Summer Research:
# Hypervelocity Globular Cluster

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Simulation Parameters

- Input:
  - ▶ Blackholes: Mass ratio (1:100, 1:20, 1:10, 1:3), separation (1.7, 3, 5) parsecs
  - ▶ Globular Cluster: Closest approach (1.5, 2, 2.5, 3) times BH separation
- For each combination of operational parameters, cycle through initial blackhole phases 0 to 2pi
- Output:
  - ▶ Velocity of ejected GC, maximum tidal acceleration experienced, all operational params.

How BH phase affects ejection velocity

- Need to only consider phase-space that results in ejected globular cluster.

- Some energy from GC is transferred to BBH when it is captured.

- Record GC energy during integration. If energy drops below initial starting energy, stop integration, and record escape velocity as 0 km/s
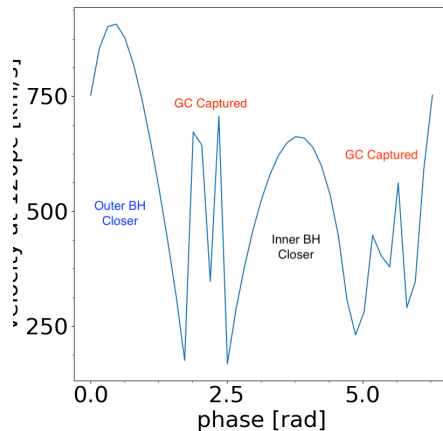
Backup Slides

3:1 Mass ratio

- 2-3 pc pass from larger BH.
- Tidal radius of 0.3-0.4 pc