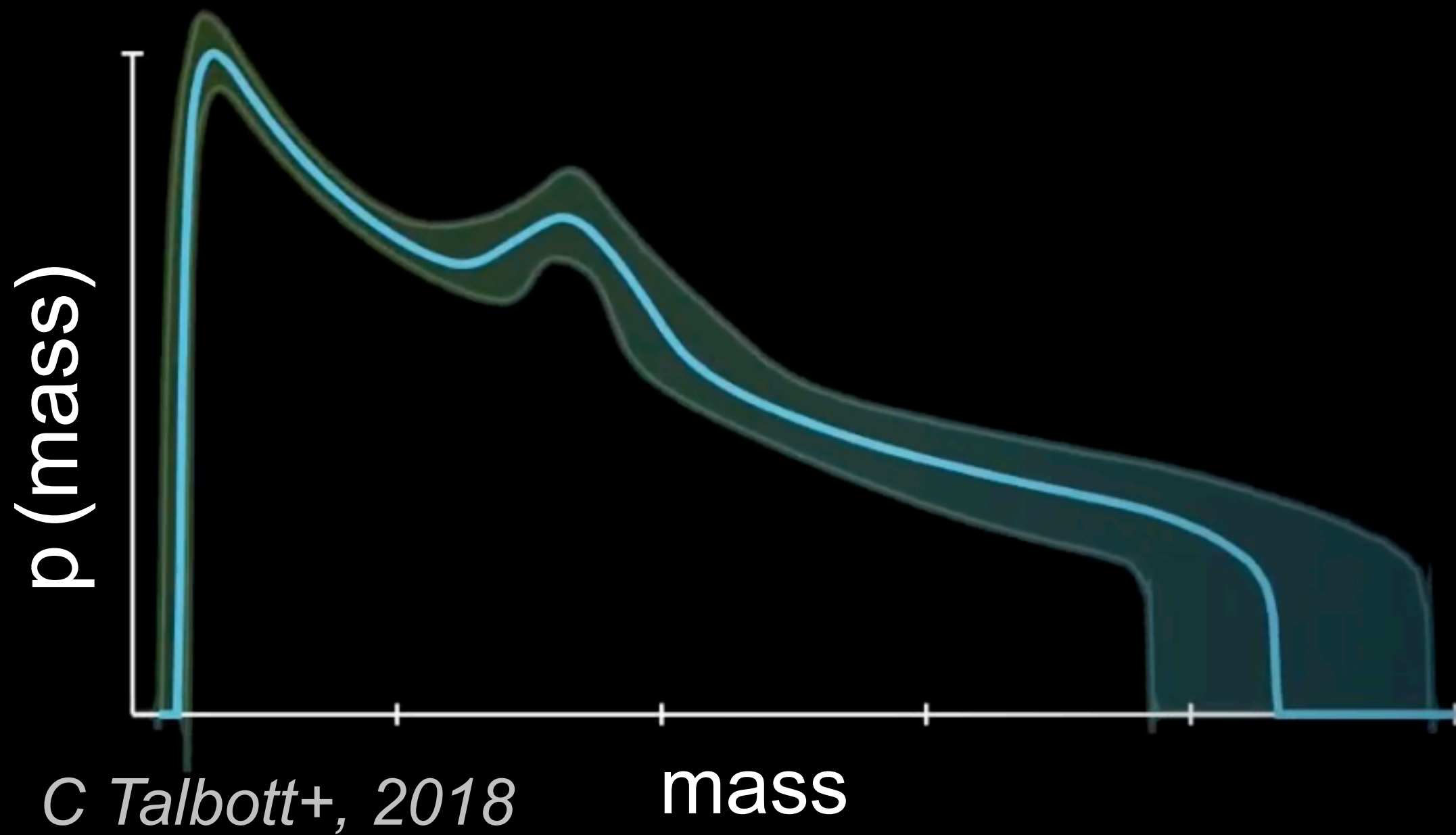


Big bang

Binary Black hole  
populations



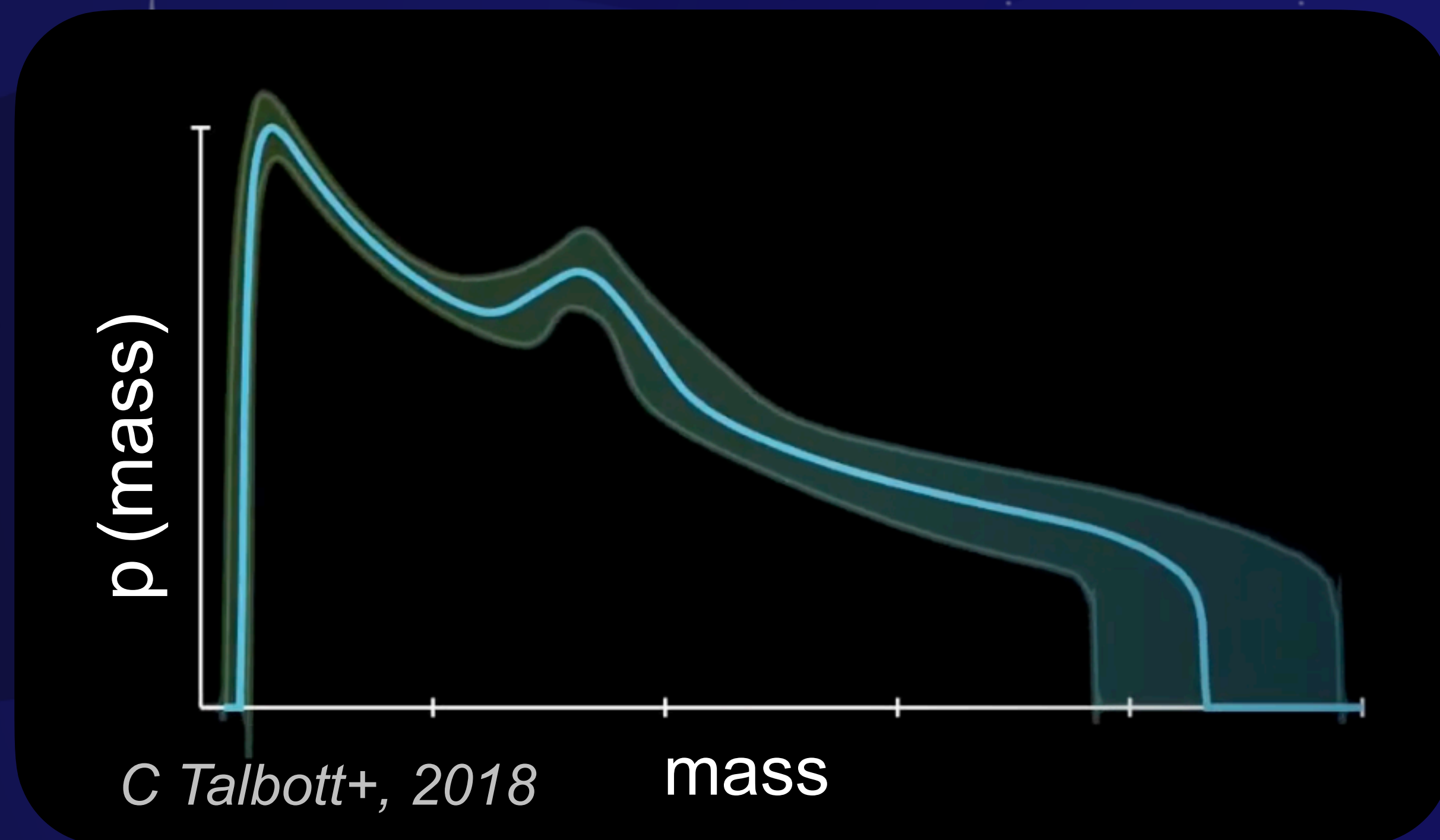




# Population Analysis

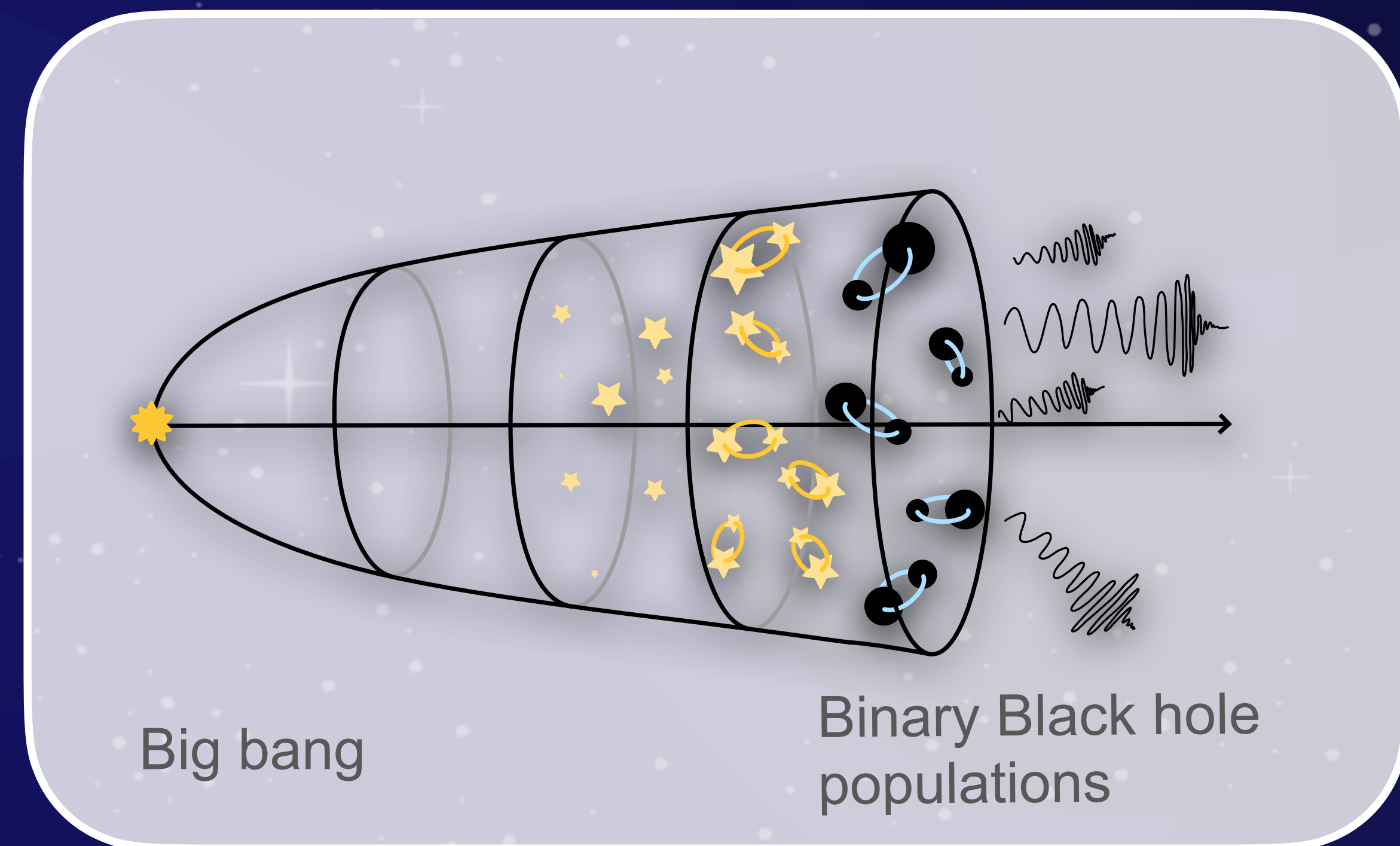
$$p_{\text{pop}}(\Lambda | \mathcal{D}) = \frac{L_{\text{pop}}(\mathcal{D} | \Lambda) \pi_{\text{pop}}(\Lambda)}{Z_{\text{pop}}}$$

**Parametric / non-param modelling**  
*Fit distributions to data*



$\Lambda$  describes shape of distribution

**Forward (simulator) modelling**  
*Simulate the universe forward in time*



$\Lambda$  describes evolution from  
*Big bang  $\rightarrow$  stars  $\rightarrow$  black holes  $\rightarrow$  GW*



# Population Analysis

**Parametric / non-param modelling**  
*Fit distributions to data*

