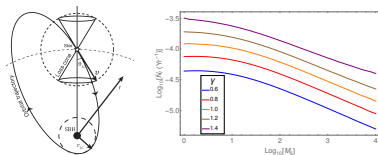


Black hole demographics from TDE modeling

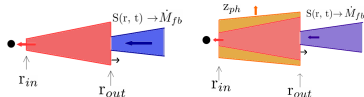
Mageshwaran Tamilan & Arun Mangalam Indian Institute of Astrophysics, Bangalore

- Physical parameters: M_\bullet , M_\star , R_\star , E and J .
 - Steady loss cone model: $\dot{N}_t \sim 10^{-4} M_6^{-0.3} \text{ yr}^{-1}$
 - Mass fallback rate \dot{M}_{fb} .
- Time-dependent and self-similar accretion models
 - Sub-Eddington disk: α viscosity, $\Pi_{\phi r} = \alpha_s P H$
 - Super-Eddington disk: radiative viscosity, $\Pi_{r\phi} = \eta_\gamma r H \left| \frac{d\omega}{dr} \right|$
 - Includes accretion, wind and mass fallback
- Fit to observations
 - 16 TDE sources
 - TDEs are dominated by low mass SMBHs and low mass stars.
- Schechter black hole mass function
 - Survey detection rates calculated using Steady loss cone model and accretion models.
 - Schechter parameters derived by comparing to observations.
- Galaxy averaged capture rate close to observed rate.



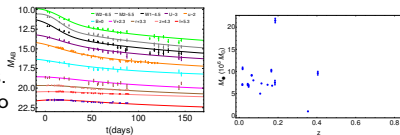
Loss cone

Theoretical capture rate



Sub-Eddington

Super-Eddington



ASAS-SN 14ae

BH distribution