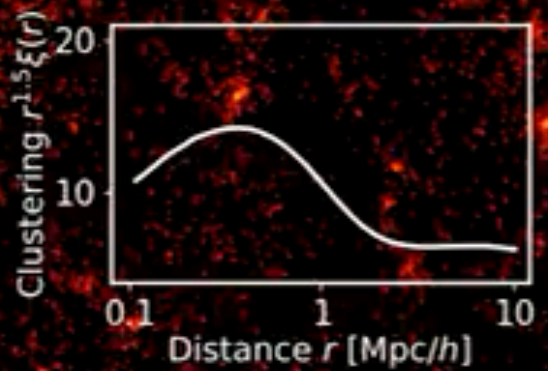
/66

The Many Universes of AbacusSummit

Cosmology 1 of 95

8 Mpc/h



$\Omega_M = 0.315$
$\Omega_\Lambda = 0.685$
$\Omega_\nu = 0.00142$
$h = 0.674$
$\sigma_8 = 0.808$
$n_s = 0.965$
$\alpha_s = 0$
$w_0 = -1$
$w_a = 0$

AbacusSummit.ReadTheDocs.io/

Conditional simulators

$$x \sim p(x \mid \theta)$$

$$x \sim p(x; \mathscr{M})$$

Model

Model parameters

or

Cosmology data

$$\text{particles} \sim p(\text{particles} \mid \{\Omega_m, \sigma_8\})$$

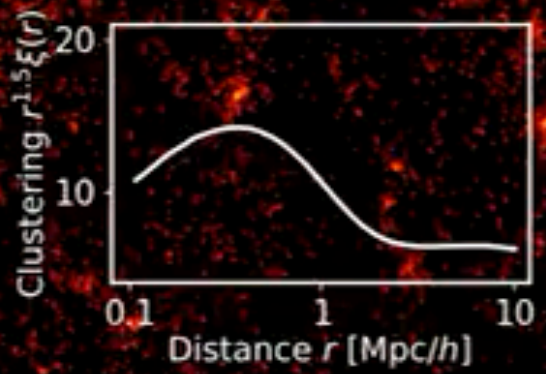
Conditional simulations *sample from the likelihood* $p(x \mid \theta)$

[Abacus Summit]

The Many Universes of AbacusSummit

Cosmology 1 of 95

8 Mpc/h



$\Omega_M = 0.315$
$\Omega_\Lambda = 0.685$
$\Omega_\nu = 0.00142$
$h = 0.674$
$\sigma_8 = 0.808$
$n_s = 0.965$
$\alpha_s = 0$
$w_0 = -1$
$w_a = 0$

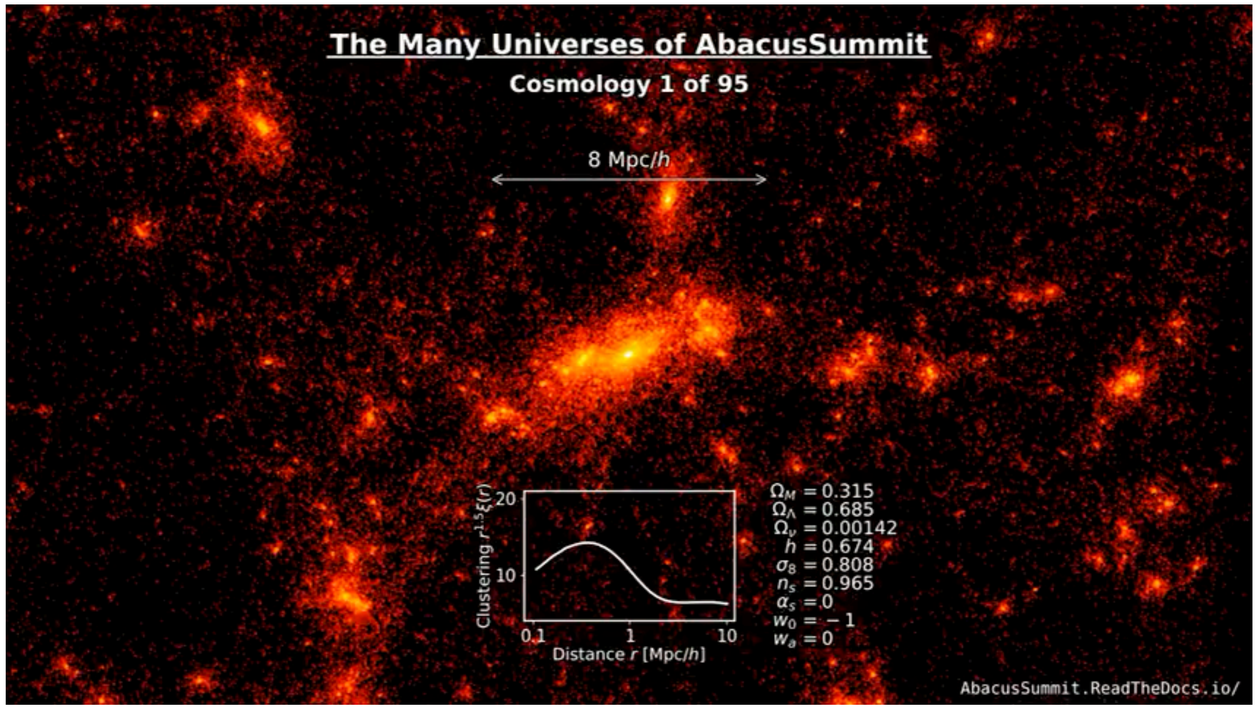
AbacusSummit.ReadTheDocs.io/

Conditional simulators

Conditional simulations *sample from the likelihood* $p(x \mid \theta)$

Cosmology data

$$\text{particles} \sim p(\text{particles} \mid \{\Omega_m, \sigma_8\})$$



[Abacus Summit]

$$x \sim p(x; \mathscr{M})$$

Model

or

$$x \sim p(x \mid \theta)$$

Model parameters

Slide: Johann Brehmer

Are simulators all you need?

Theory parameters θ

Evolution