# **GRASP update** February 14, 2018 Karl Young, Brad Johnson, Shaul Hanany

## Coordinates

- All beam maps / cuts are in polar coordinates centered on the primary mirror.
- Phi is 0 at X axis and positive toward Y (+ Y is out of the page.)
- X polarization is in the plane of the page.



## Summary

- Far sidelobes cuts from Brad. 0.1 deg resolution
- I have made 4 pi maps at 1 deg resolution.
- Both have some issues we haven't fixed / don't fully understand.
- Communicating with Julian on file formats to integrate beams in his simulations.
  - Can do a simplified beam for now, just to test pipline.
- Next step:
  - Simulating toy models to understand the proper calculations for the aperture stop
  - Limit area of the sky analyzed. Sidelobes behind secondary don't reflect reality because there will be baffles and a satellite blocking those paths to the sky. These additional structures are not included.

# Far Side Lobes, Center Feed, 150 GHz



# 4 pi beams

- Example only! Structure that doesn't make sense is present.
- All elements included. ٠
- Main beam is at center of left hand plot.





## 4 pi beams

- Example only! Structure that doesn't make sense is present.
- Primary mirror only

90° 90° 60 135° 45° 135° 45° - 40 -90 90 Amplitude, dB 0° 1809 180 0° -20 315° 315° 225 225 -40 270° 270° Forward 2Pi Backward 2Pi Non physical. **Emission from back** of primary

co-pol, center\_Feed\_x\_4pi\_1deg\_grid\_mainonly.grd