Results from 1-point statistics in extended cosmologies

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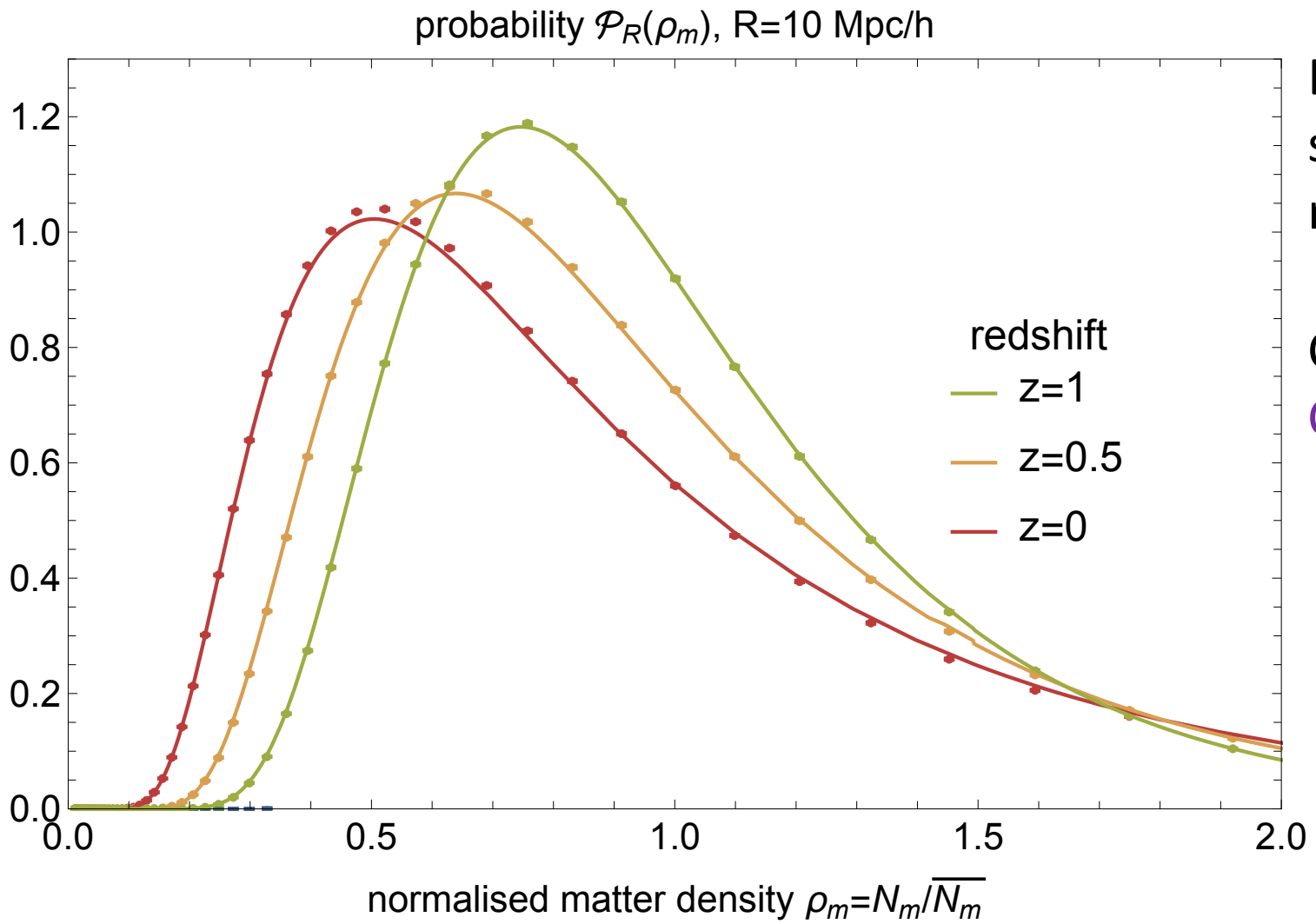
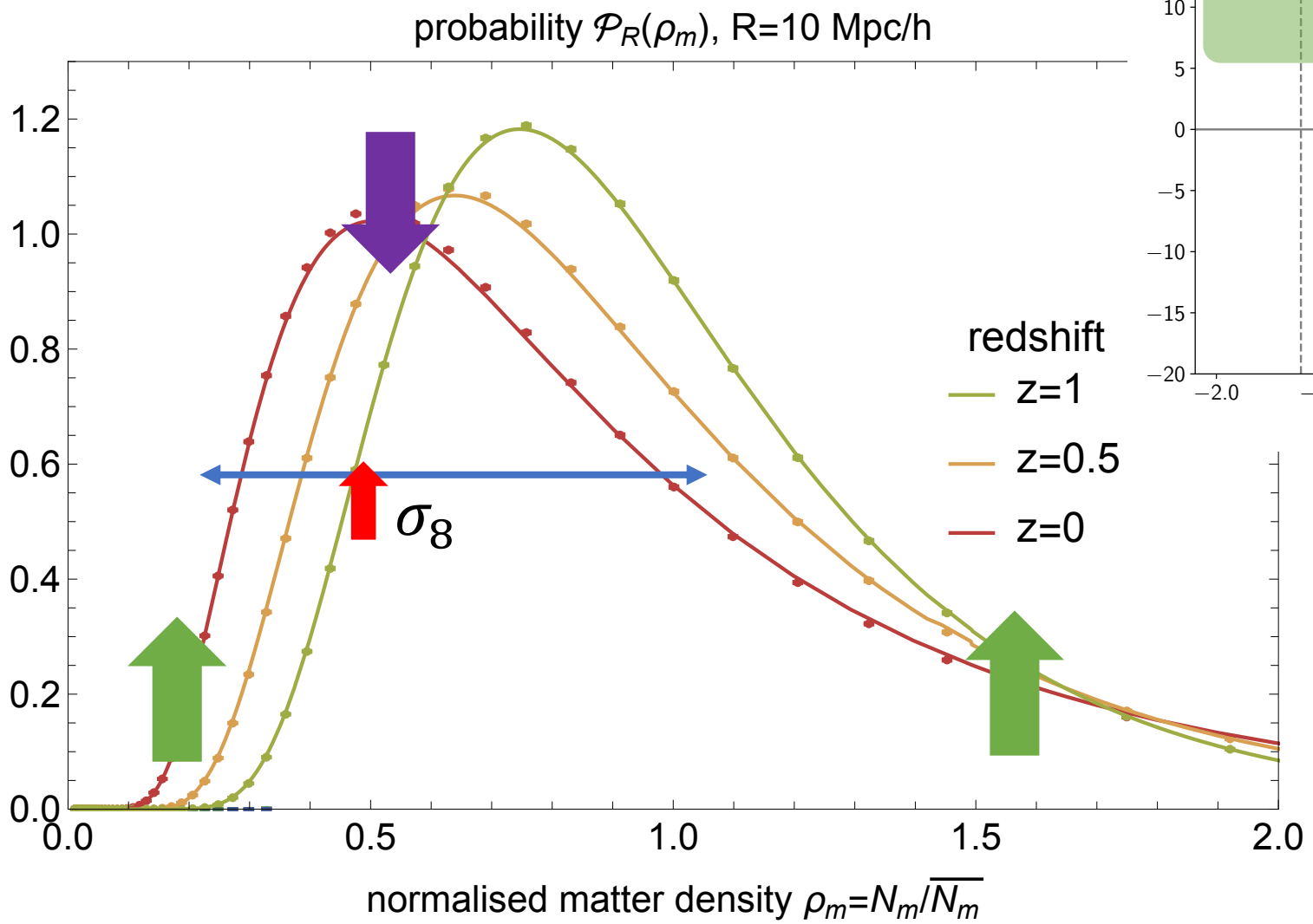
The matter PDF, $\mathcal{P}(\rho)$

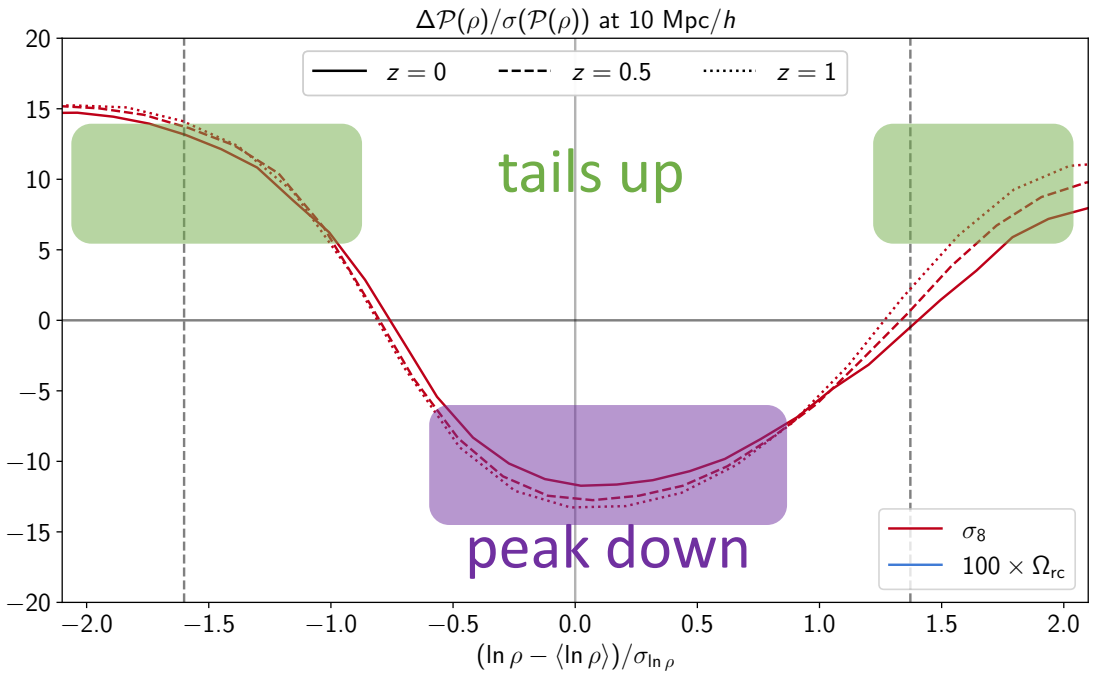


Error bars/covariance from simulation (Quijote suite, 15,000 realization in ΛCDM)

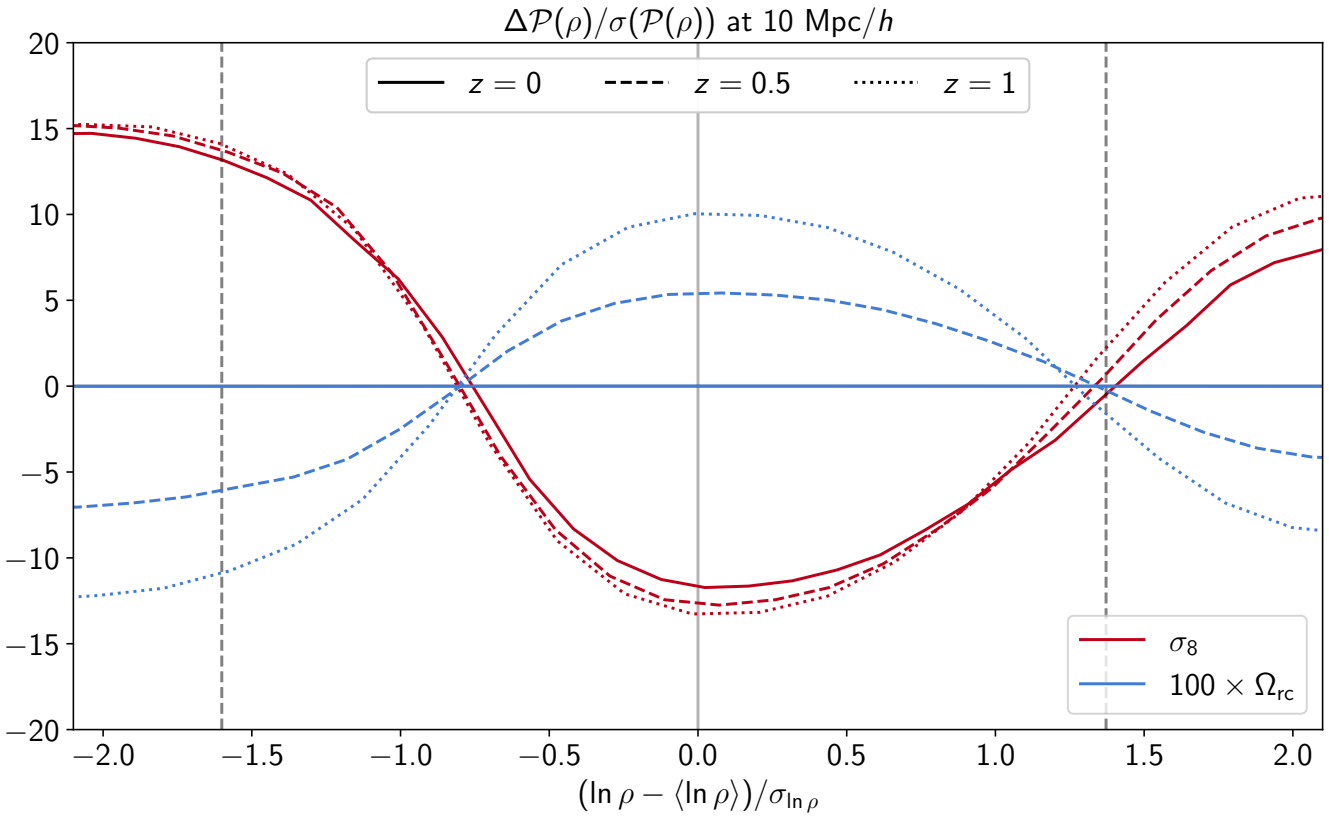
Curves from theory, see Matteo Cataneo's talk!

How $\mathcal{P}(\rho)$ depends on cosmology





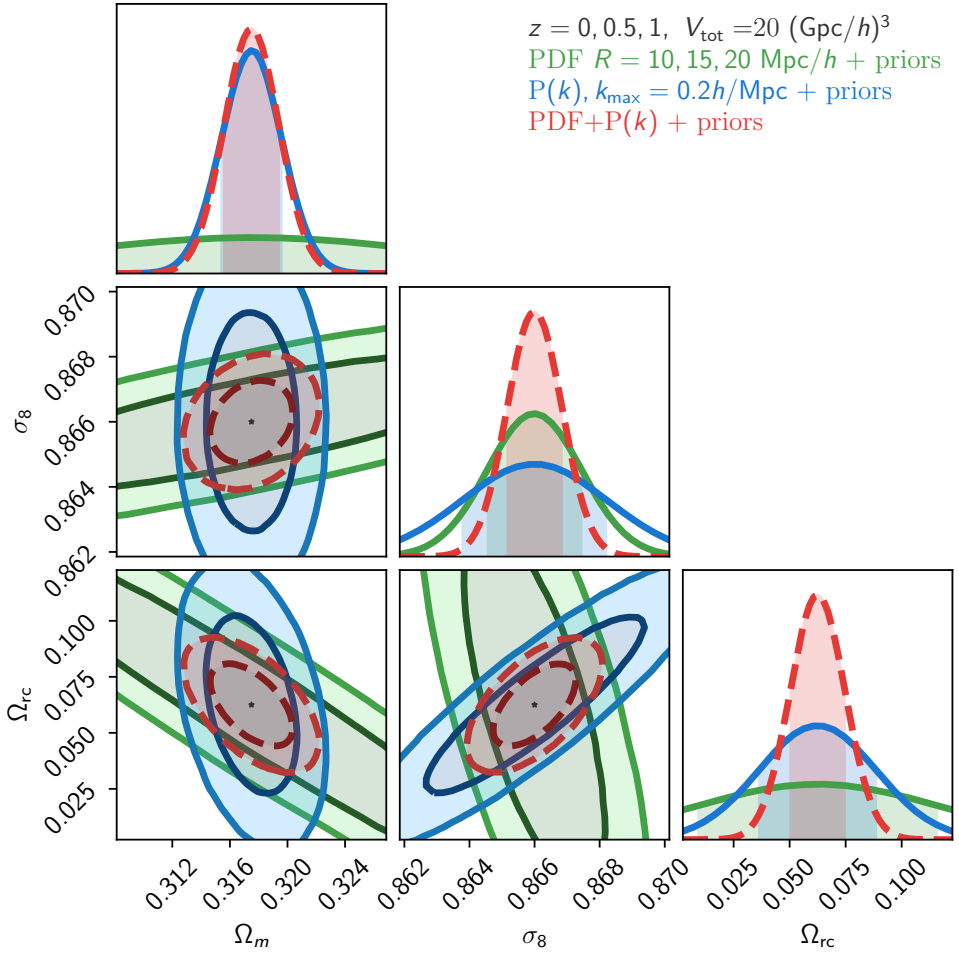
Derivatives of $\mathcal{P}(\rho)$



- DGP gravity changes to the PDF come from modifying expansion history.
- DGP and σ_8 have very different redshift dependence.
- Story similar with changing dark energy.

Cataneo et al. in prep.

Results from DGP and $w_0 w_a$CDM



DGP results

Probe	Ω_{rc} detection
PDF $\mathcal{P}_R(\rho)$ 3 scales + prior	1.17σ
$P(k)$, $k_{max} = 0.2h/\mathrm{Mpc}$ + prior	2.42σ
PDF + $P(k)$ + prior	5.19σ

$w_0 w_a$CDM results

Parameter	Factor improvement by adding PDF to $P(k)$
σ_8	$\times 2.5$
w_0	$\times 2.6$
w_a	$\times 2.6$
FoM	$\times 5$

Great complementarity with power spectrum in all cases!

Cataneo et al. in prep.