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1632

Infrared Nebulae around Symbiotic Binaries

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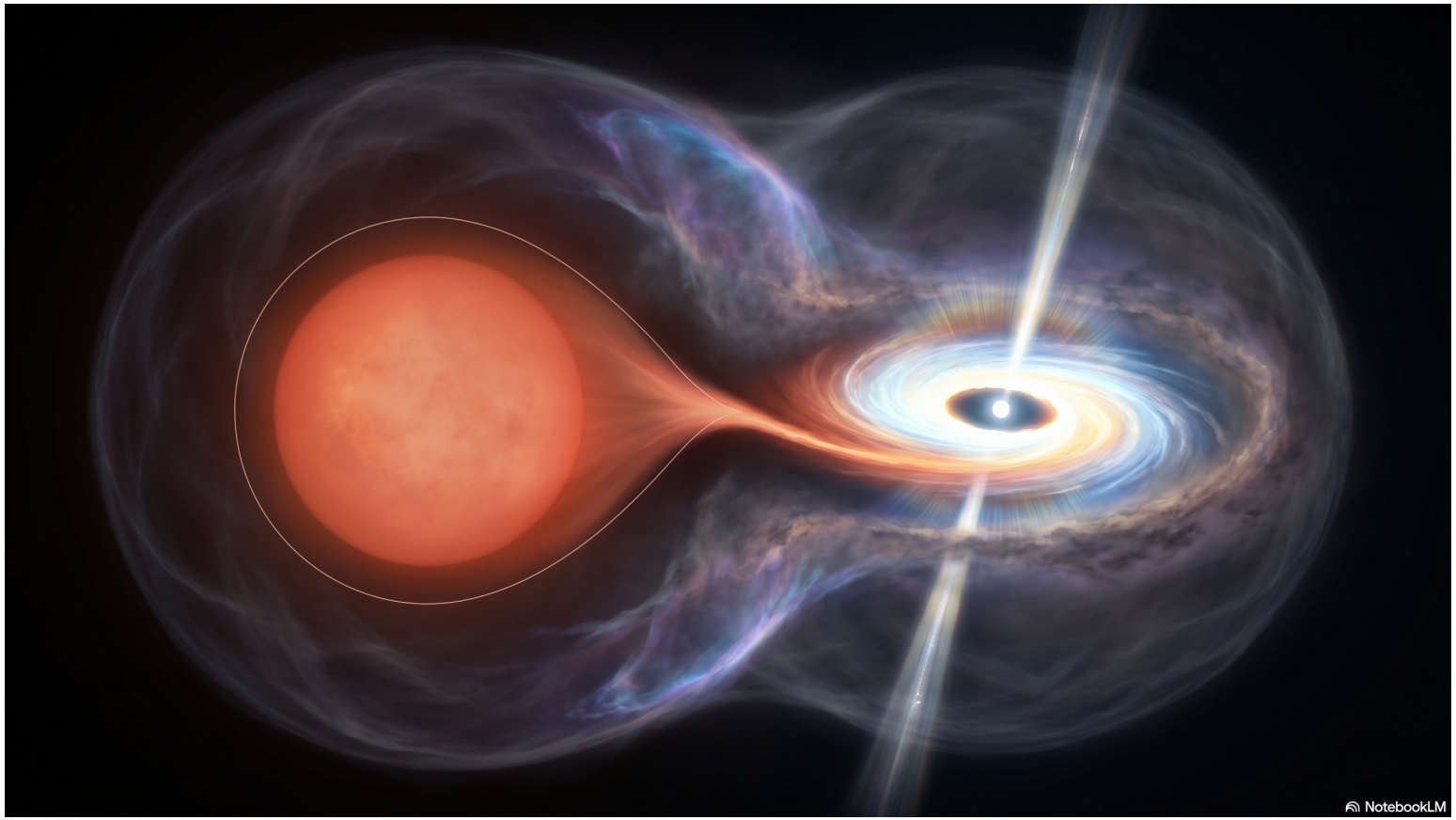
Symbiotic Binaries



This image was generated by NotebookLM.

White dwarf symbiotics

- Cool component → RG or Mira
- Wide binaries
- Jets, novae

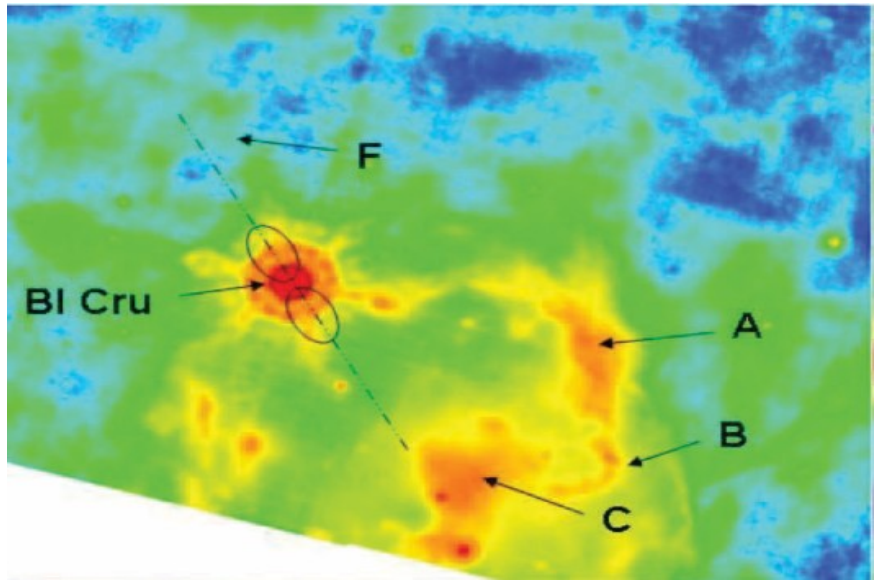
Aim of the study

→ to investigate the large scale dust around all confirmed symbiotic binaries in the Milky Way, which is to date 284 systems.

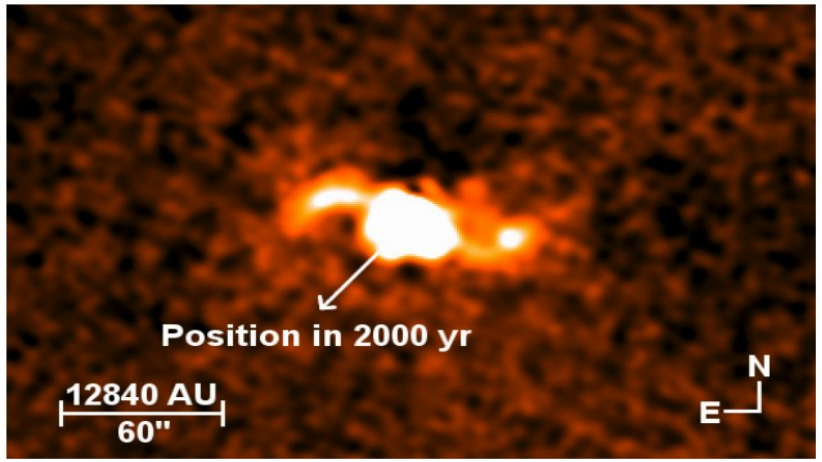
→ If the dust can survive or reproduce?

- → Mass-loss history
- → Geometry of the nebula

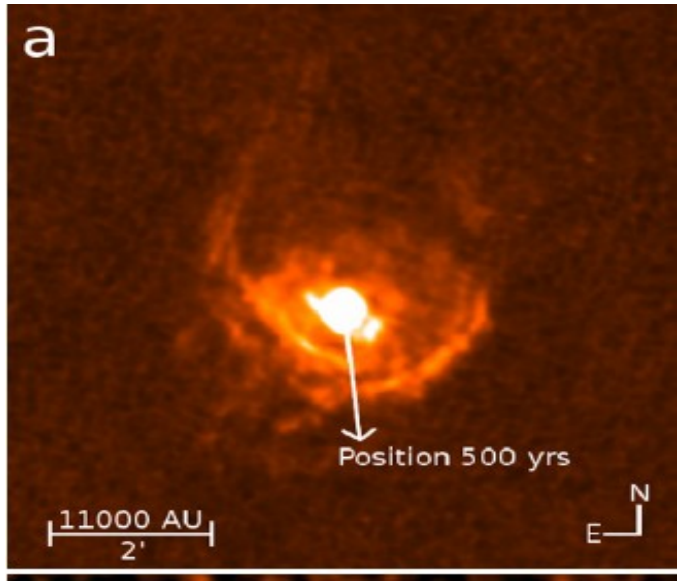
Nebulae around Symbiotic binaries in IR



BI Cru (24μm)
McCollum et al. 2008



R Aqr (70 μm)
Mayer et al. 2013



***o* Ceti** (70μm)
Mayer et al. 2011

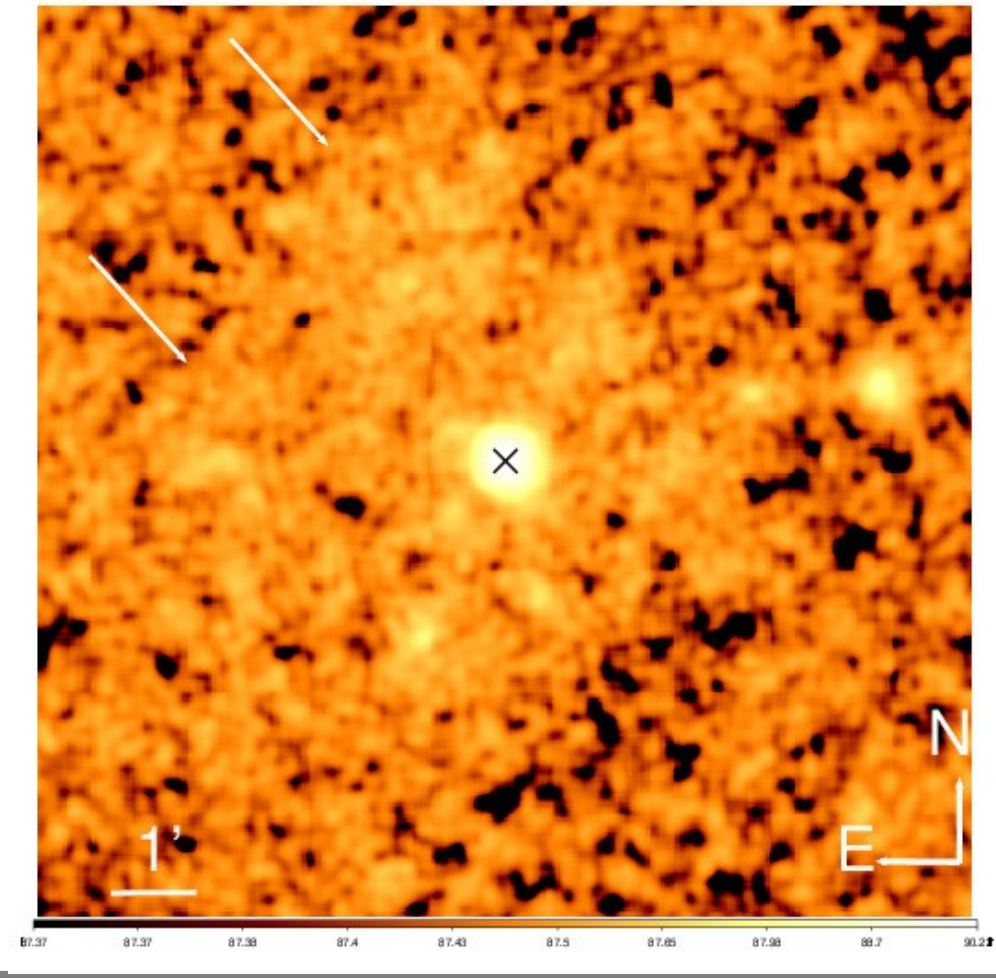
Archival data

- **Spitzer** → IRAC (3.6, 4.5, 5.8 μm) (1″.2)
  → MIPS (24 μm) (2″.5)
  → 84 targets

- **WISE** (3.4, 4.6, 12 μm) (~6″) & (22 μm) (~6″)
  → 284 targets

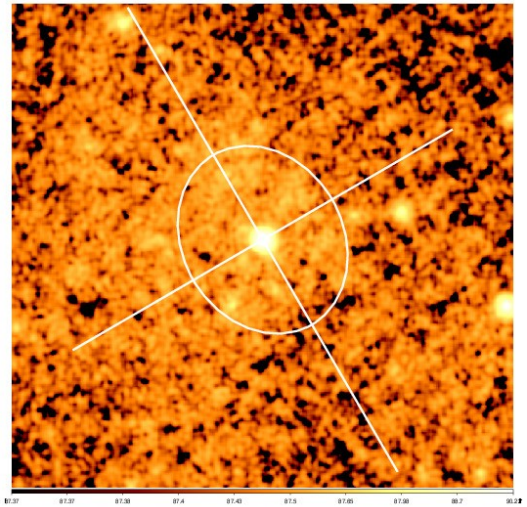
- **Herschel** → PACS (70, 100 μm) (3″.2)
  → 10 targets

V417 CMa

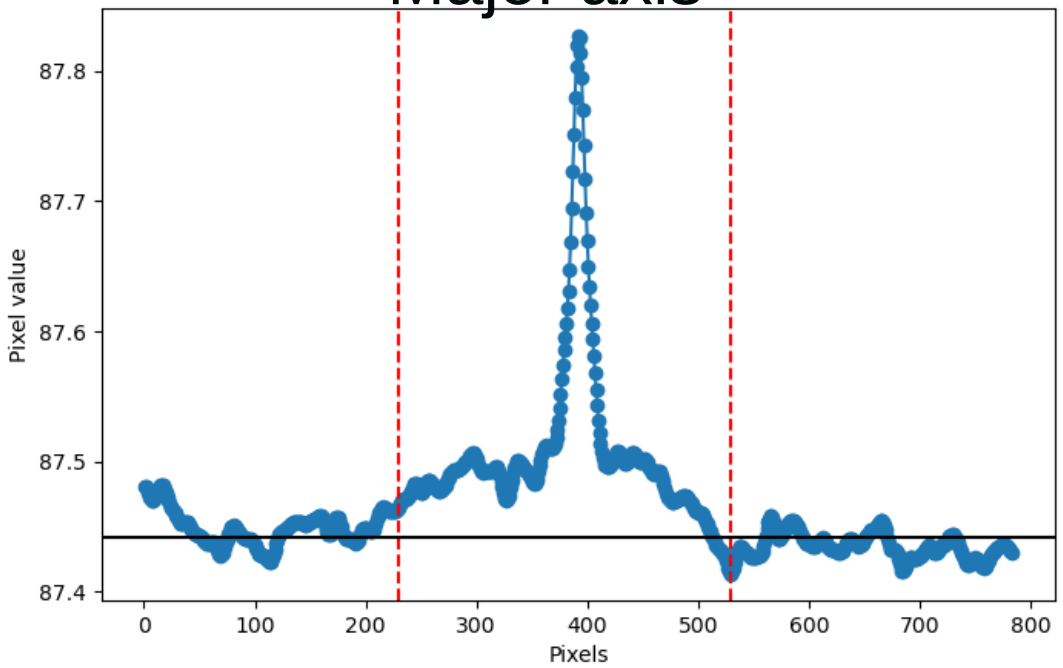


WISE 4
(22μm)

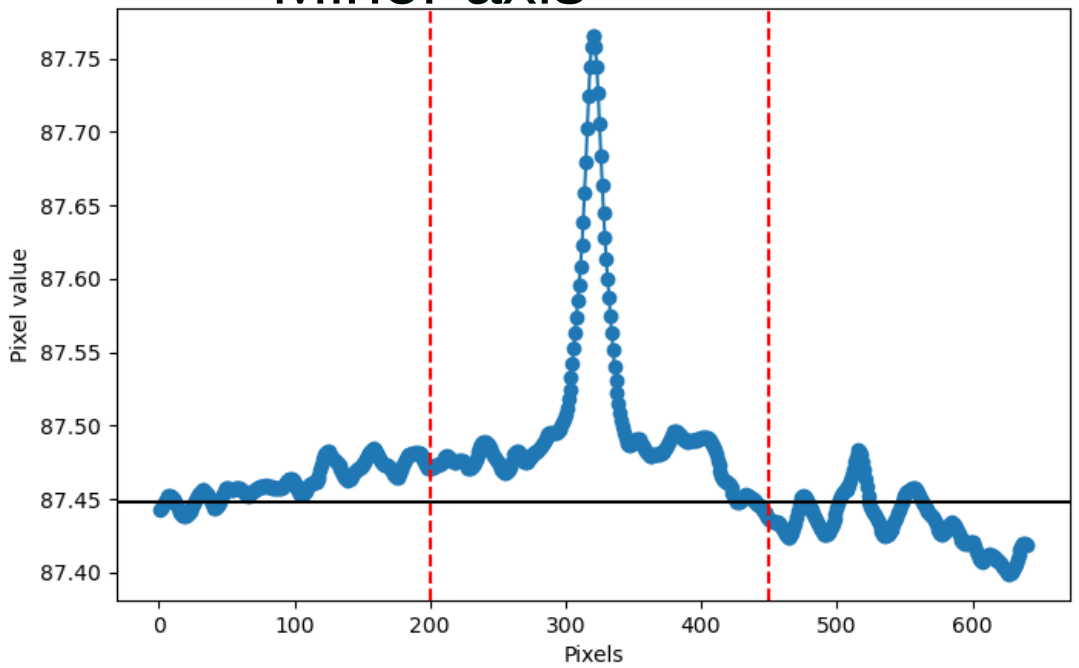
Profile cuts



Major axis



Minor axis



V417 CMa

Origin of the nebula?

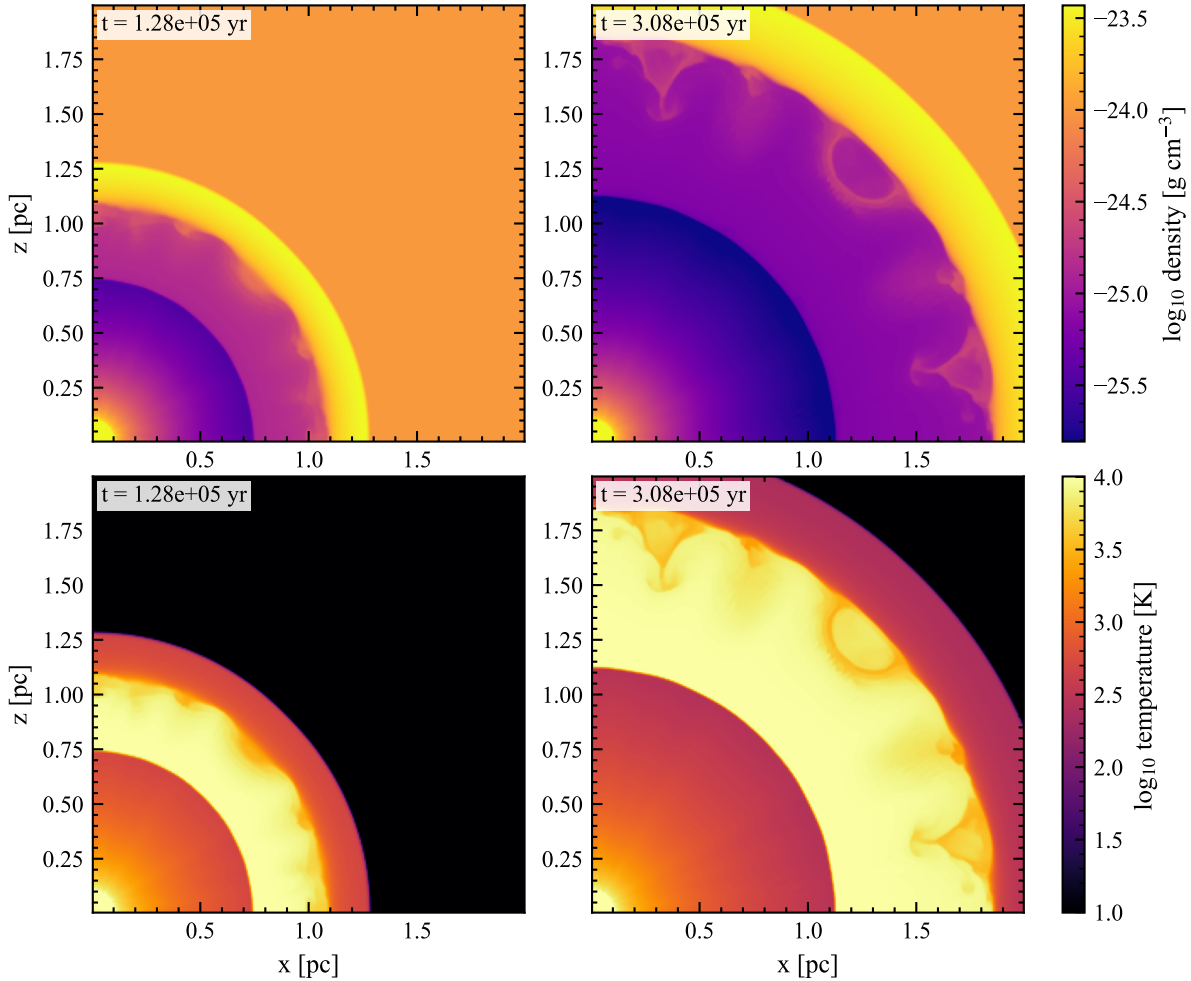
→ Single outburst event? No → There is no recorded outburst.

$$T\ [yr] = 4.74\ d\ [''] \ D\ [pc]\ v_{sky}^{-1}\ [km\ s^{-1}]$$

V_{sky}= 30 - 200 km s^{-1} → 54500 - 8200 years

→ Wind driven bubble? → Could be.

V417 CMa



FLASH
Fryxell et al. 2000

Conclusions

- Little evidence of large scale cold dust around symbiotic binaries. 4 out of 284.
- Observational limitations or their true nature?

Thank you!

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