



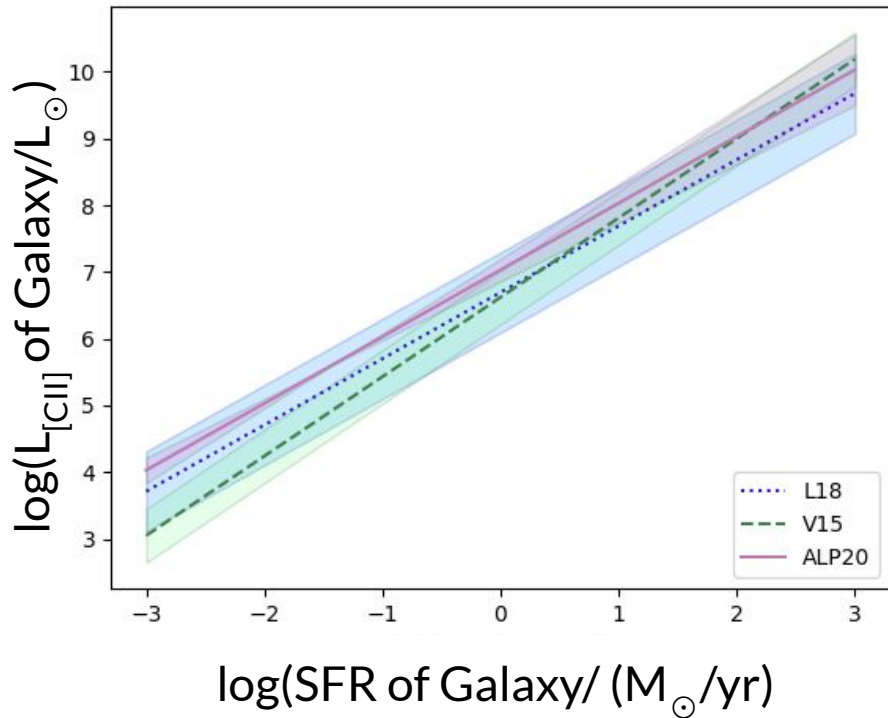
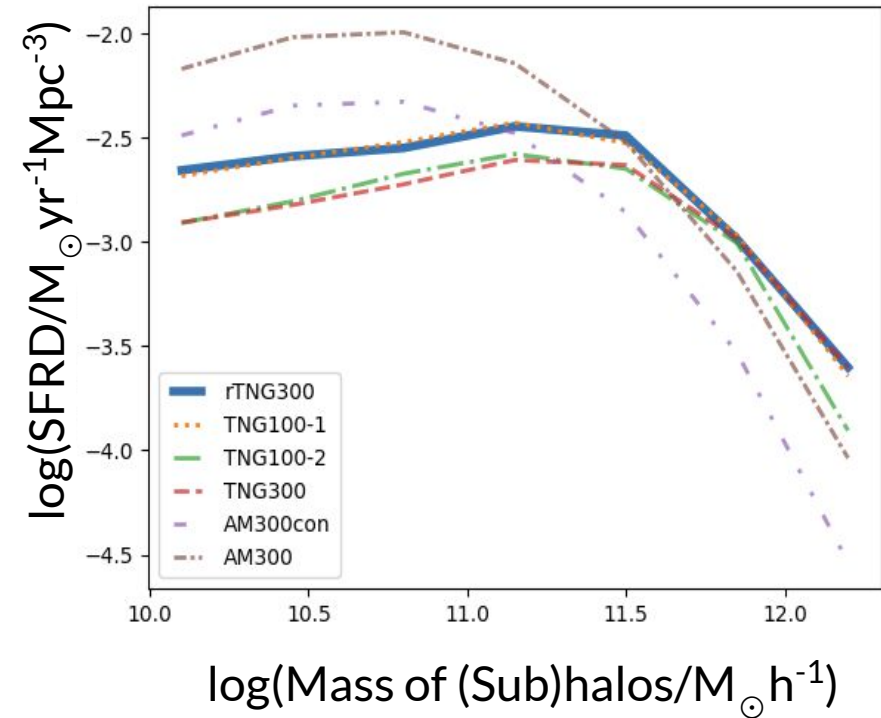
# CCAT-prime [CII] & [OIII] Intensity Mapping Predictions

Christos Karoumpis , Supervisors: Dr. Benjamin Magnelli, Prof. Dr. Frank Bertoldi

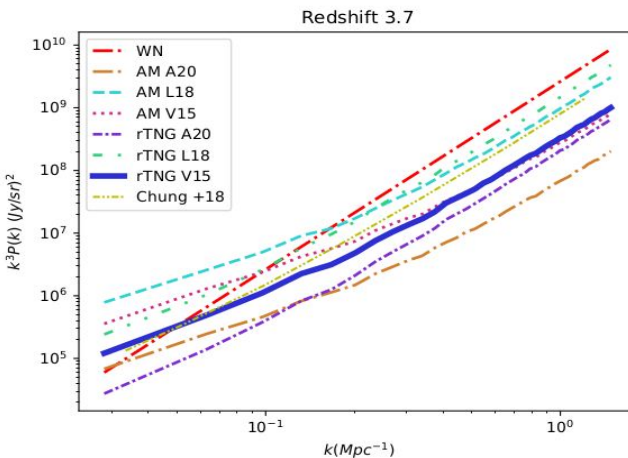
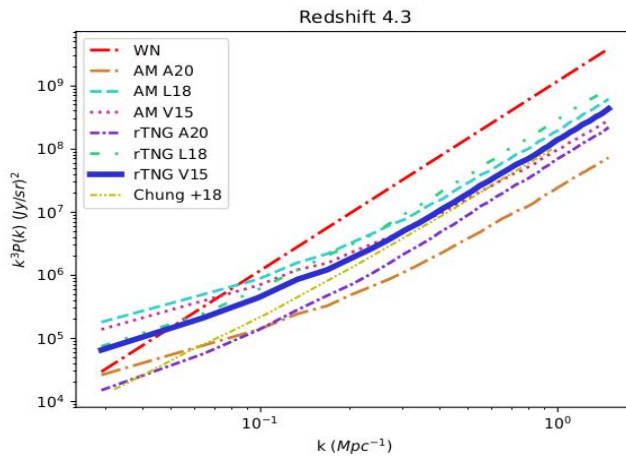
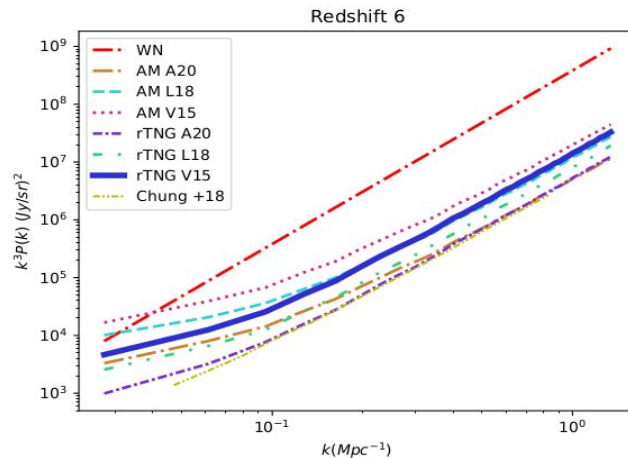
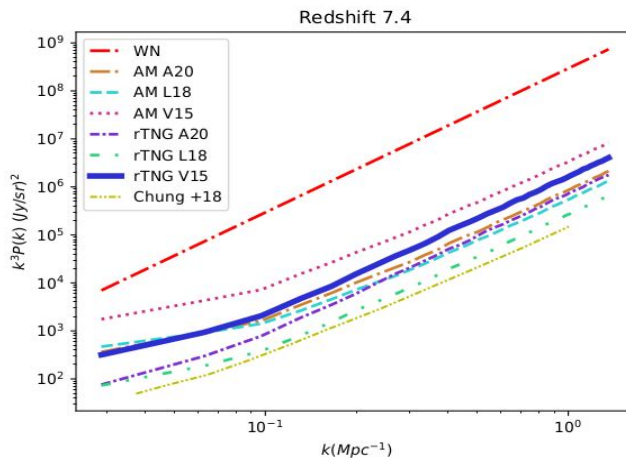


# The many paths from DM halos to [CII] Luminosity

Redshift 6

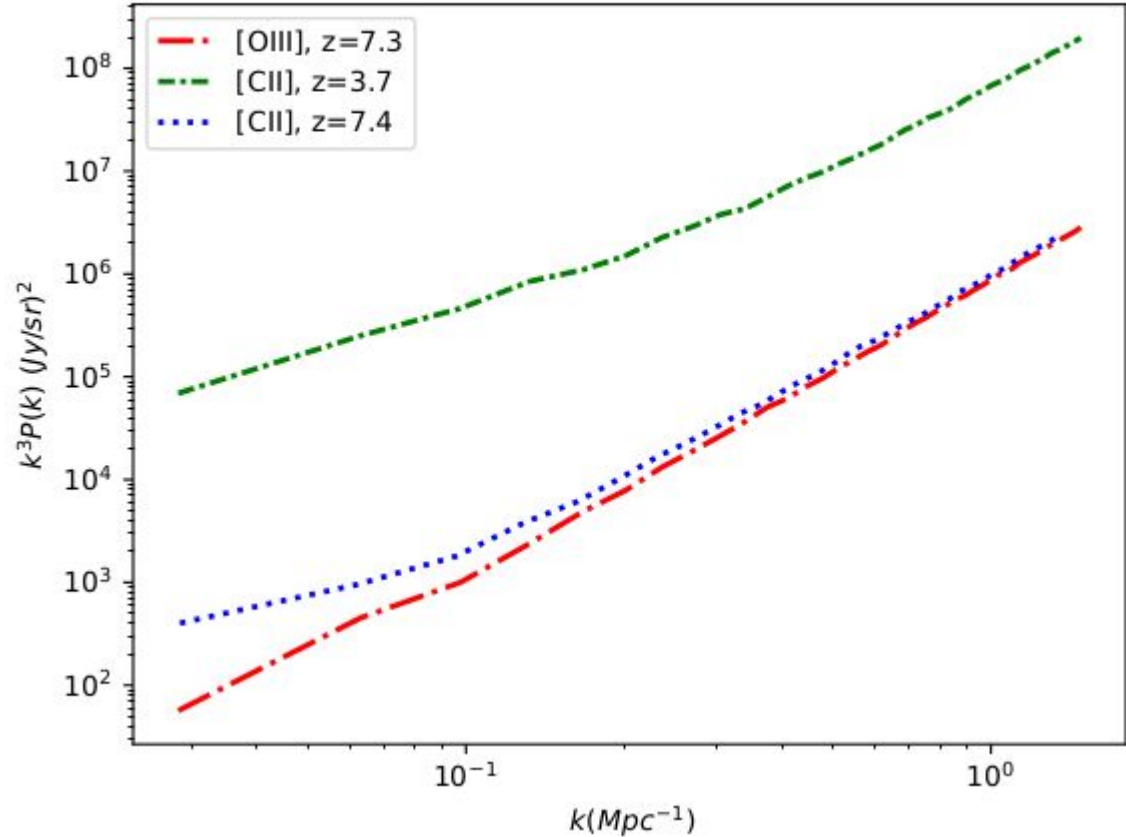


# A set of [CII] Power Spectrum Predictions

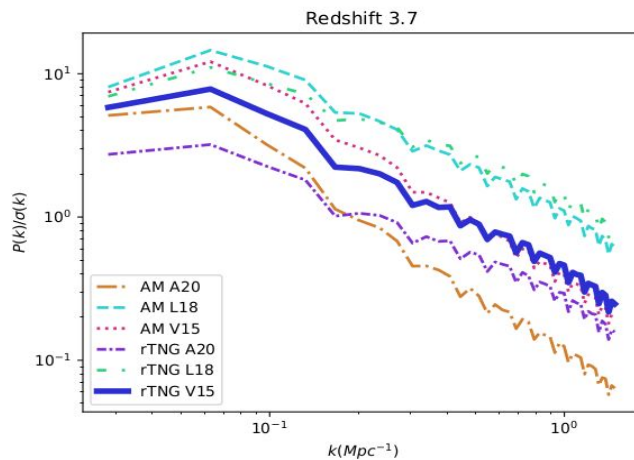
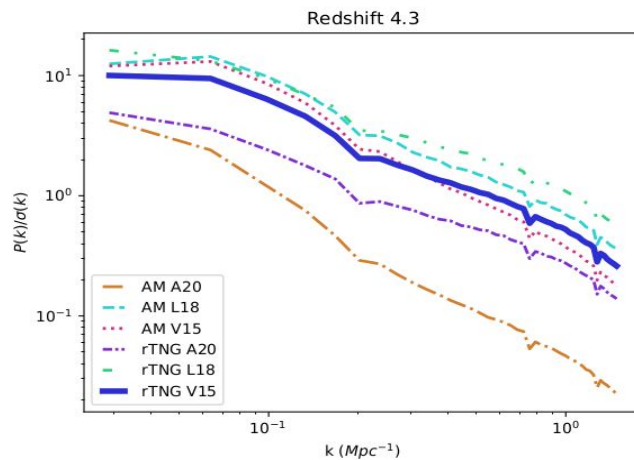
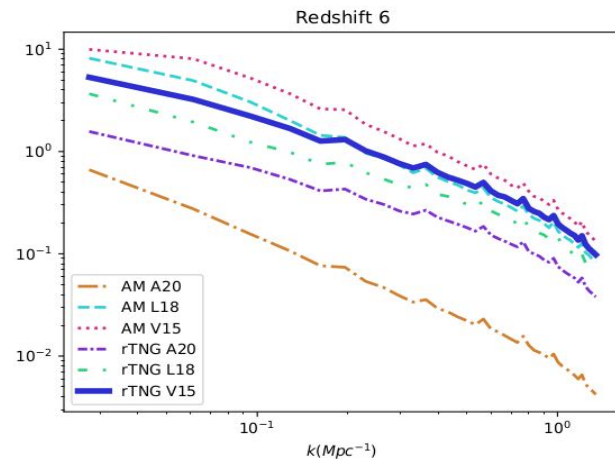
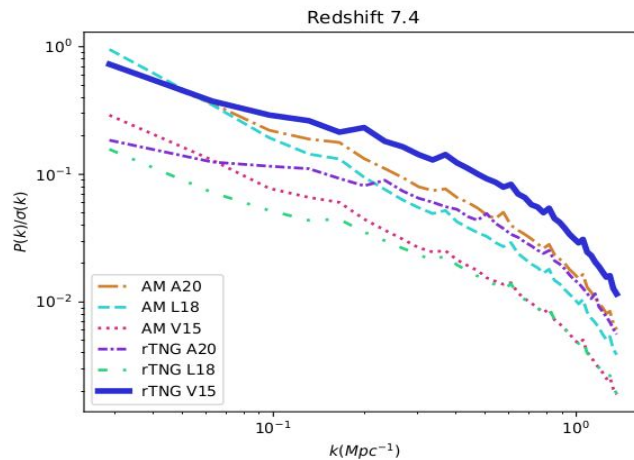


# [OIII] Power Spectrum Prediction

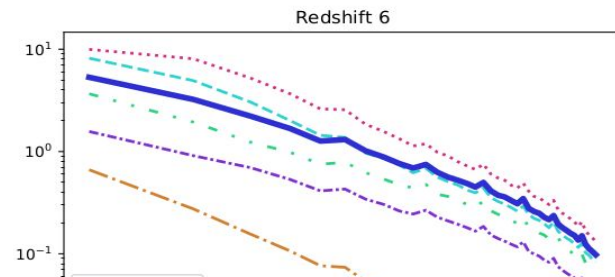
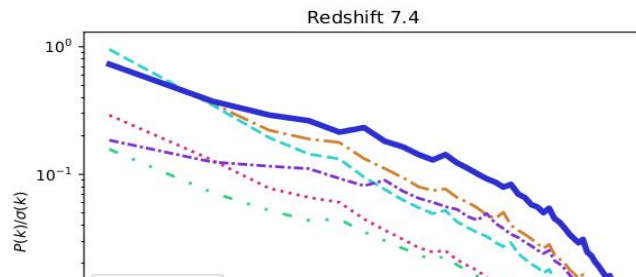
[OIII] line detection seems challenging since [CII] emission from lower redshifts acts as a foreground



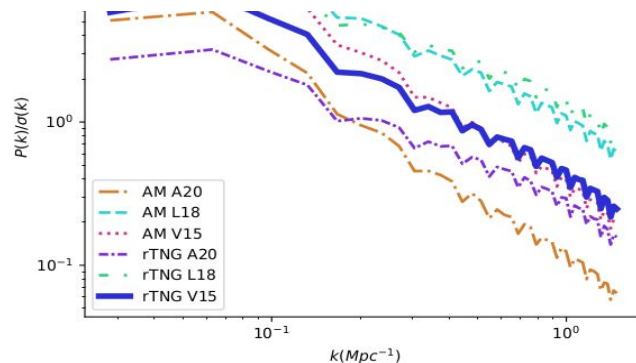
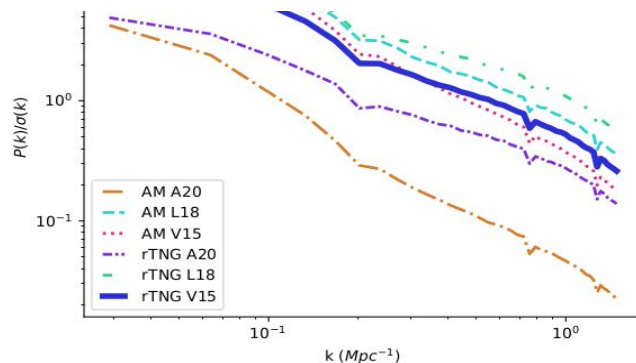
# [CII] Power Spectrum Signal-to-Noise Predictions



[CII] Power  
Spectrum  
Signal-to-Noise  
Predictions

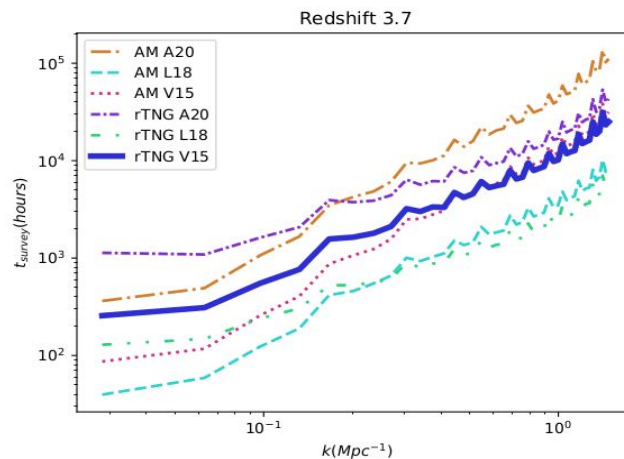
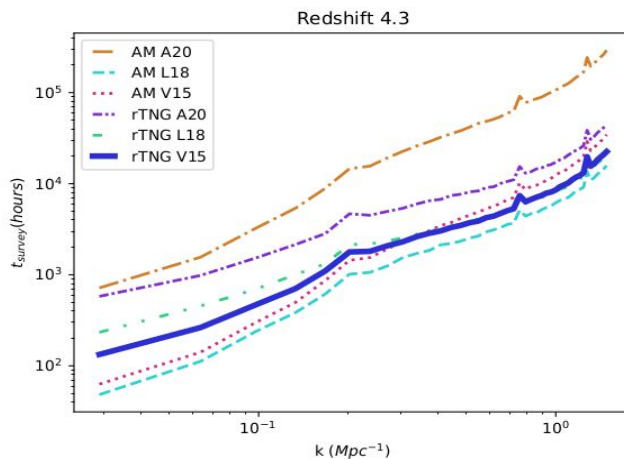
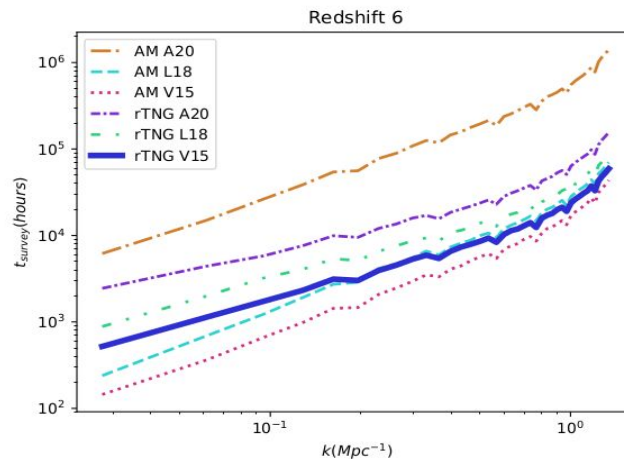
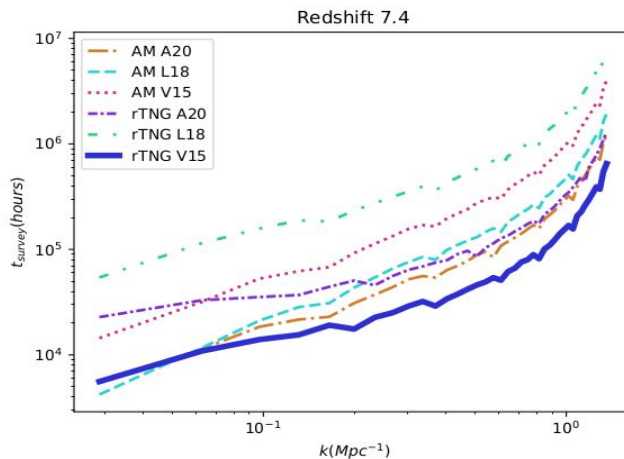


$$S/N = W(k) \sqrt{N_m(k)} \frac{P_{\text{CII}}(k, z)}{P_{\text{CII}}(k, z) + P_N}$$



Survey  
time  
needed  
to  
achieve  
 $S/N=1$

Future Work!  
A  $>4$  square  
degrees survey  
seems optimal  
even for early  
science (400h),  
but we have to  
work on  
foregrounds/sky  
removal on large  
angular scales.



Thank you!