/66

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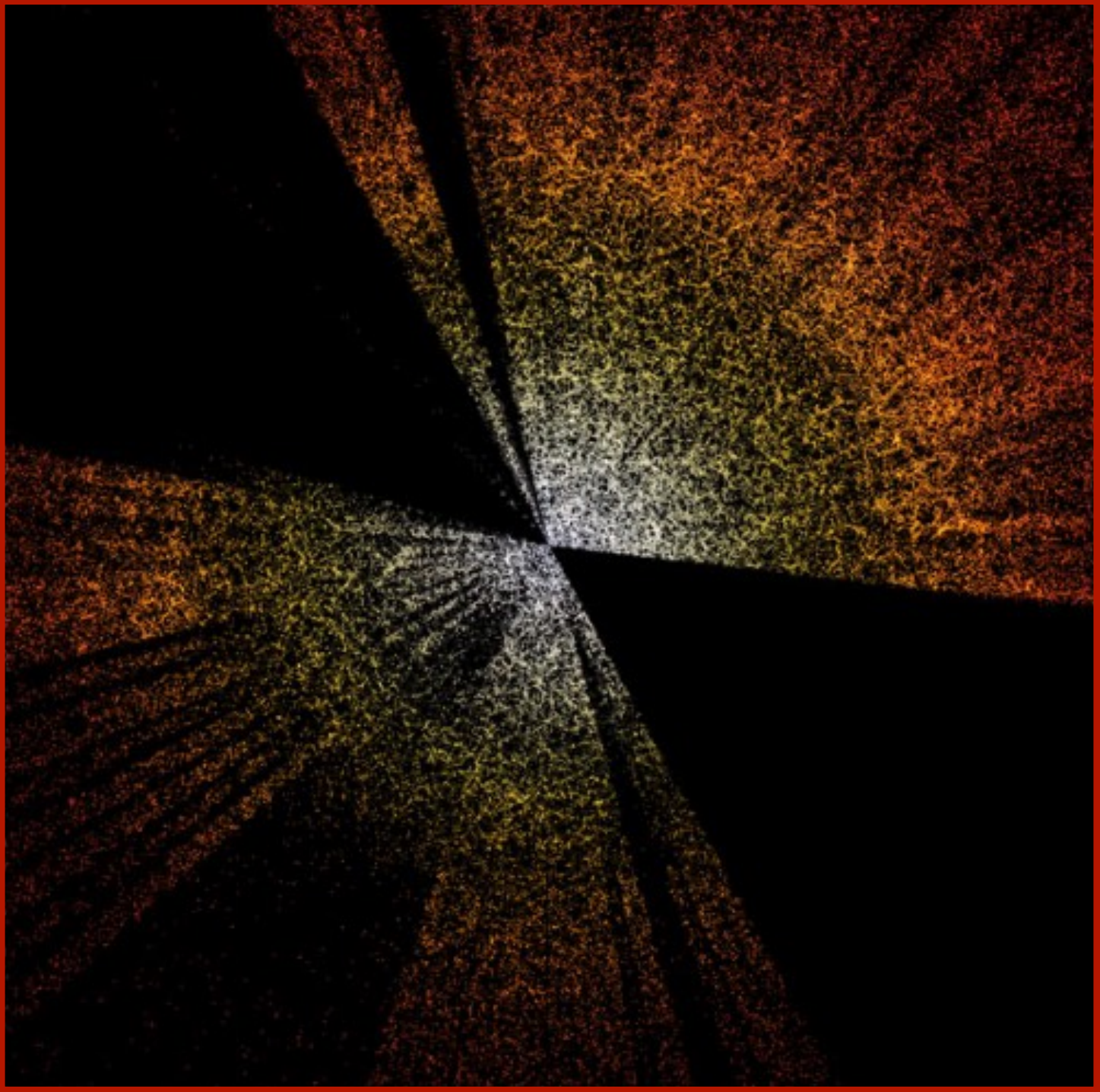
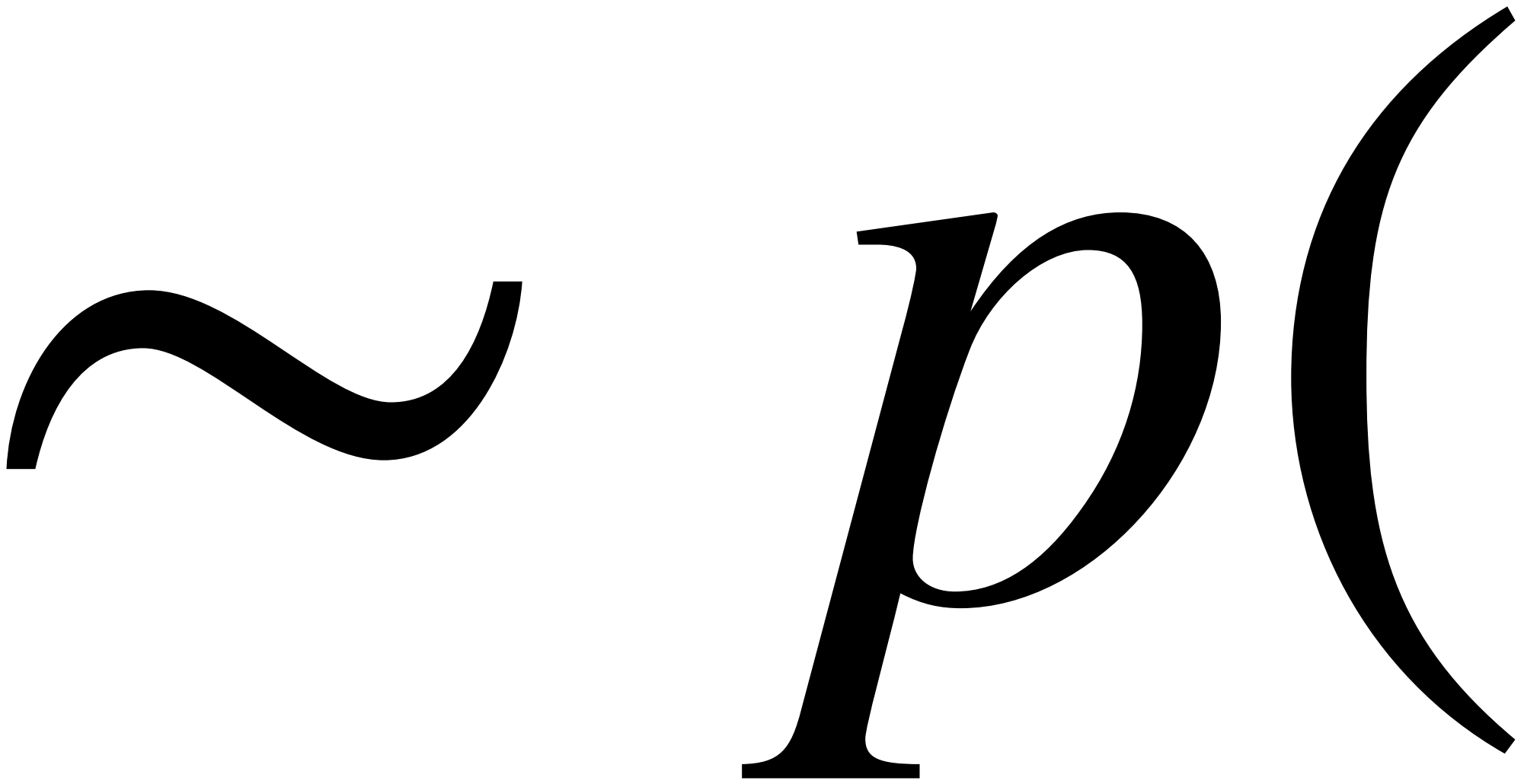
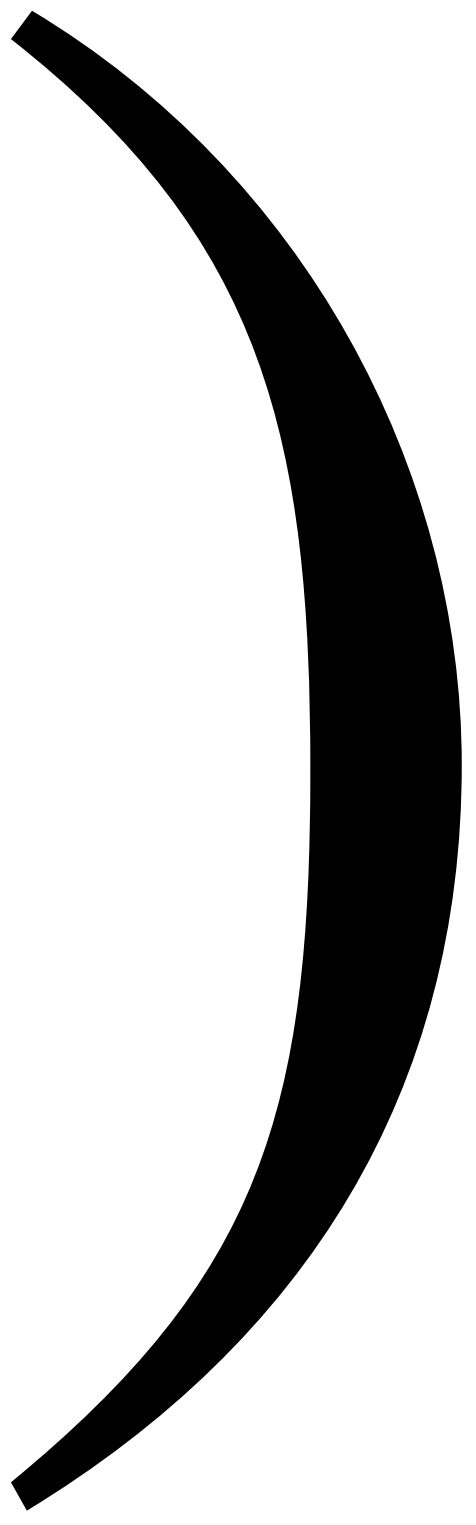
Emulation and inference

Emulation/ sampling

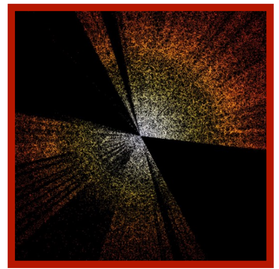


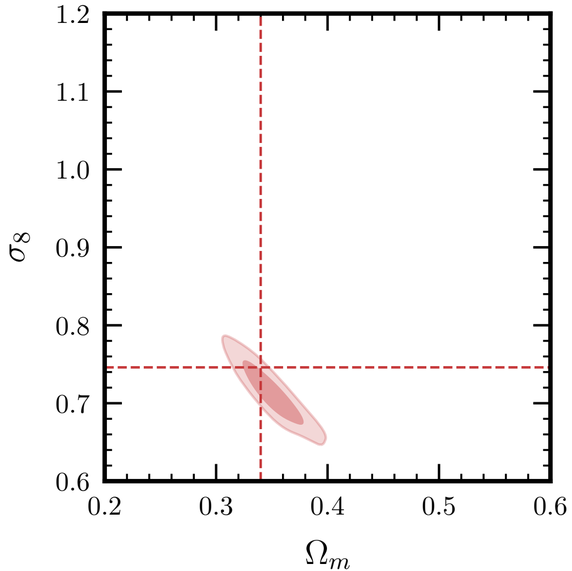




Cosmology

Galaxy-halo

$$p(\ \text{Cosmology}\ \Omega_m, \sigma_8\ |\ \text{  }\ )$$

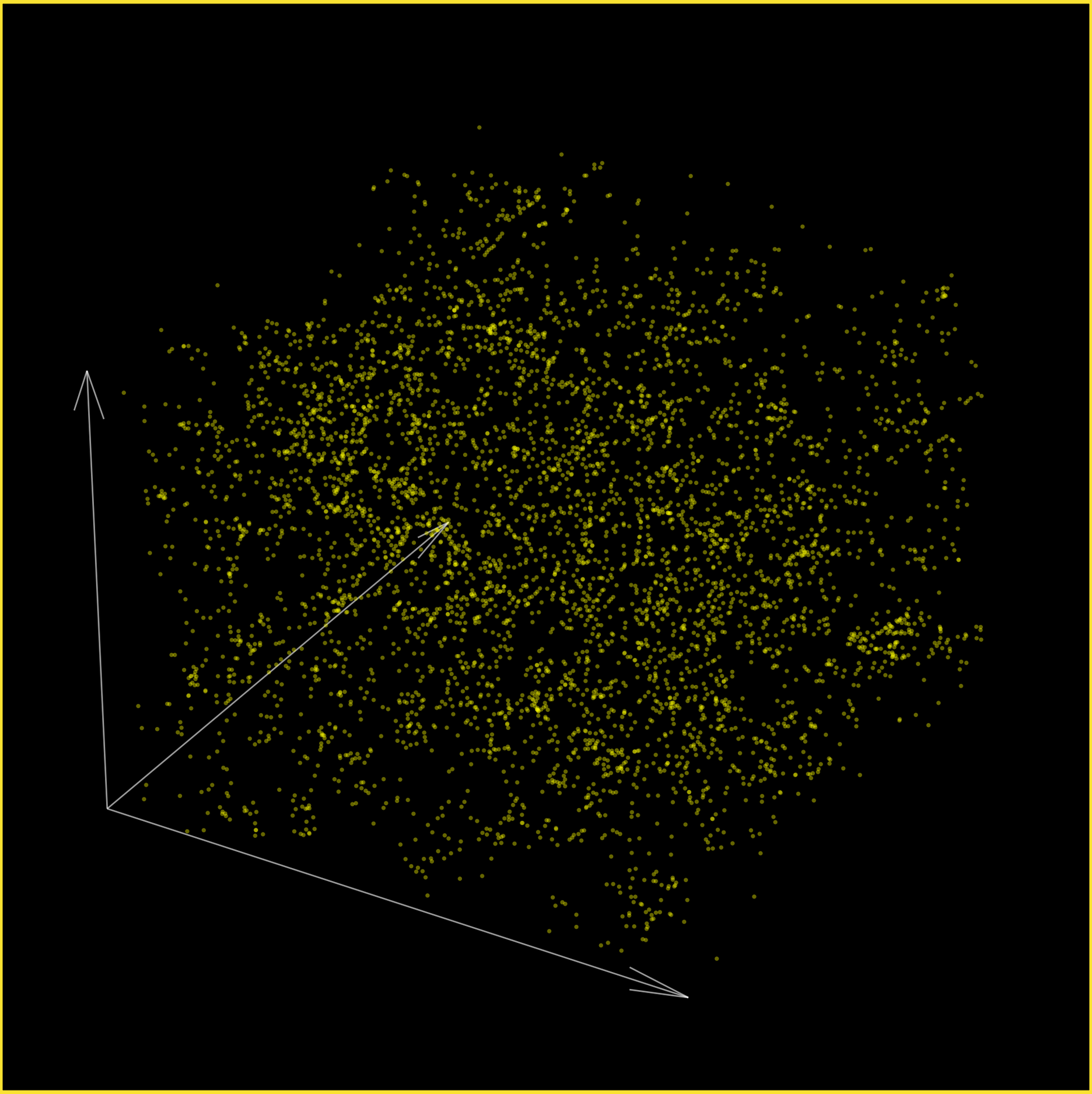


Parameter estimation

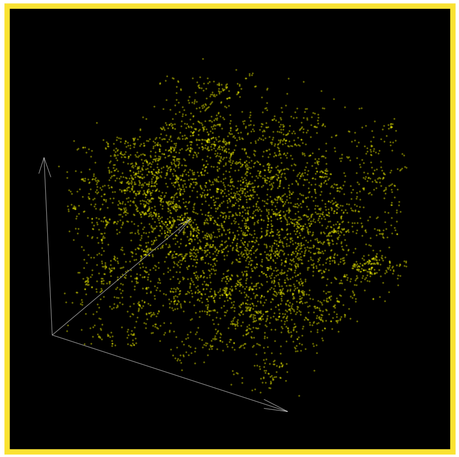
$\nabla_{\{\Omega_m, \sigma_8\}} p$

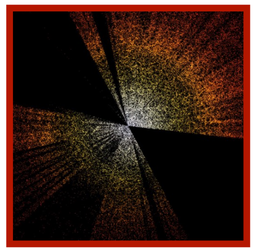
Differentiable likelihood

→ even better!

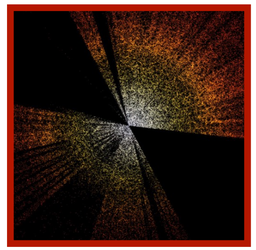


Emulation and inference



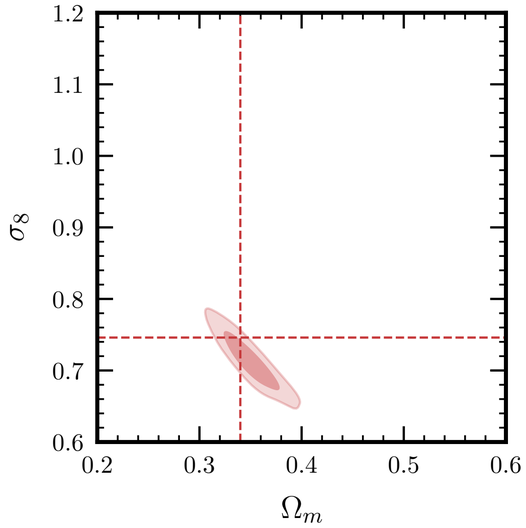
$$\sim p\left(\; \text{  } \; \middle| \; \begin{array}{l} \text{Cosmology} \\ \text{Galaxy-halo} \end{array} \right)$$

Emulation/ sampling

$$p\left(\; \begin{array}{l} \text{Cosmology} \\ \Omega_m, \sigma_8 \end{array} \; \middle| \; \text{  } \right)$$

$$\nabla_{\{\Omega_m, \sigma_8\}} p$$

Differentiable likelihood → even better!



Parameter estimation

The diffusion score model

Want a score model that

- Operates on *sets* of varying cardinality
- Is permutation equivariant
- Efficiently captures correlation structure of point cloud