

CMB Probe Mission Study

May 3, 2017

Overview

- Admin + agenda check
- Brief Updates
- Comments on e-mail announcing working groups
 - to be sent to Probe + S4 mailing lists
- Aperture size guidance for a medium resolution imager (Amy, slides posted)
- Drivers for resolution (+bands) from cluster science
 - [arXiv:1703.10456](https://arxiv.org/abs/1703.10456) (Cluster Science with CORE)

Brief Updates

- Amy + SH developing overall schedule + decision points
- Imager bands
 - SH uploaded 'bands worksheet' (compilation of recent missions)
 - Issues: span, number, center frequencies
 - Now reviewing (LiteBIRD, CORE, EPIC papers); will setup a smaller working group to propose a set for the Probe
- Lloyd is talking with Blake about resolution trades with delensing

Aperture Size Guidance

- See Amy's presentation

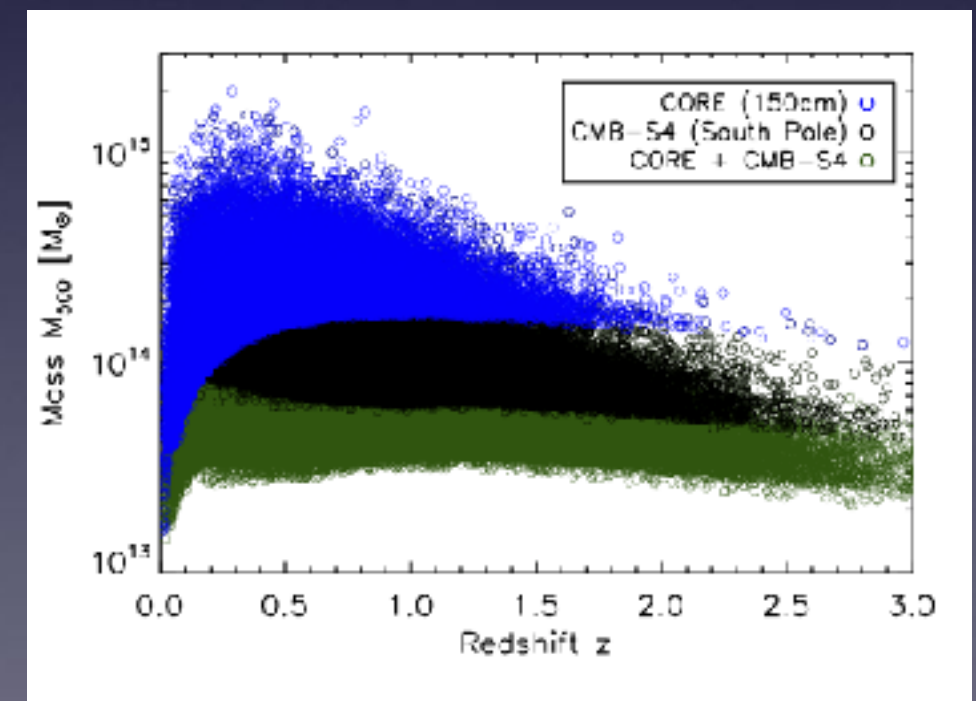
Low Resolution Approach

- Claim: 'only low resolution' should not be ignored, and therefore must be studied.
 - 'but it fits in lower cost': does it?
 - even if it does: can we do better?
- Perhaps 2-4 low resolution telescopes (~50 cm, LiteBIRD, EPIC-LC), including a spectrometer
 - Limited self-delensing

Cluster Science (arXiv:1703.10456)

- Strong complementarity between a space mission and an S4 experiment
- Adapt the calculations for the Probe specifications?

Experiment	N_{clus}	$N_{\text{clus}}/\text{deg}^2$	$N_{\text{clus}}(z > 1.5)$
<i>CORE-120</i>	38,000	1.1	200
<i>CORE-150</i>	52,000	1.5	500
<i>CORE-180</i>	65,000	1.85	800
CMB-S4 (Atacama)	10,700	0.47	70
CMB-S4 (South Pole)	71,000	6.9	5,000
<i>CORE-150+CMB-S4 (Atacama)</i>	56,000	2.5	850
<i>CORE-150+CMB-S4 (South Pole)</i>	222,000	21.5	20,000



Backup Slides

Action Items

- Raphael will organize a group of people who will work on a particular target for r
- Lloyd will organize study of delensing
- Lloyd will coordinate the data challenge; Shaul to work on band and noise definitions
 - SH Working on bands
- Shaul will communicate the suggestion of a Foreground workshop to Jamie/Graca
 - Communicated.
- Al will organize a group that will assess the motivation for a super-pixie or develop the case for compspec (complementary spectrometer)
- Shaul will write to Darren Dowell, and Giles Novak regarding galactic magnetic field and galactic dust science; Bill will talk to Aureliene.
 - Sent e-mail to Novak + Dowell; Novak responded