



FULL TITLE

Doc: CMBS4-doc-xxx-vx

Date: x/x/xxxx

Status: Draft

Page 1 of 4

BREAKOUTS: COORDINATING CHAPTER INTERFACES IN SCIENCE BOOK NOTES

UNIFORMITY IN ANALYSES / ASSUMPTIONS / FORECASTS / TOOLS:

- Use CMB-S4 GitHub to share resources!
 - <https://github.com/CMB-S4/StandardPlots>
 - Please use it if you are making a plot to be updated at a later date!
 -
- List of existing tools, codes, noise curves, etc:
 - DRAFT Tool (see also Chapter 5 breakout)
- Documentation for forecast assumptions:
 - Should there be an appendix in the Science Book devoted to this topic?
 - Noise curves
 - TT, EE, BB
 - Lensing Reconstruction
 - Will want separate TT, polarization lensing reconstruction noise to deal with foreground contamination
 - Per frequency
 - Post-ILC
 - ?Are the input foreground models specified so people can compare different models? Yes.
One output of the code is the CIs for the foregrounds. Srin is currently creating a tutorial notebook for this. (<https://github.com/sriniraghunathan/DRAFT/blob/master/tutorial.ipynb>)
 - Cross correlation noise included.
 - Sky coverage
 - Wide survey
 - Delensing patches
 - f_sky and footprints
 - Cuts on stellar density
 - Cuts on dust
 - Masks for point sources?
 - Right now are using Gaussian realizations
 - Figure out masking thresholds for different analysis and also what plans are for map making (different groups different requirements)
 - Combination with Planck / other surveys
 - Cadence
 - Depth per map / day / week (is it a regular cadence or is it shifting throughout the year)
 - Background level and impact on point source detection
 - Schedule of visits to particular locations
 - Latency for transient source detection



FULL TITLE

Doc: CMBS4-doc-xxx-vx

Date: x/x/xxxx

Status: Draft

Page 3 of 4

- Isotropic / anisotropic
 - Interface with BB
 - Dark energy
 - Lensing, clusters, cross-correlations
 - How much to tackle in this science book? Was included at some level in SBv1, need to define the boundary conditions for this in this book.
 - Dark matter
 - Primary, lensing, clusters, PS/galaxies/xcor
 - Neutrino mass
 - Lensing, clusters, cross-correlations
- Chapter 6 - Astrophysics with Secondaries
 - Reionization 2+4 pt -> neutrino mass
- Chapter 7 - Persistent Sources
 - Overlaps with Galactic Science?
 - Do mass loss mechanisms relate to or inform ISM studies in Chapter 9?
 - Protoclusters - clusters interface
 - Magellanic Clouds/other nearby galaxies, expertise is more in the galactic science group than the Sources WG ; note to coordinate with Chapter 9 on this.
- Chapter 8 - Transients
 - FRB - magnetar connection?
 - Flare stars and stellar mass loss?
- Chapter 9 - Galactic Science
 - Relate ISM / dust science to BB foregrounds for PGW

LOGISTICAL CONCERNS:

- To whom do contributors report?
 - AWG leads -> Science council.
- What is the best venue for discussing progress?
 - Slack Channels for chapters
 - Cross working group phone calls
 - Frequency advertising for general S4 will get more minds involved.
- Who is responsible for smooth section transitions?
- Do we need to nominate liaisons / czars / interface coordinators?
- Contributor list:
 - Per section?
 - Per subsection?
 - What is the threshold for appearing in a contributor list?
- What about publishing as individual chapters?
 - Was discussed, the idea was having stand alone chapters would require repeating assumptions.
 - Tom M - look at the NGVLA science book, it stands as a bit of a counter example.
 - Might be worth reopening this discussion.
 - Kim - disadvantage of publishing individual chapters - makes it harder to find material. Public accessibility.
 - Ben - And "speaking with one voice" and not several separated voices
 - Would be good to see examples of successful chapter by chapter so we can get a better feeling for what this looks like.
 - Some of the publishers who do paper books might organize this for us.



FULL TITLE

Doc: CMBS4-doc-xxx-vx

Date: x/x/xxxx

Status: Draft

Page 4 of 4

- Since science book won't be public by jobs cycle this fall, Science council happy to write a letter describing contributions to the science book.
-