

TeV emitting X-ray binaries - the powering source of the XRB LS 5039

Moldón, J. et al. arXiv: 0812.0988

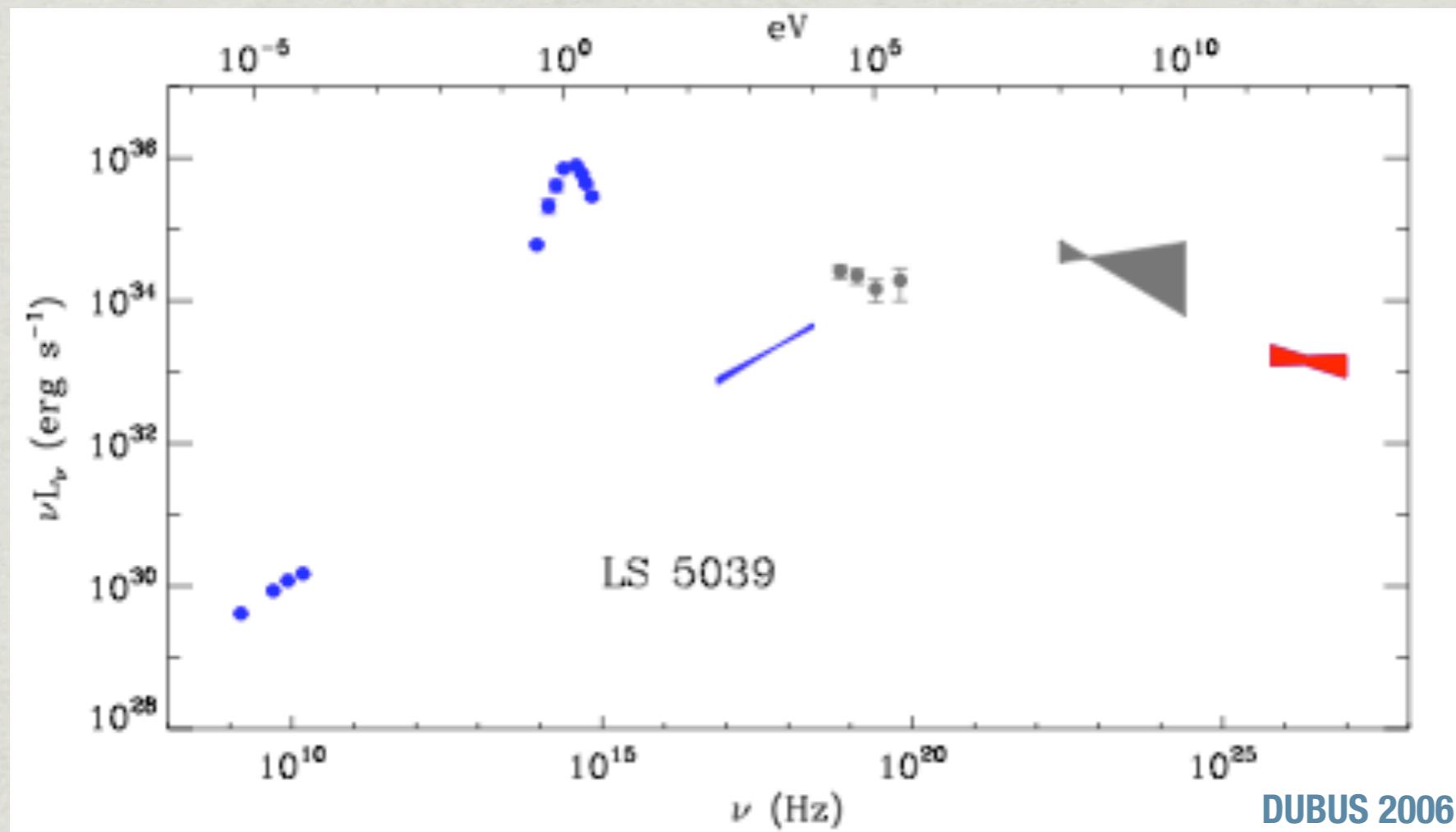
Four sources so far

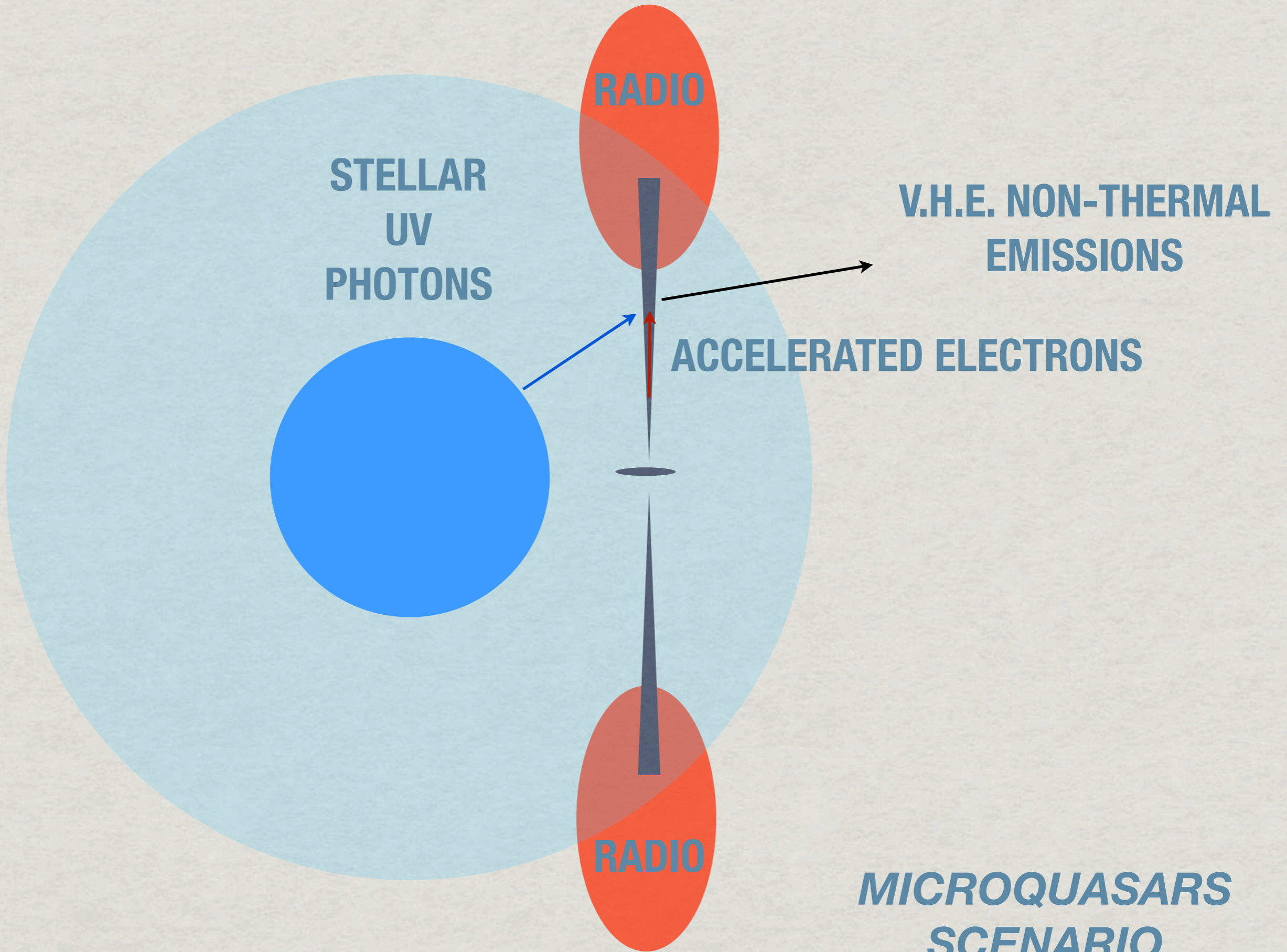
- * **PSR 1259-63**: young non-accreting ms radio pulsar
- * **Cyg X-1**: accreting microquasar
- * **LS I +61 303**: fast precessing microquasar
- * **LS 5039**: source unknown. $P_{\text{orb}} = 3.9 \text{ d}$

mechanism of TeV emission

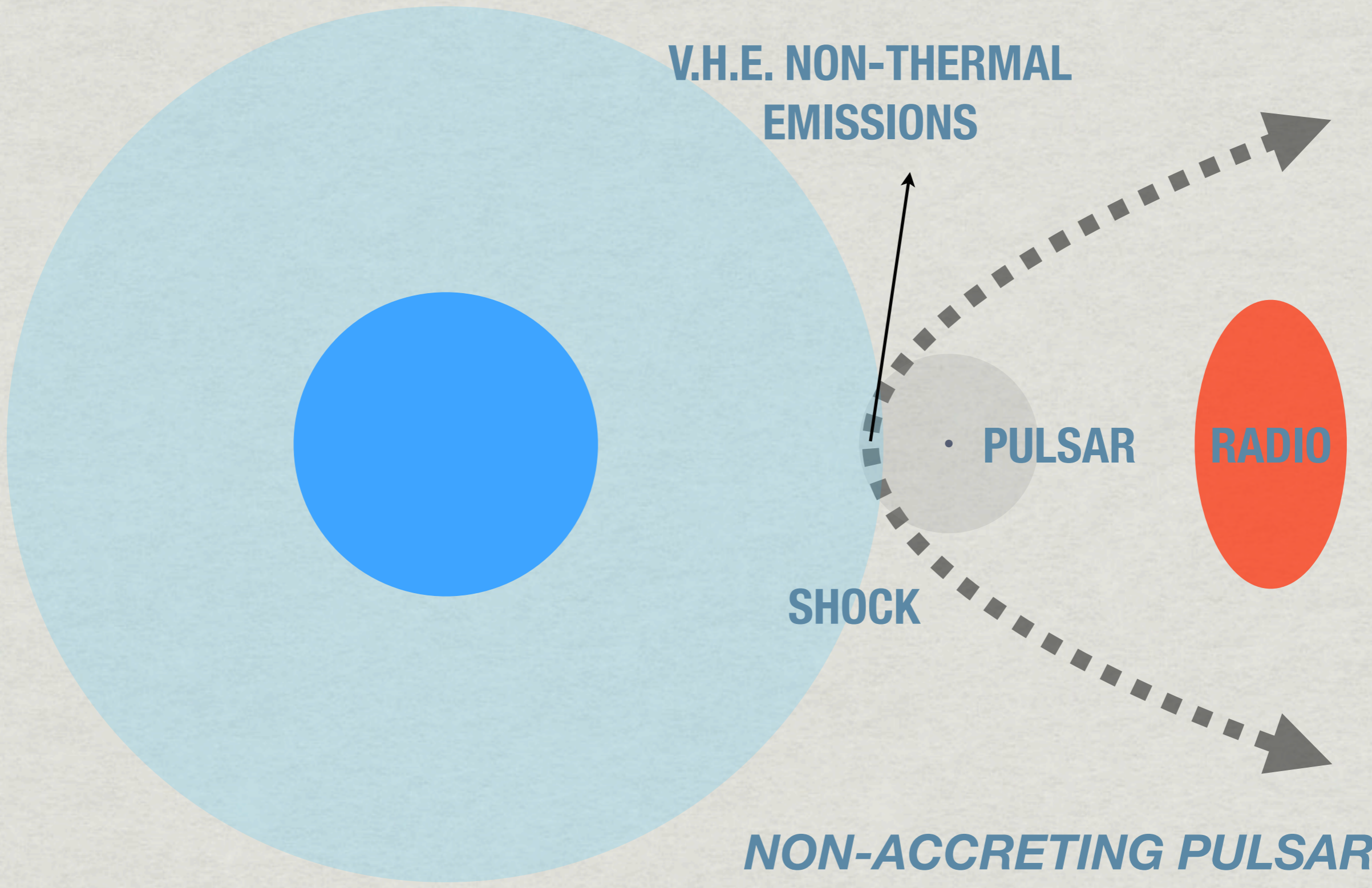
emission

- * inverse Compton upscattering of stellar UV photons by relativistic electrons





***MICROQUASARS
SCENARIO***



**V.H.E. NON-THERMAL
EMISSIONS**

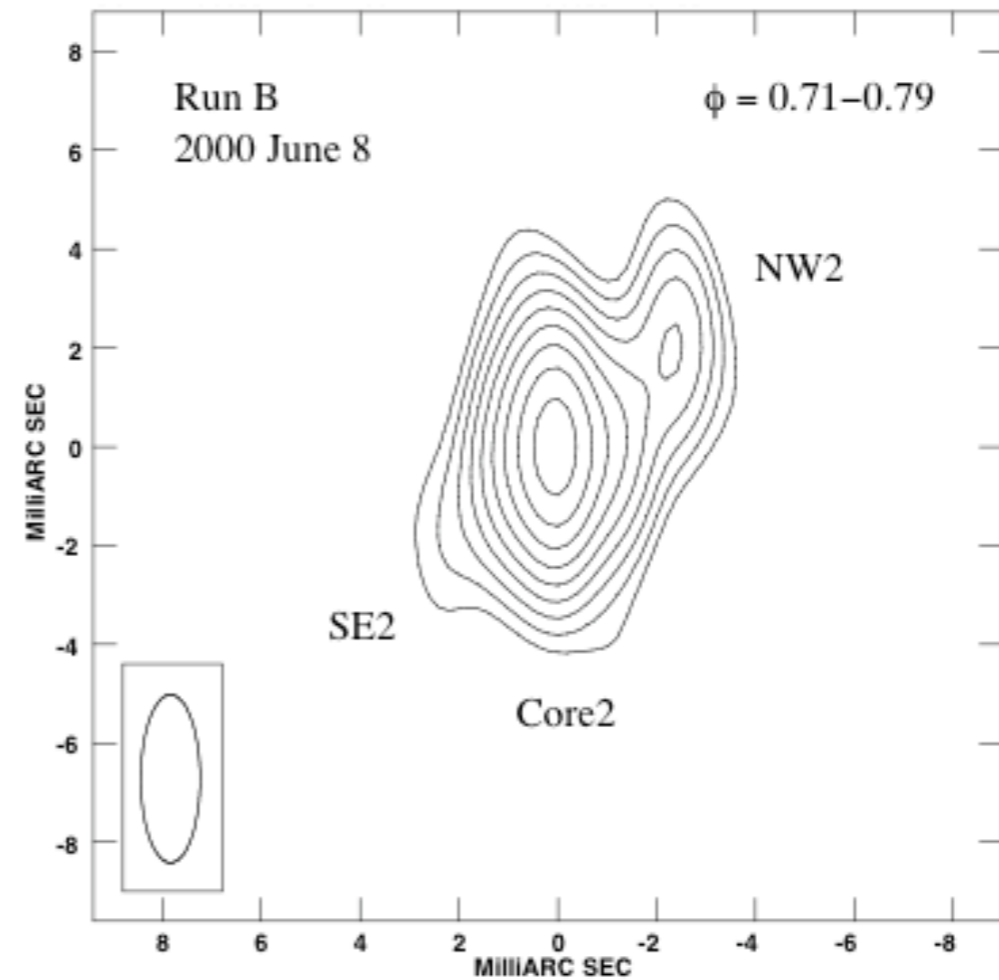
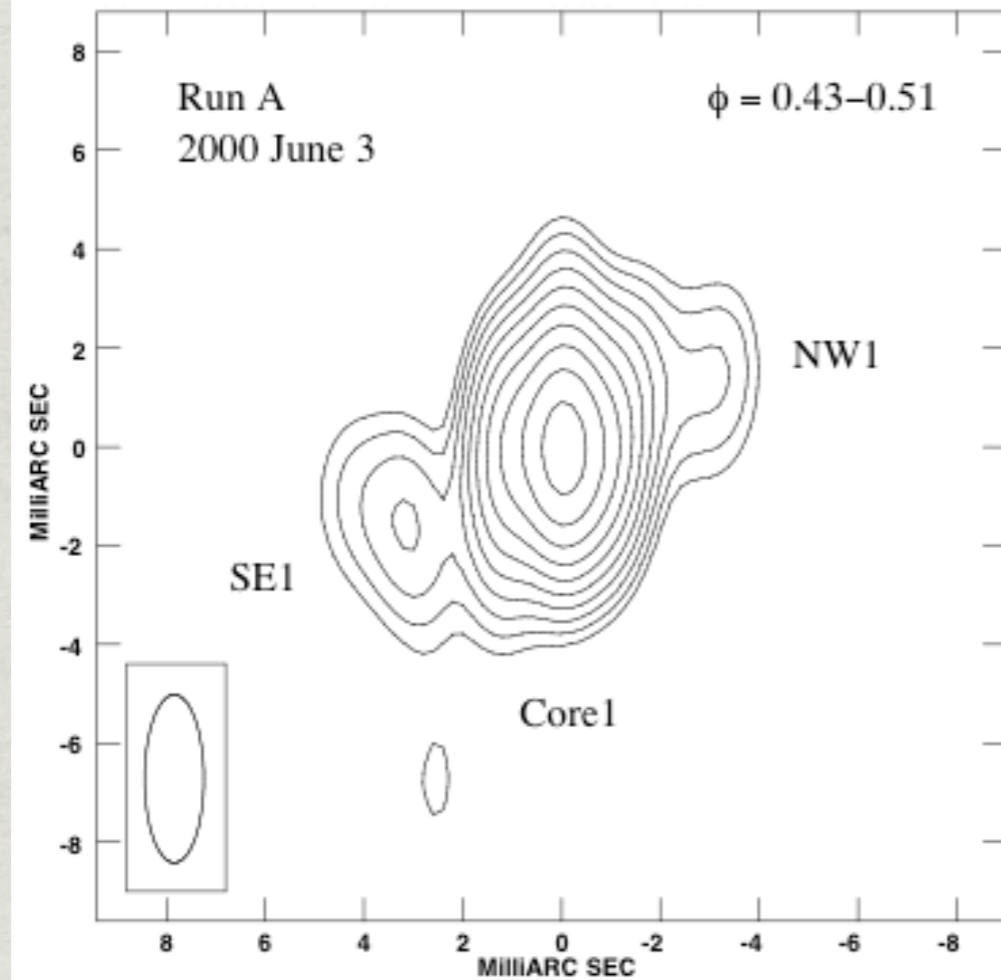
PULSAR

RADIO

SHOCK

***NON-ACCRETING PULSAR
SCENARIO***

- ✱ The expected behaviour of the radio emission at mas (milli-arcsecond) scales is different in each scenario.
- ✱ In the non-pulsar scenario, the direction of extended emission changes with the pulsar's orbital cycles.
- ✱ Moldón et al. observed LS 5039 with the VLBA (Very Large Baseline Array) and the VLA (Very Large Array) at 5 GHz frequency



✱ Conclusion

- ✱ The non-accreting pulsar scenario appears to be a more compatible interpretation.
- ✱ precise phase-referenced VLBI observations covering whole orbital cycle is needed.