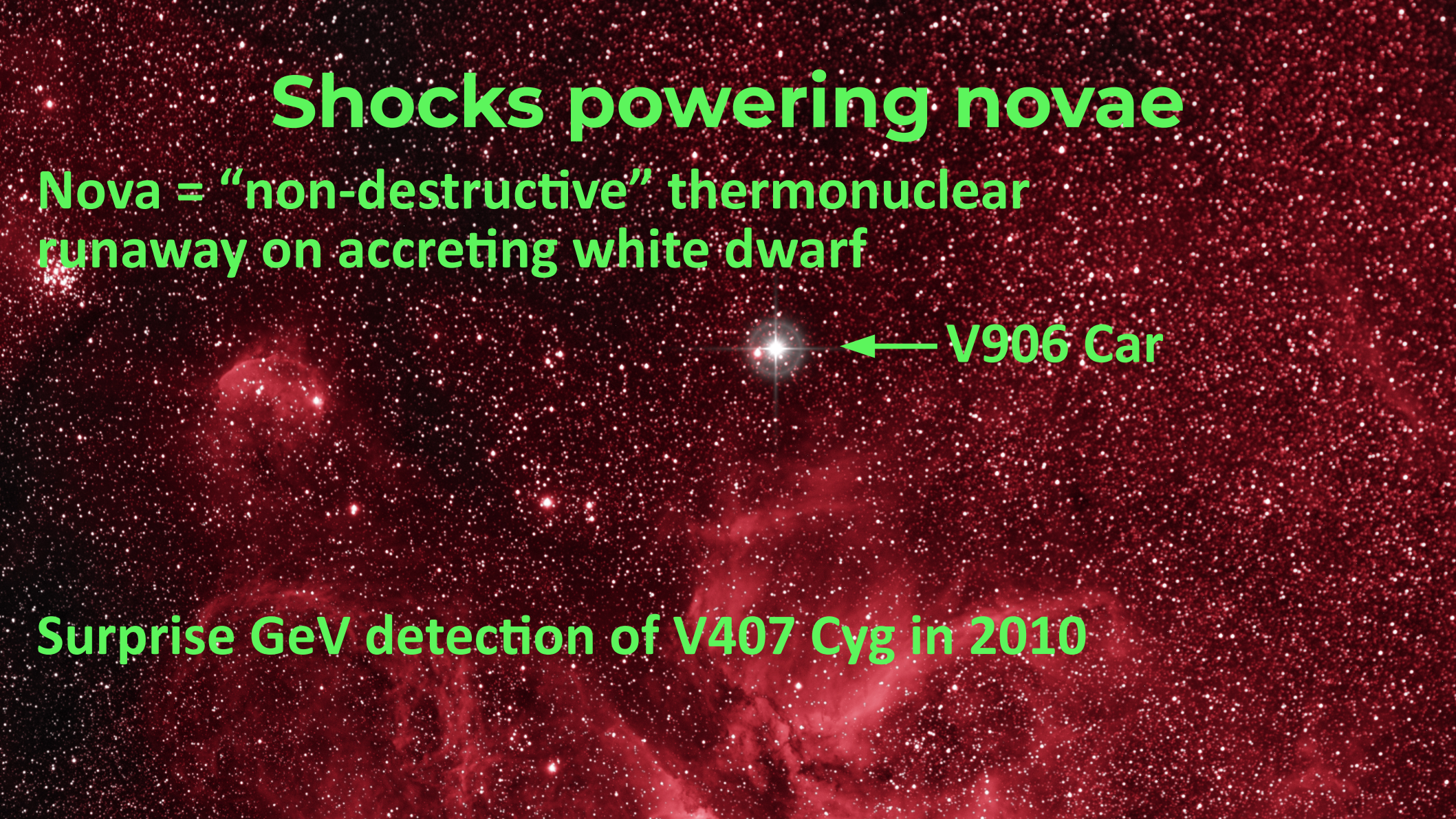


Fig. 2 | Inner jet-core region at high angular resolution. The *x* and *y* axes show the distance (in micro-arcseconds) from the image reference center. The half-power beam width is 0.05 × 0.05 mas, as shown in the upper left corner of the image. The noise level is 1.5 mJy beam^{-1} and the peak intensity is 0.66 Jy beam^{-1}. The contours are at 10, 30, 50, 100, 150, 200, 300 and 500 mJy beam^{-1}.

Shocks powering novae

Nova = “non-destructive” thermonuclear runaway on accreting white dwarf



Surprise GeV detection of V407 Cyg in 2010

nature astronomy

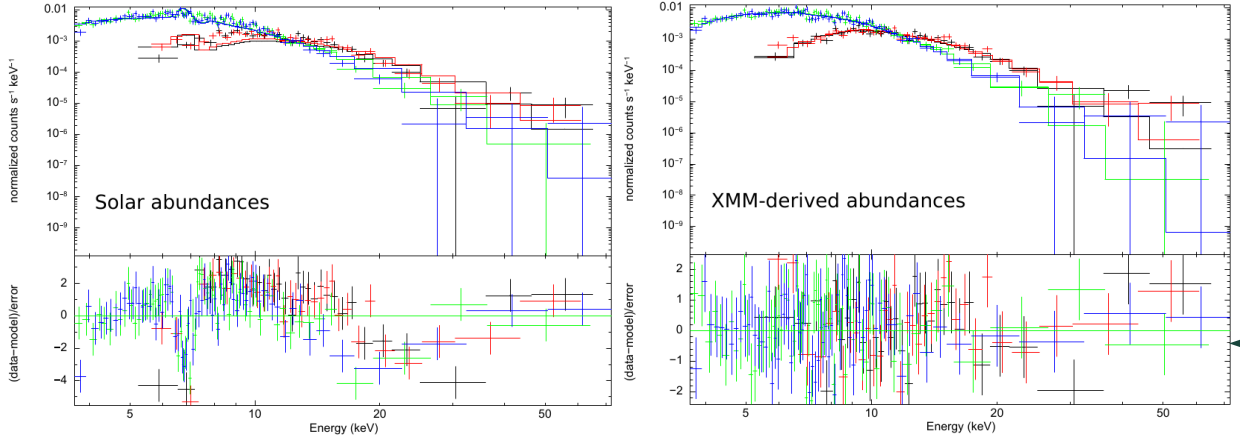
LETTERS

https://doi.org/10.1038/s41550-020-1070-y

Check for updates

Direct evidence for shock-powered optical emission in a nova

Elias Aydi[1], Kirill V. Sokolovsky[1,2], Laura Chomiuk[1], Elad Steinberg[3,4], Kwan Lok Li[5,6], Indrek Vurm[7], Brian D. Metzger[7], Jay Strader[1], Koji Mukai[8,9], Ondřej Pejcha[10], Ken J. Shen[11], Gregg A. Wade[12], Rainer Kuschnig[13], Anthony F. J. Moffat[14], Herbert Pablo[15], Andrzej Pigulski[16], Adam Popowicz[17], Werner Weiss[18], Konstanze Zwintz[19], Luca Izzo[20], Karen R. Pollard[21], Gerald Handler[22], Stuart D. Ryder[23], Miroslav D. Filipović[24], Rami Z. E. Alsaberi[24], Perica Manojlović[24], Raimundo Lopes de Oliveira[25,26], Frederick M. Walter[27], Patrick J. Vallely[28], David A. H. Buckley[29], Michael J. I. Brown[30], Eamonn J. Harvey[31], Adam Kawash[1], Alexei Kniazev[29,32,33], Christopher S. Kochanek[28], Justin Linford[34,35,36], Joanna Mikolajewska[22], Paolo Molaro[37], Marina Orio[38,39], Kim L. Page[40], Benjamin J. Shappee[41] and Jennifer L. Sokoloski[3]



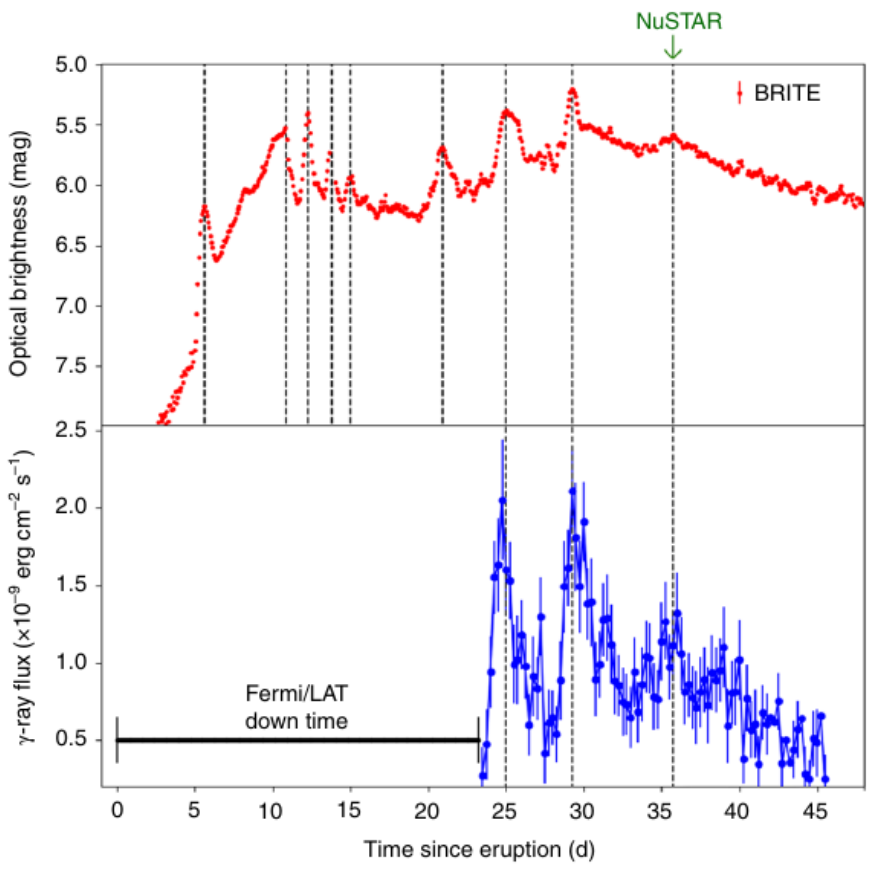
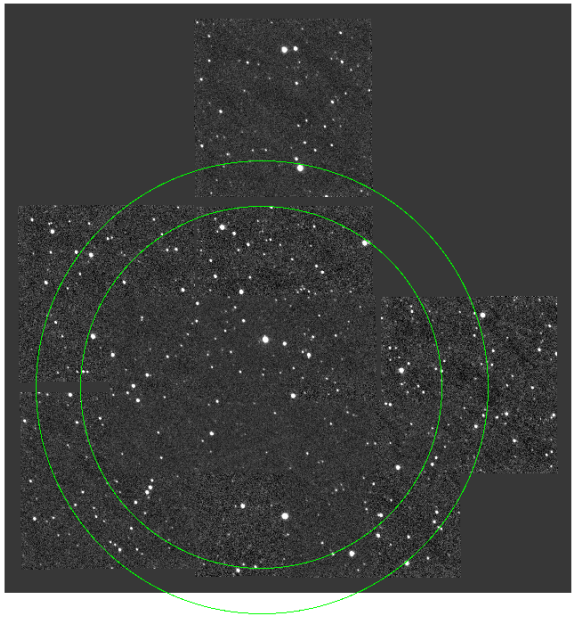


Fig. 2 | The optical and GeV γ-ray light curves of nova V906 Car are correlated, showing simultaneous flares in both bands.

NuSTAR reveals shock-heated plasma, non-solar abundances

MSU 0.7m telescope

- Student training
- WD binaries
- Exoplanet transits
- Art.Sat. astrometry



No bright optical counterpart to the GeV transient Fermi J1623-1752 near U Sco

ATel #14941; *Kirill Sokolovsky, Elias Aydi, Vincenzo Donofrio (MSU)*
on 29 Sep 2021; 05:01 UT
Credential Certification: Kirill Sokolovsky (kirx@scan.sai.msu.ru)

Subjects: Optical, >GeV, Nova, Transient

Referred to by ATel #: 14945, 14948