1 Description

- (Working) Title: The effects of binary stars on recovered remnant populations.
- Hypothesis/Research Question: So I think the goal is basically to see what the effects of realistic binary populations are on LIMEPY models and by extension, see what the effects on the recovered remant population are.
- Goals and Objectives: Create realistic binary populations, make some toy models to demonstrate the effects, fit models with realistic binary populations to observations, compare remant populations.

2 Motivation and Rationale

Right now, our models don't account for binaries at all, some studies suggest that binaries could mimic the effect of heavy remants (cite them here). Discuss the observations that we *do* have and the limits.

3 Methodology

- Approach to problem
- Techniques/Methods

Basically we're just going the shift the mass around according to the binary fractions and chosen mass ratio distribution. the models will then be fit in the usual way with GCfit but will need to take special care with mass function fitting. will probably need to use isochrones to get the color and luminosity of the binary system in order to count them as the correct observed mass for the mf data (see discussion below, may not be needed).

4 Timelime

- Basic reading and planning ✓
- Get the realistic binary populations working
  - Currently have it working with binaries defined by mass fraction
  - Use the binary fraction that is usually used so that we can compare to observations

  - Look into using isochrones to get the apparent color/magnitude of binary stars so we can fit with MF data (this may or may not be needed depending on how the MF data is reported, read the Sollima papers to see exactly how they handle the binaries)

- Toy models
- Fit models
- Analysis/Writing
- End date