

$$\mathcal{L}_{\text{BNN}} = \int d\omega \, q(\omega) \sum_{\text{points } j} \left[\frac{\left| \bar{A}_j(\omega) - A_j^{(\text{truth})} \right|^2}{2\sigma_{\text{stoch},j}(\omega)^2} + \log \sigma_{\text{stoch},j}(\omega) \right] + \text{KL}[q(\omega), p(\omega)]$$