Ultraluminous X-ray sources and self-lensing in globular clusters

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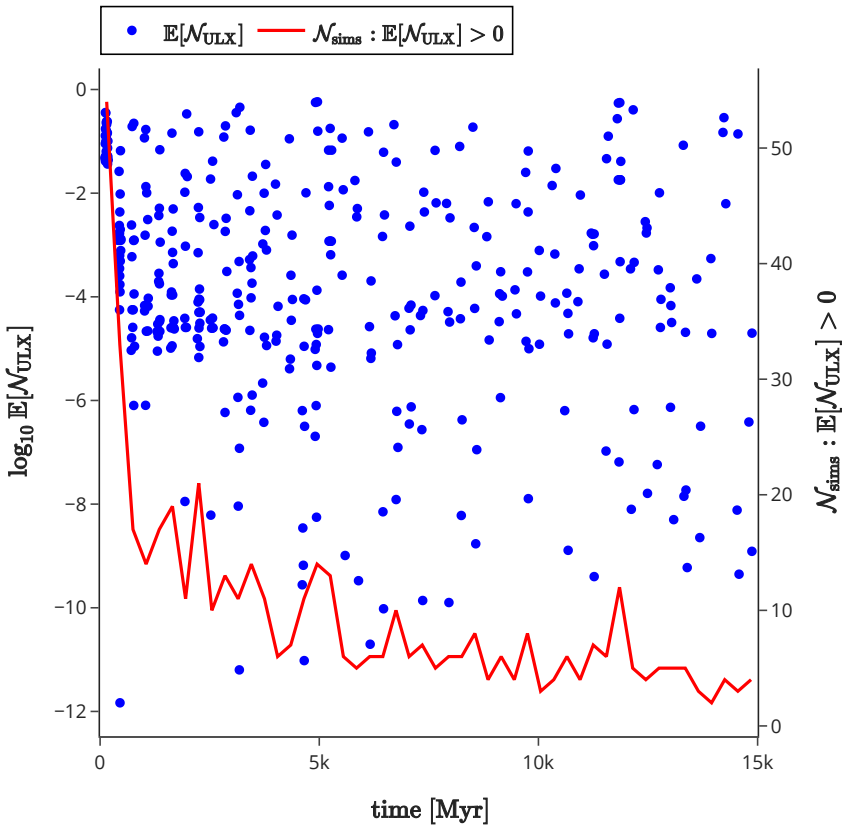
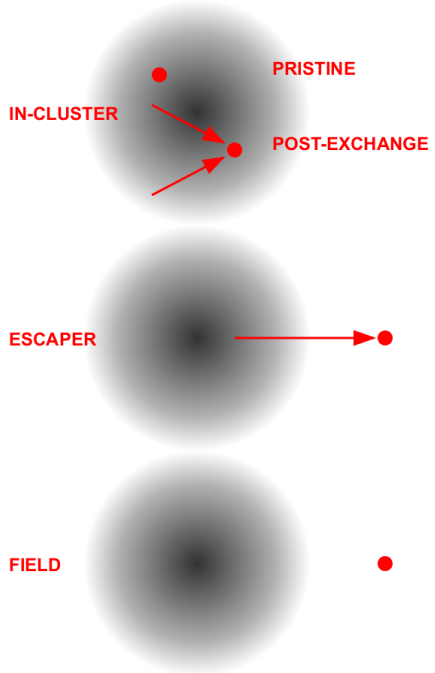


- Peak at < 300 Myr (young clusters)
- < 0.1 in old clusters (> 8 Gyr)
- Non-tidally filling: $10\times$ more ULXs

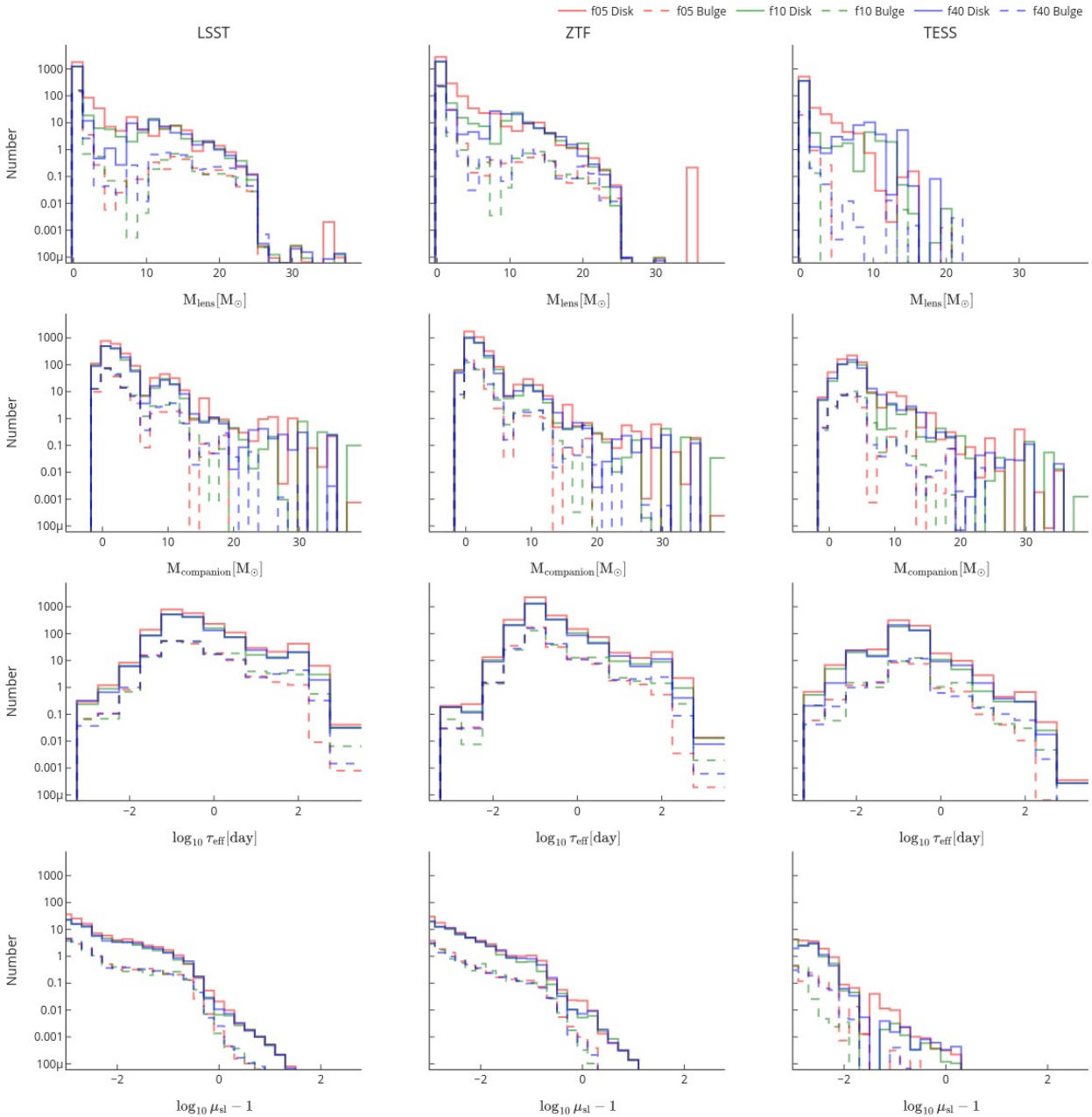
"Escapers": ULXs formed in GCs, ejected to field

- $\sim 1/7$ of total ULX population
- NS accretors: $2\times$ more escapers than in-cluster
- "contaminating" the field ULX population



Self-Lensing: probing SN engines

arXiv:2509.11726

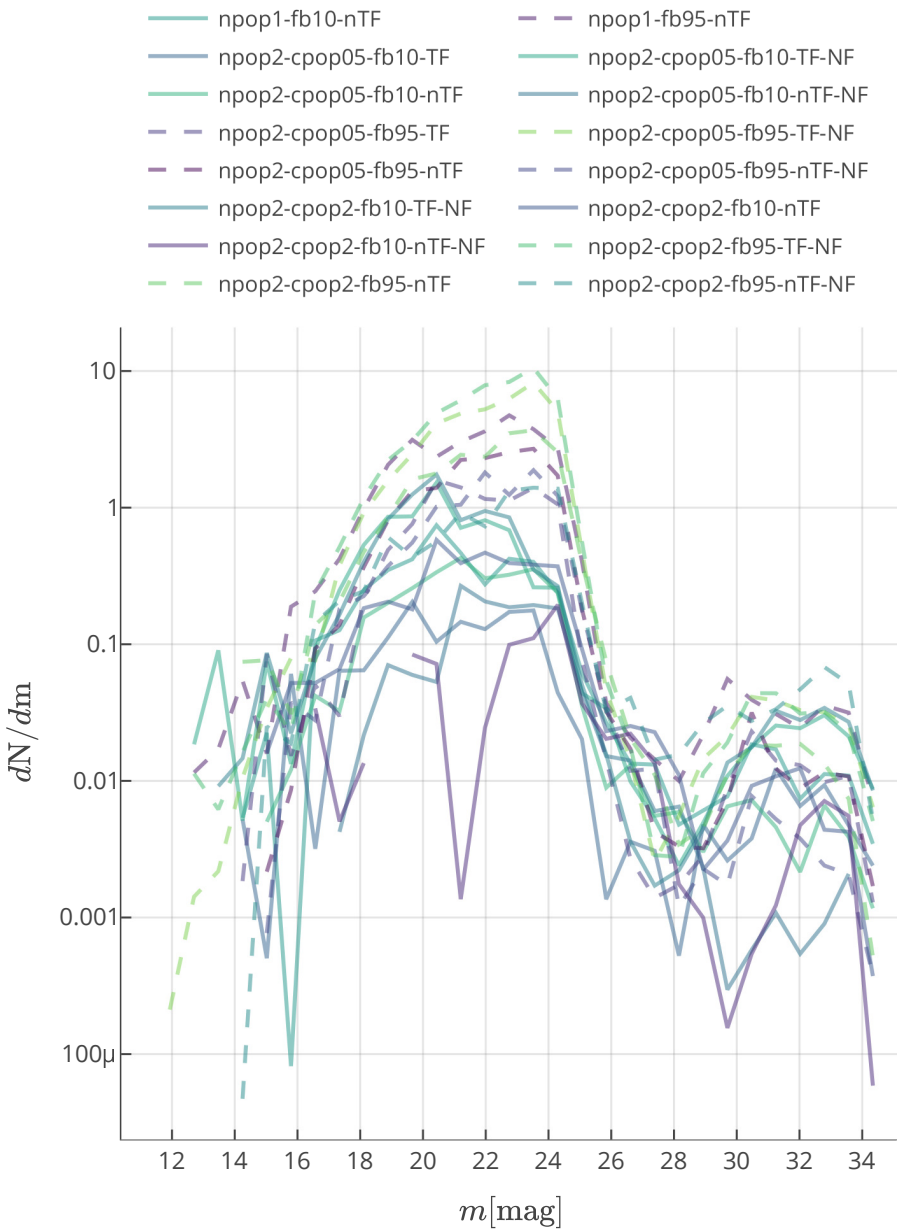


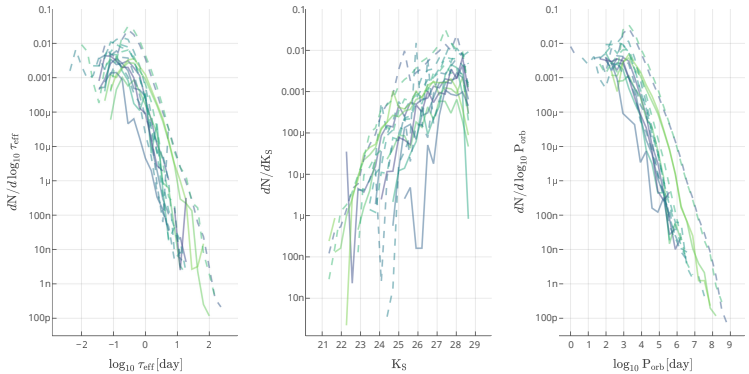
- No accretion needed
- Encodes lens mass
- Periodic signal

- 100s-1000s detectable (ZTF/LSST)
- SN models differ by 10× for mass gap objects

Self-Lensing: globular clusters

arXiv:2510.02751





- 1–50 per cluster at 10 kpc
- $\Delta m \sim 10^{-3}$ mag; $\tau_{\rm eff} \sim 2h$

- 0.01-0.1 per cluster with ELT
- First predictions for cluster cores