GW Event Catalog

Event	Mass 1	...	Posterior
GW150914	$35.6^{+4.7}_{-3.1}$	...	
GW151012	$23.2^{+14.9}_{-5.5}$	...	
...			$\sim\mathcal{O}(1\text{ MB})$

Posterior

q

$M_f\,[M_\odot]$

KAN Density Estimator
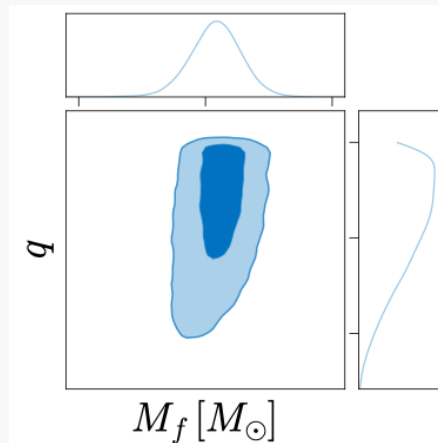
Lightweight Catalog

High-fidelity Neural network weights
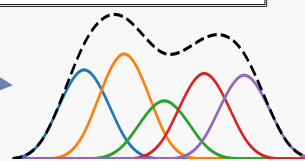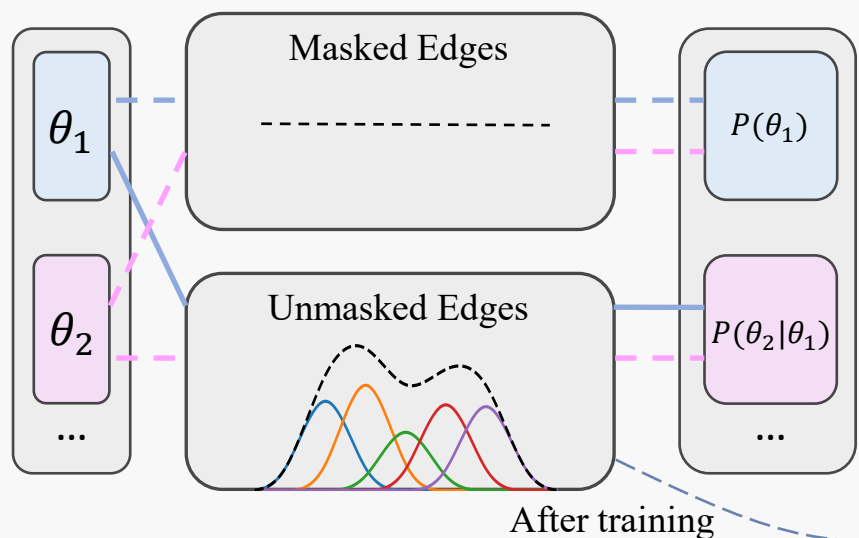
$\sim\mathcal{O}(10^1\text{ KB})$

Lite format Symbolic expressions

$P(\boldsymbol{\theta})$ $\sim\mathcal{O}(1\text{ KB})$

Kolmogorov-Arnold Network based neural density estimator

Input posterior samples $\{\boldsymbol{\theta}\}$

θ_1

θ_2

...

Masked Edges

Unmasked Edges

$P(\theta_1)$

$P(\theta_2|\theta_1)$

...

After training

Analytic fitting

$y(x) = 2x^2 + x$?

Output posterior probability form

$P(\boldsymbol{\theta}) =$?

Resampling

q

$M_f\,[M_\odot]$