COMMANDER results on PICO (PySM)

Mathieu Remazeilles

The University of Manchester

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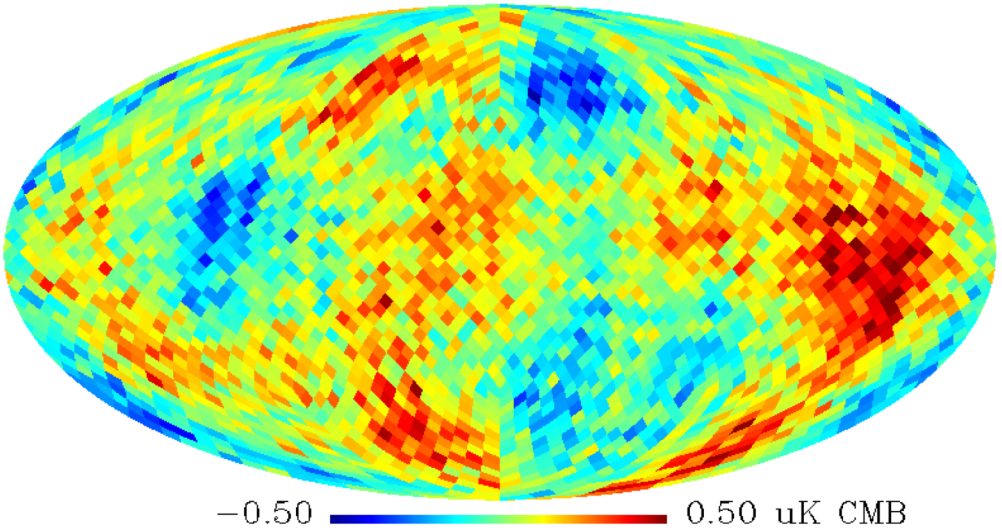
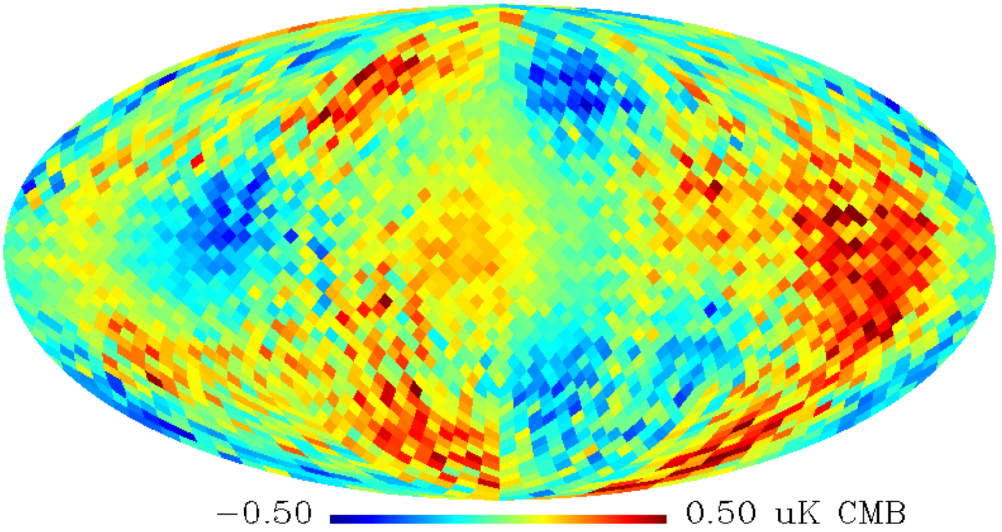
Commander reconstruction of CMB Q map

PySM 90.00 (uniform SEDs)

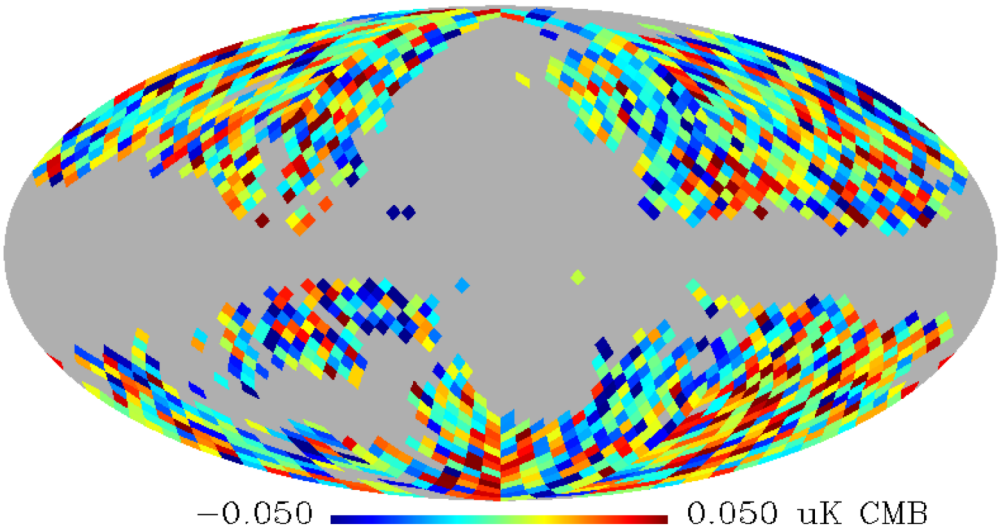
Input CMB Q map
PySM 90.00



Output CMB Q map
Commander



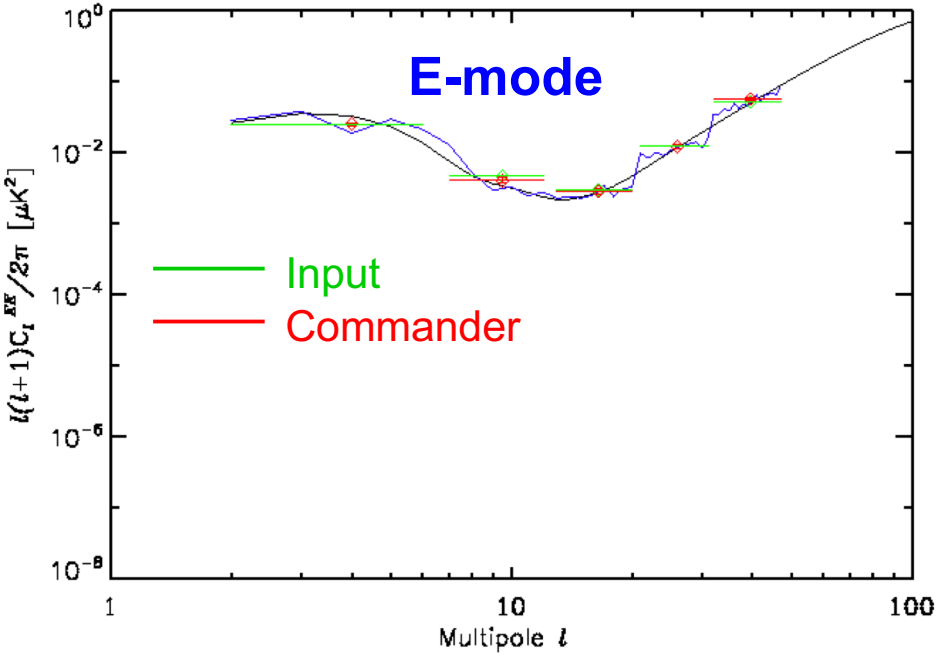
Difference



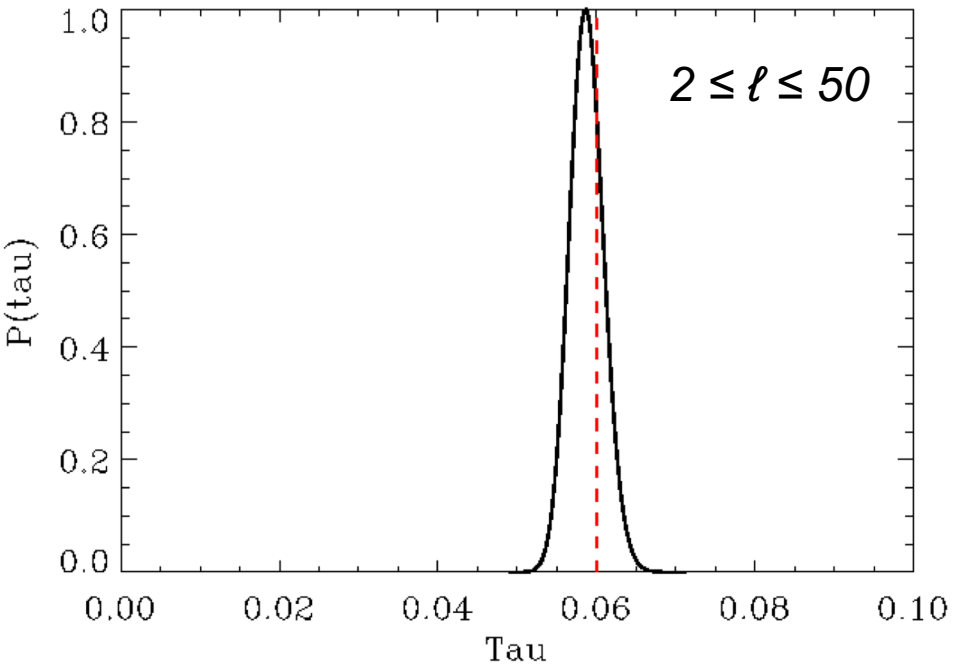
f_{sky} = 50 %

Commander reconstruction of CMB E-modes

PySM 90.00 (uniform SEDs)



$\tau = 0.0588 \pm 0.0021$



PySM 90.00 simulation (Clem Pryke)

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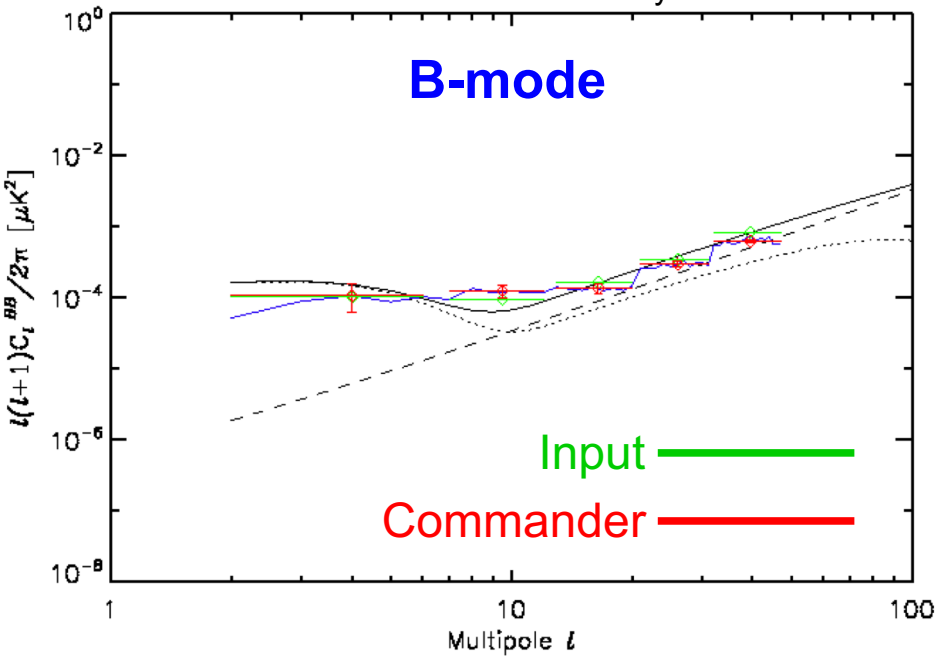
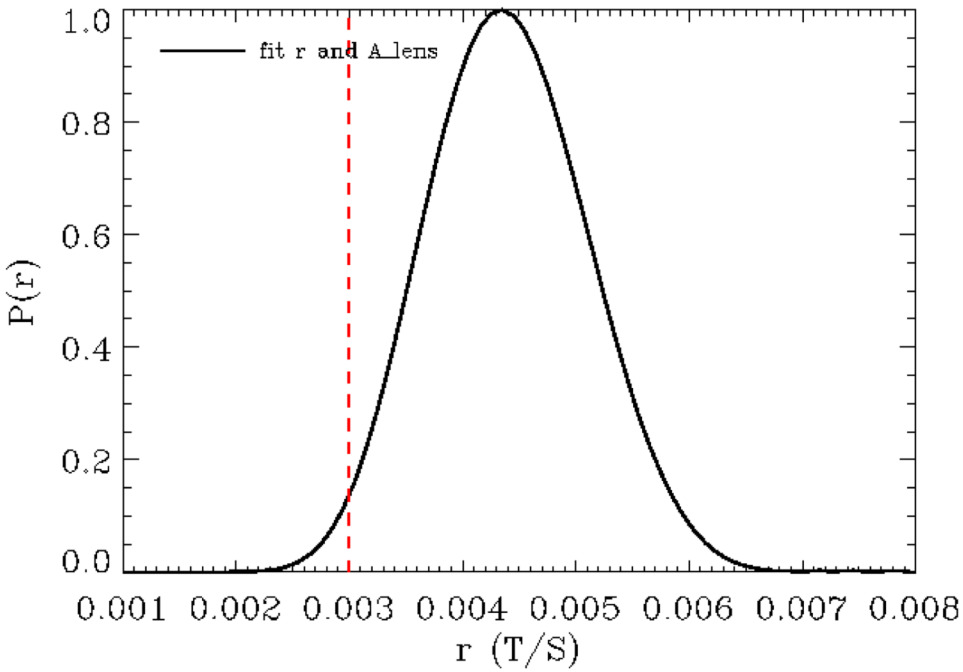
Commander reconstruction of CMB B-modes

PySM 90.00 (uniform SEDs)

r = 10^{-3} + lensing, f_{sky}=50%



r = (4.4 ± 0.7) × 10^{-3}



$2 \leq \ell \leq 50$

PySM 90.00 simulation (Clem Pryke)

I suspect the 90.00 CMB realisation (green points) has a fiducial r = 0.01 (not 0.003)

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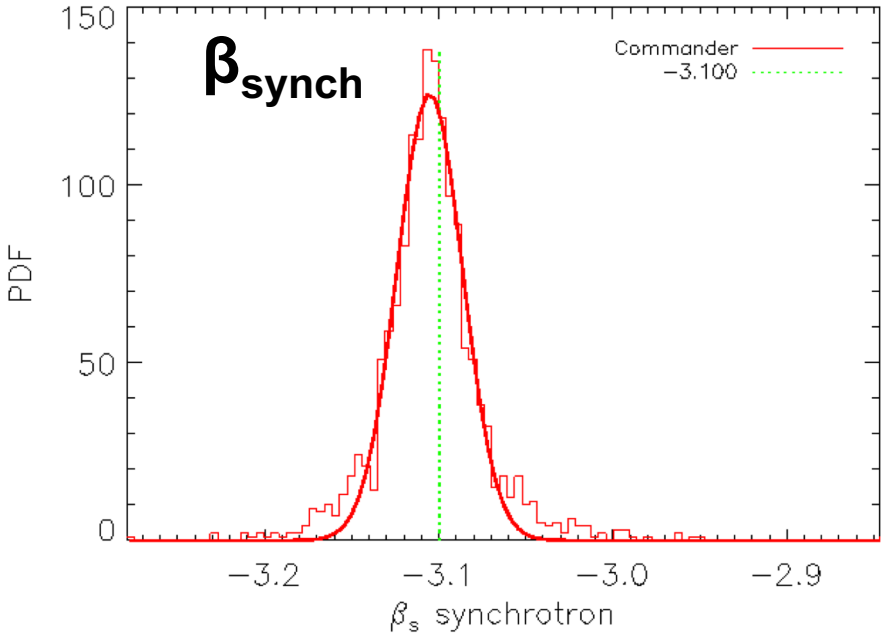
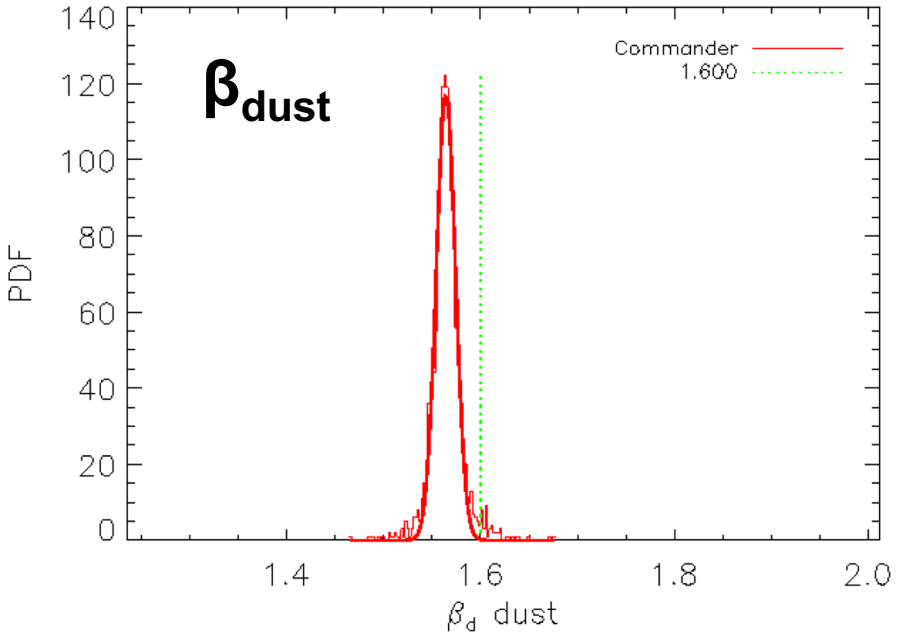
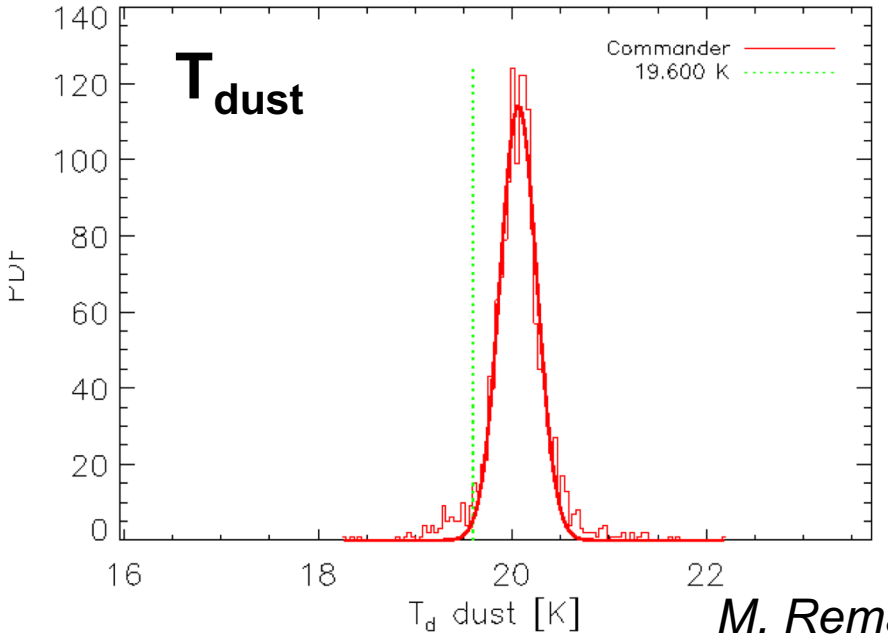
Commander results on foregrounds

PySM 90.00 (uniform SEDs)



β_{dust}-T_{dust} degeneracy / anticorrelation is well-known for MBB fit on noisy data (e.g. Shetty et a, ApJ 696, 676, 2009)





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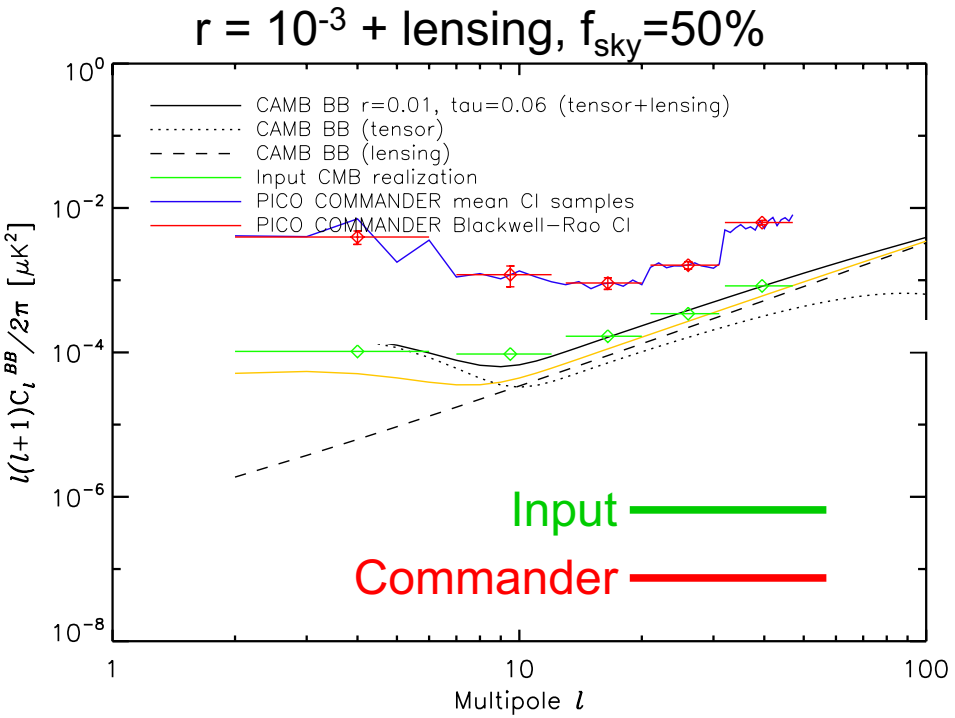
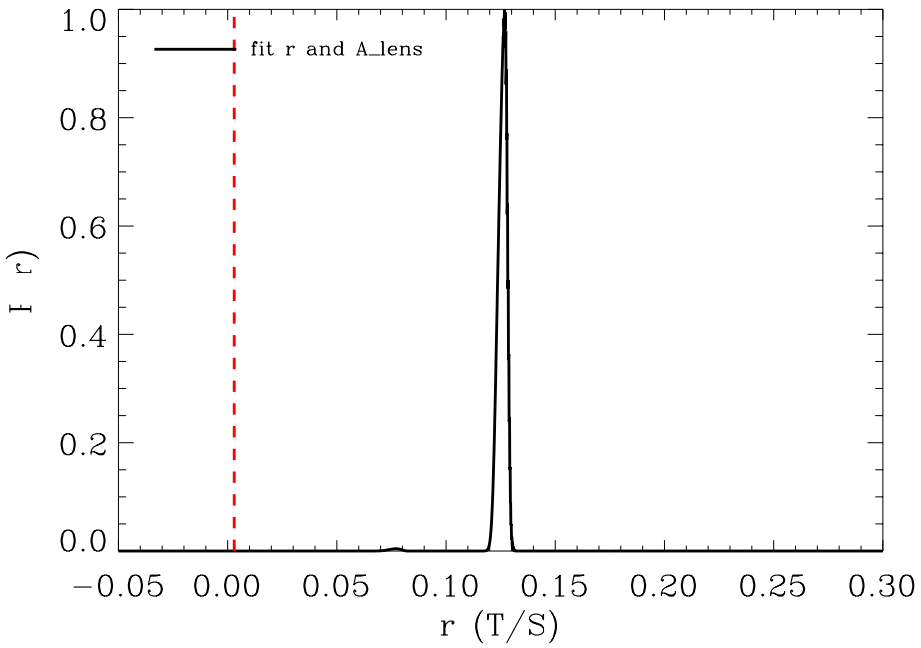
Commander reconstruction of CMB B-modes

PySM 90.91 (a1d1f1s1)





$2 \leq \ell \leq 50$

PySM 90.91 simulation (Clem Pryke)

Bias due to averaging issues, as expected: by degrading the native Nside=512 sky maps to Nside=16, the foreground SEDs are mixed up (no longer MBB and power laws) → mismatch between the fitted foreground model and the effective Nside=16 model

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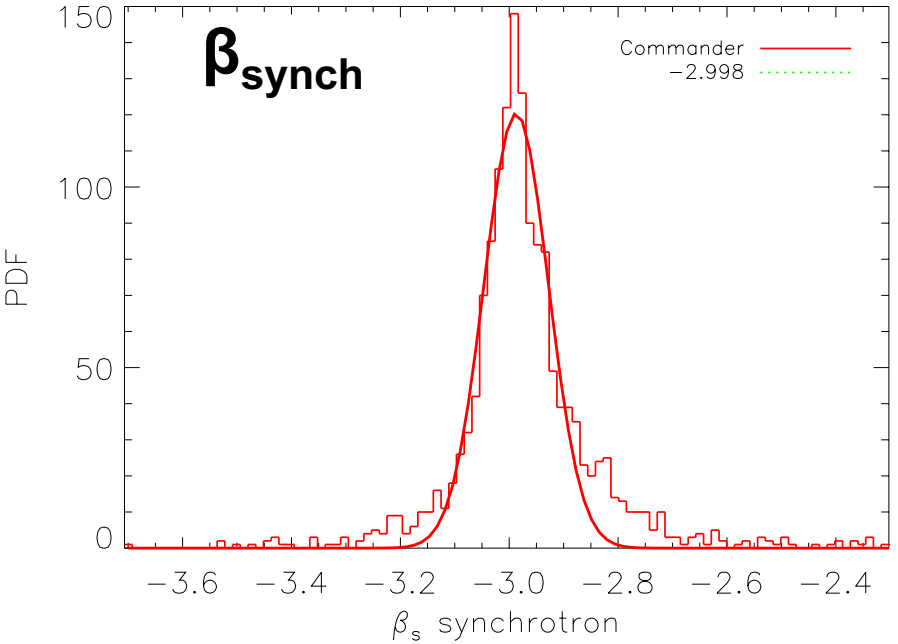
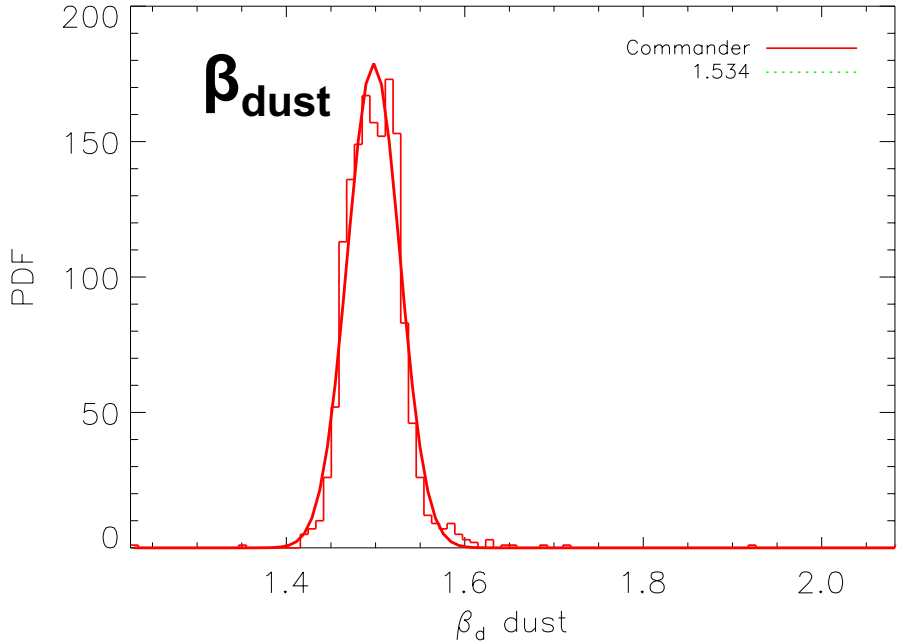
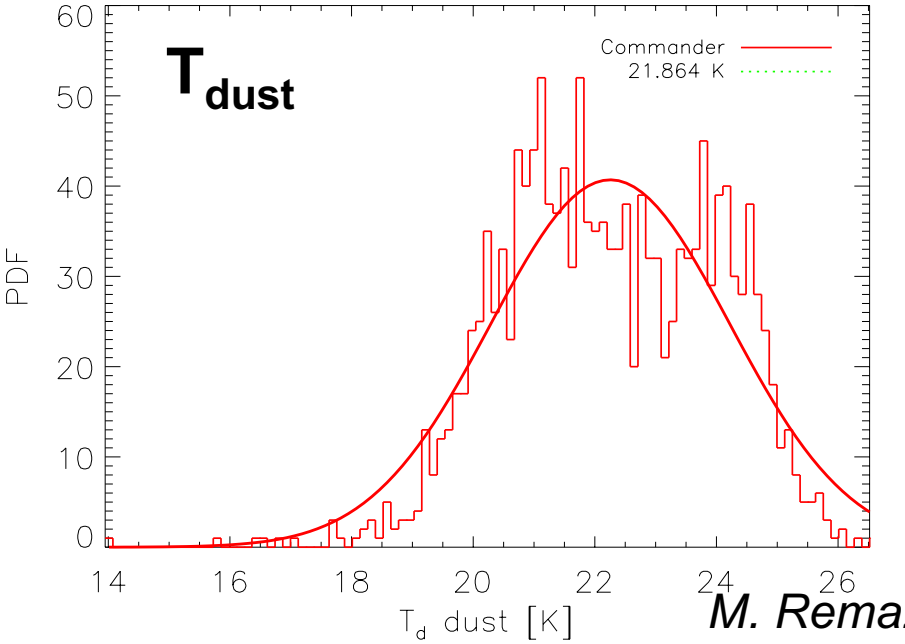
Commander results on foregrounds

PySM 90.91 (a1d1f1s1)



The input spectral index template maps are not available to compare





M. Remazeilles