

Long-term Solar System Survival (Analysis)

University of Toronto
Stellar Stats 2023

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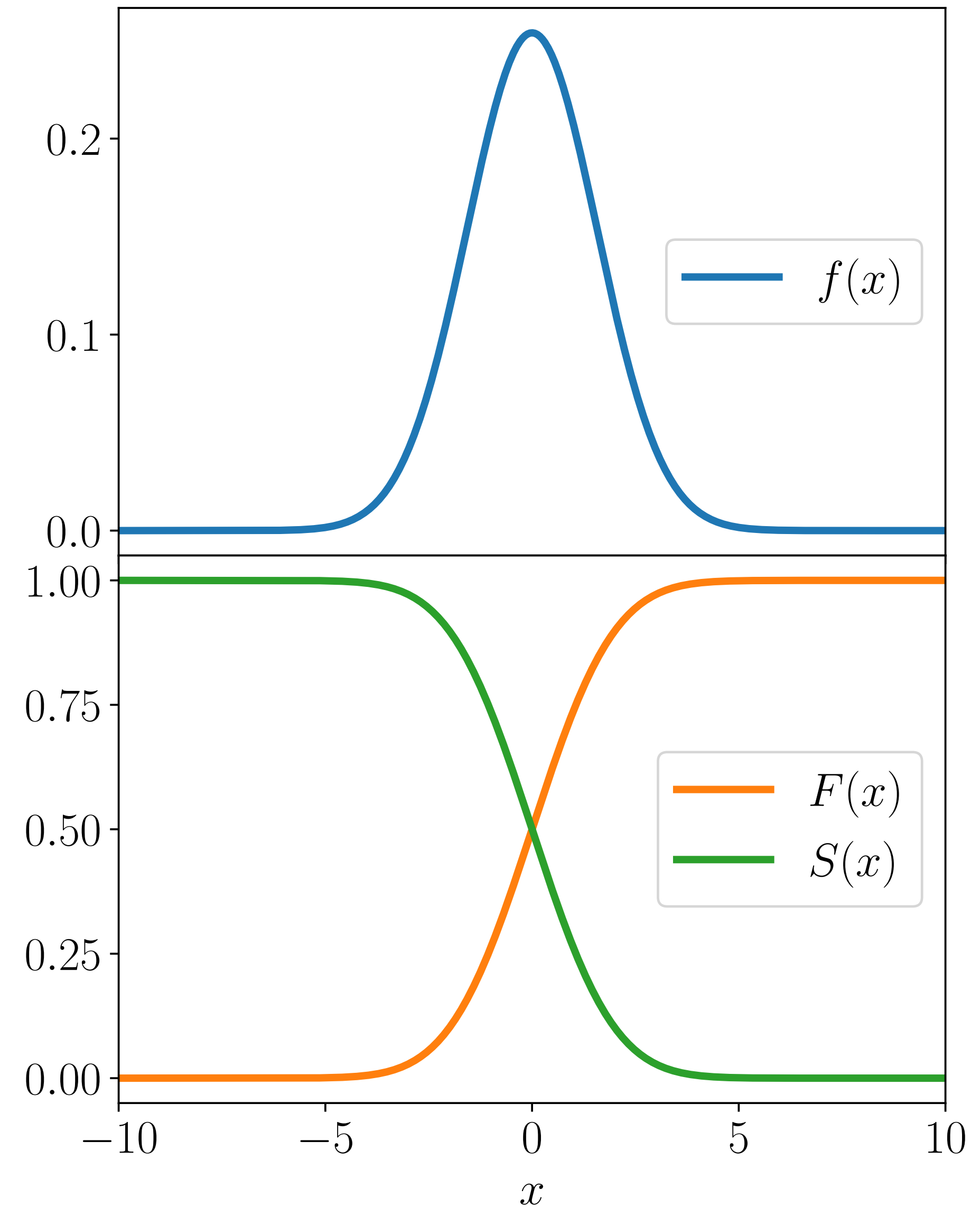
Survival Analysis

or Cumulative Distribution?

- Time to expected event

$$S(x) = \Pr\{X \geq x\} = 1 - F(x) = \int_x^{\infty} f(u) du$$

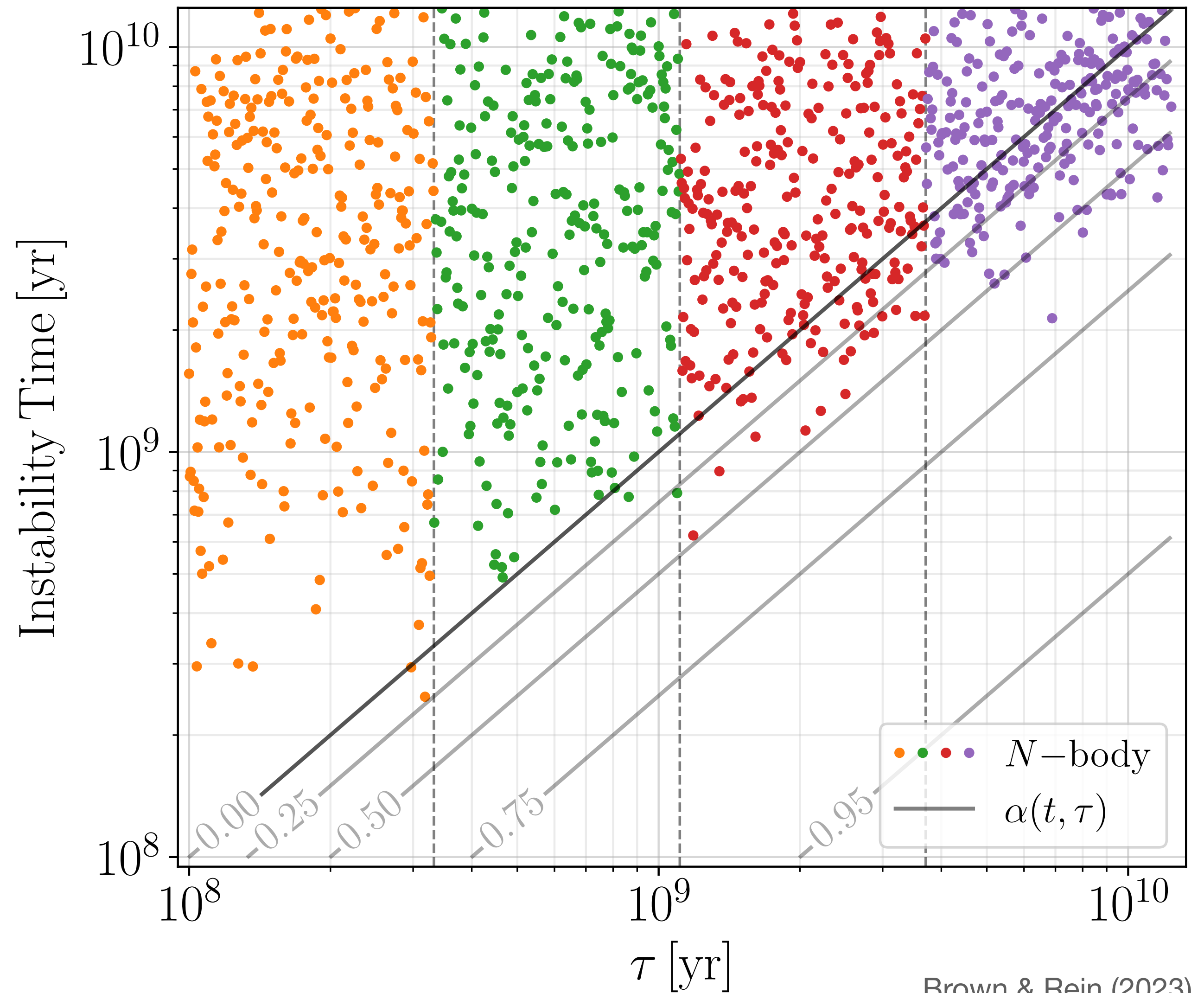
- The complement of the CDF, $F(x)$.



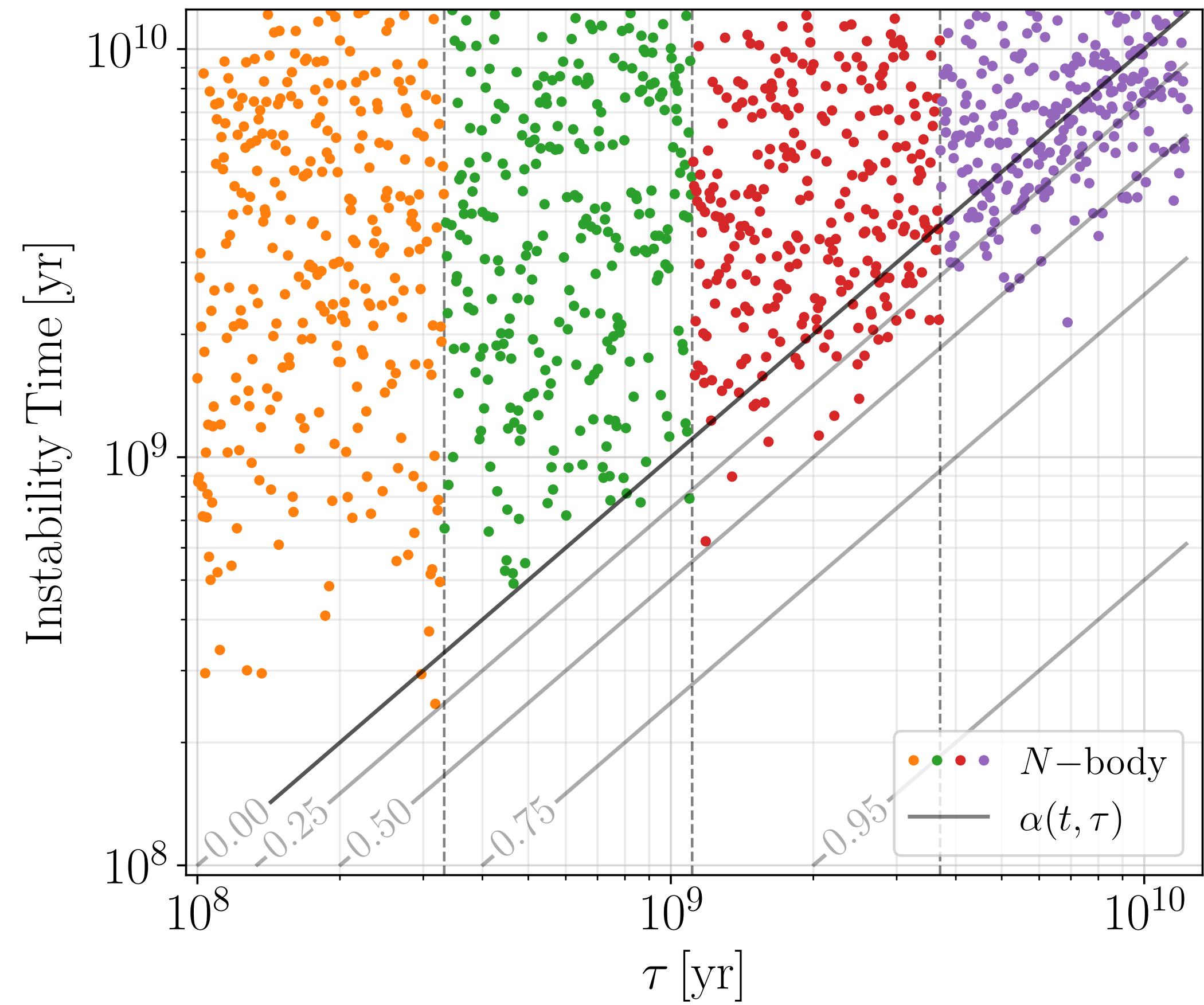
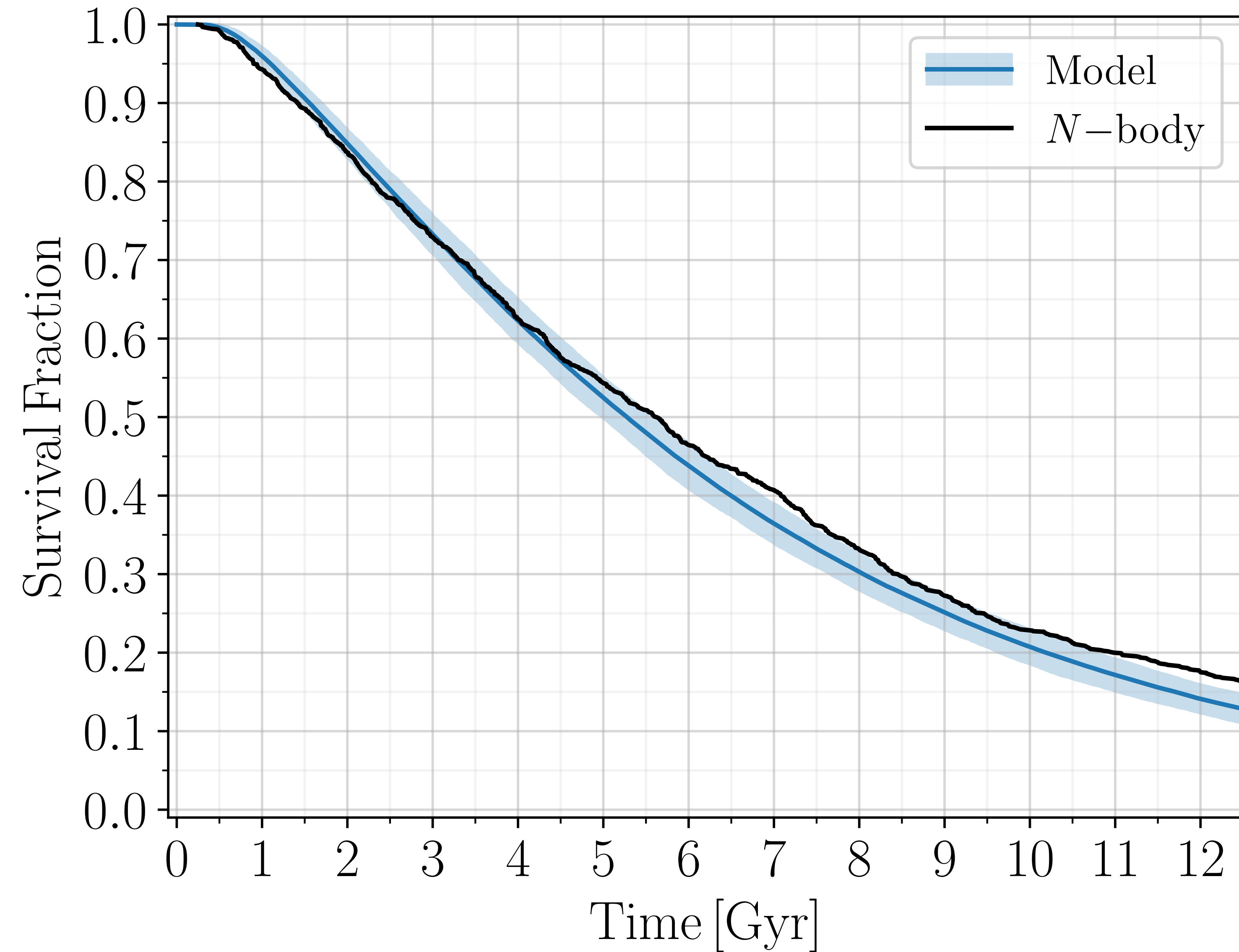
Dynamical Instability

Solar System Integrations

- Time-dependent general relativistic solar system model.
- What if GR slowly disappeared?
- Compare results to:
 - different values of τ ?
 - previous work?
- Expensive to run simulations.



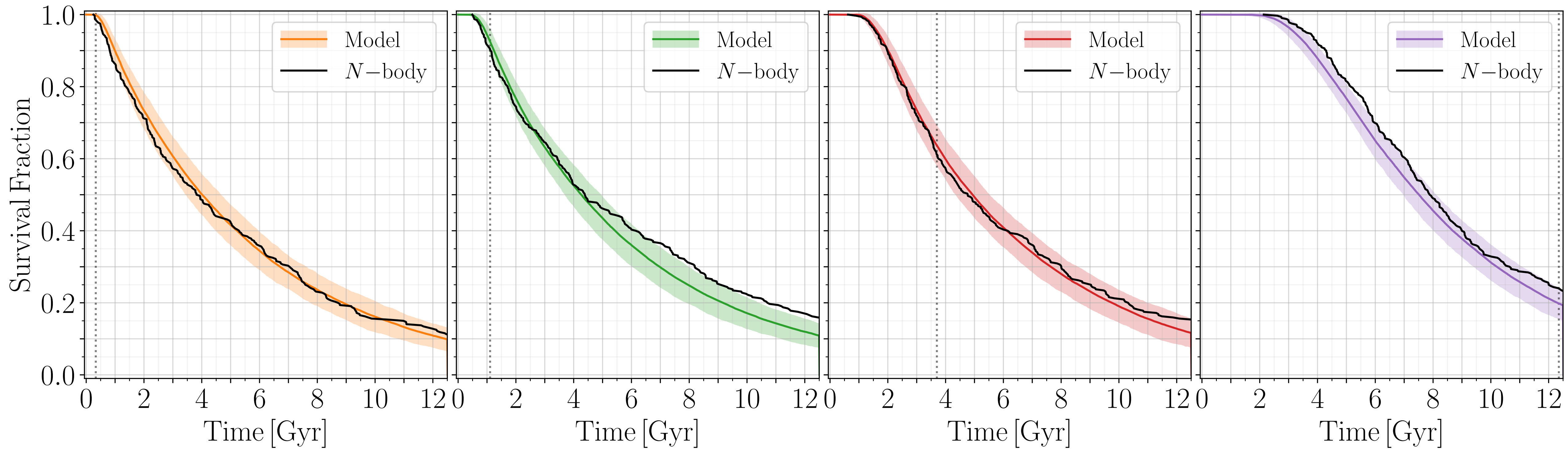
Survival Analysis All Solar System Integrations



Brown & Rein (2023)

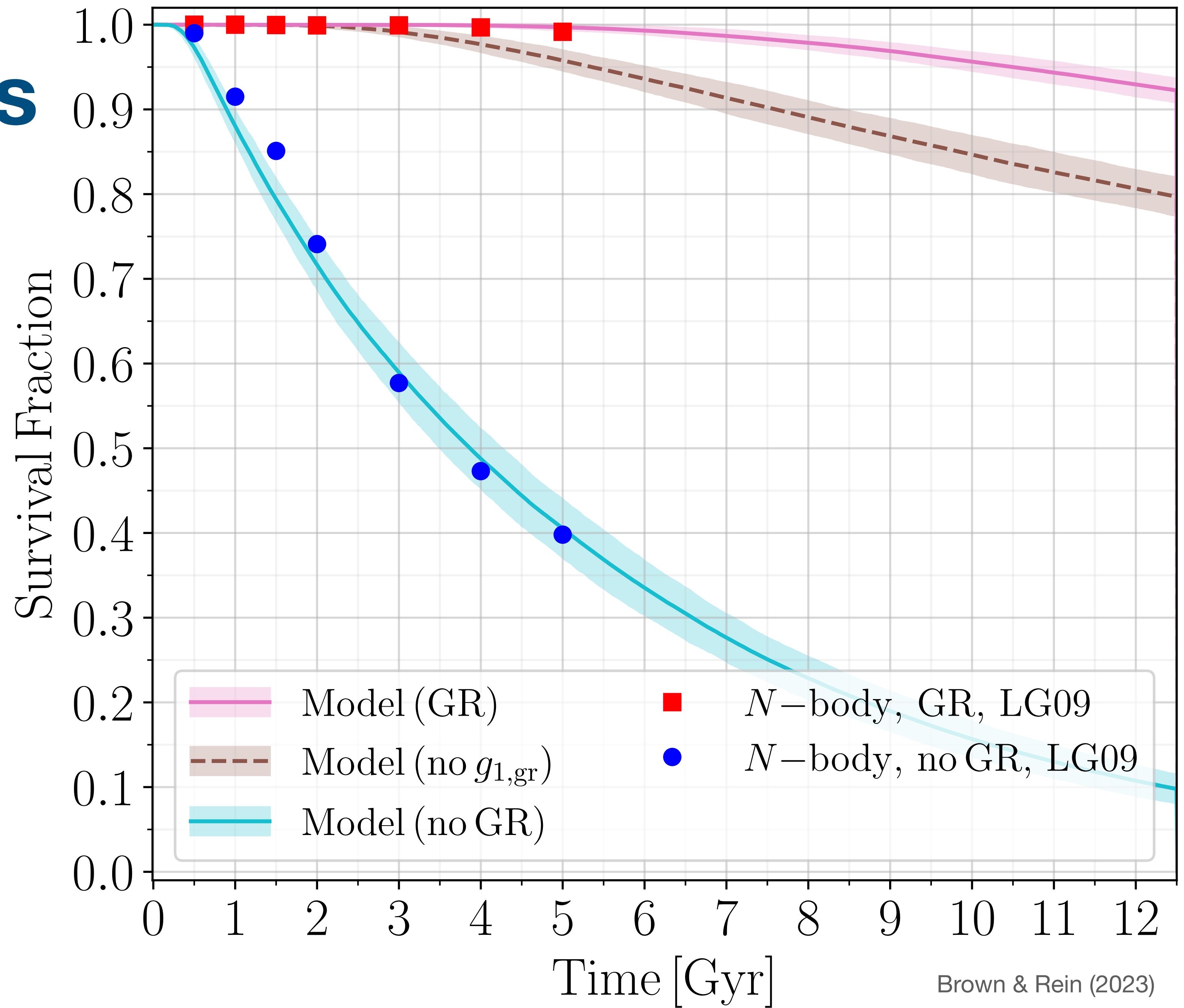
Survival Analysis

Regions of similar τ



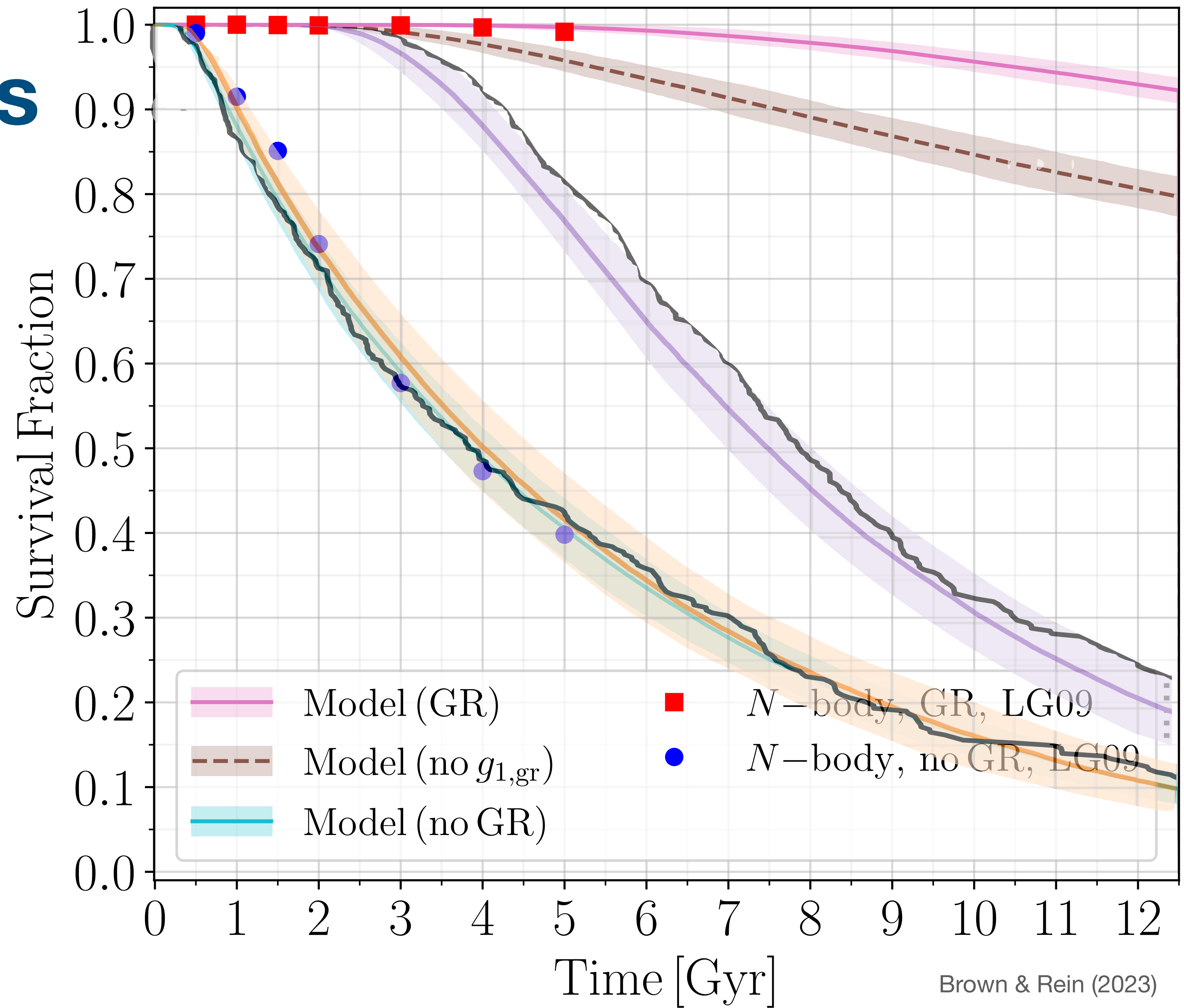
Survival Analysis

Previous Work



Survival Analysis

Previous Work



Thank you.