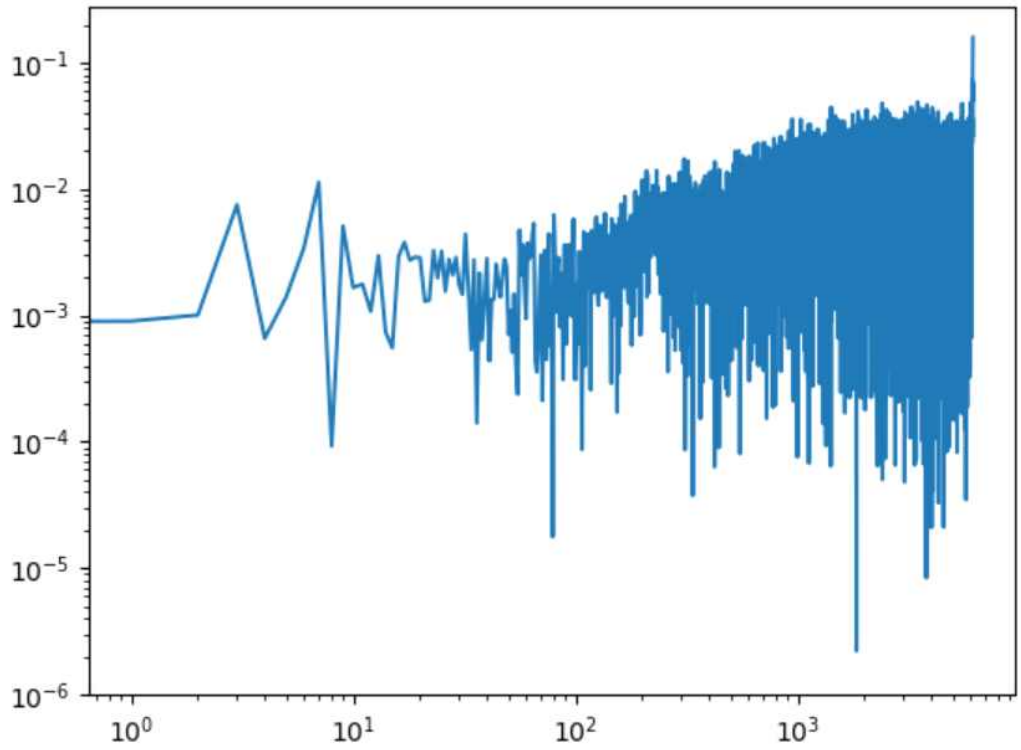
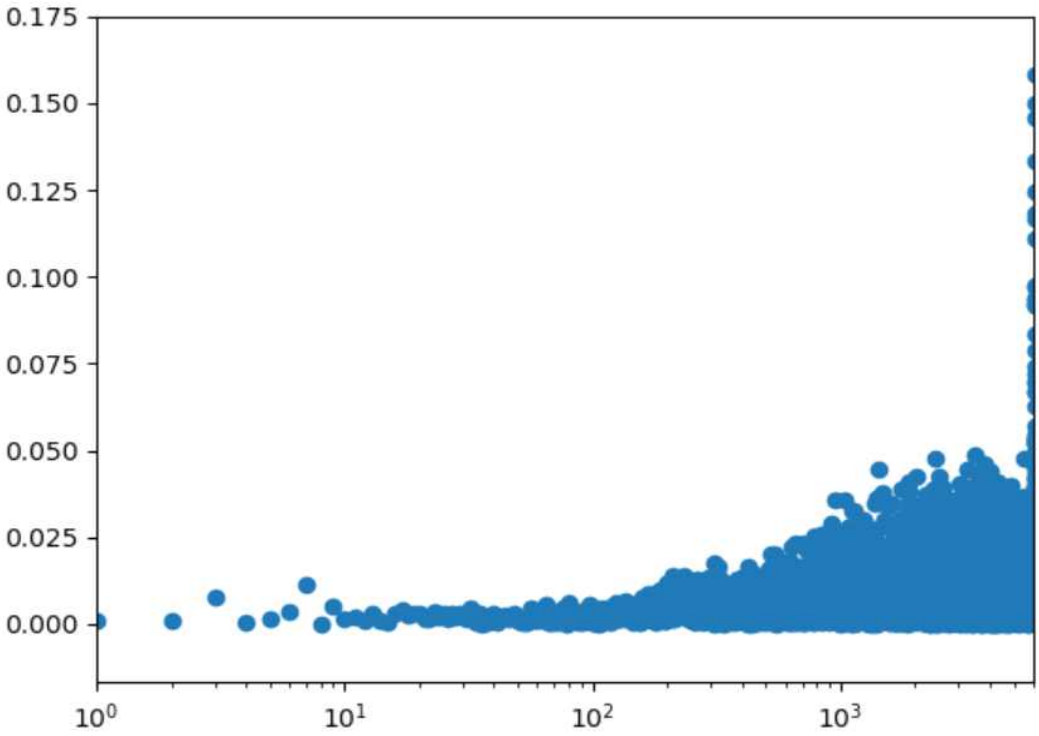
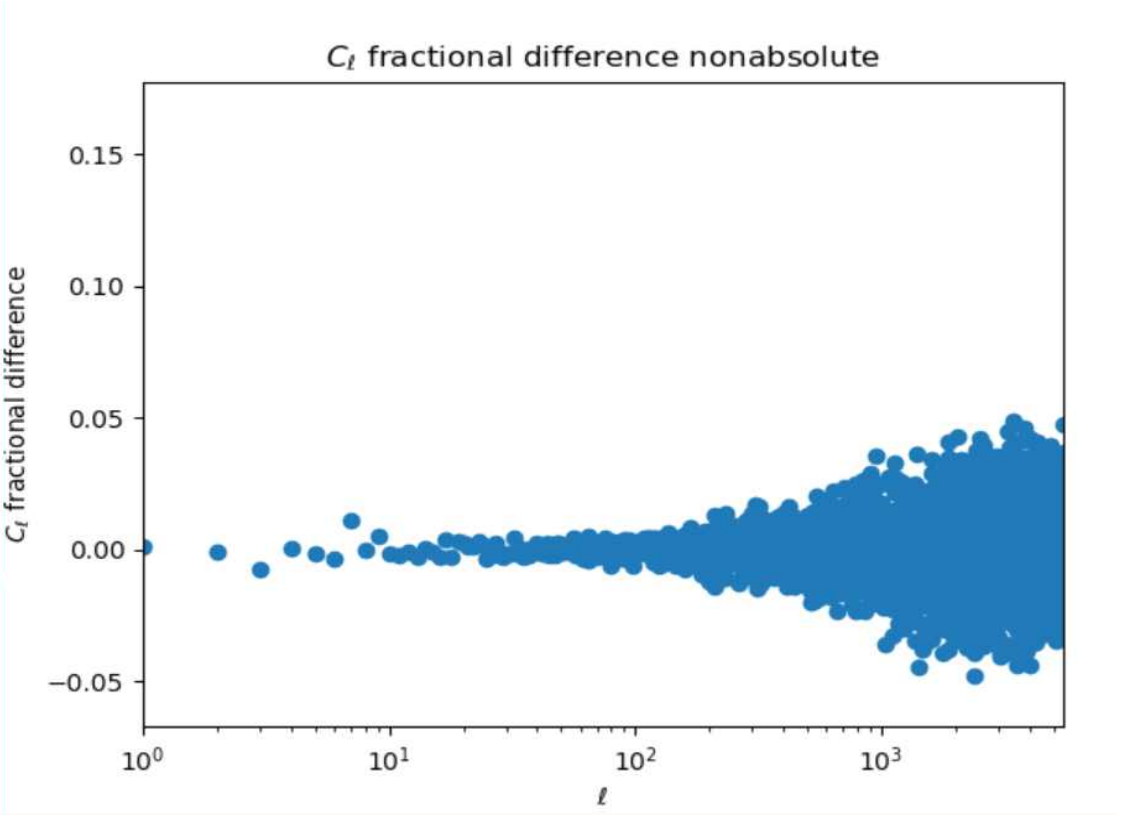
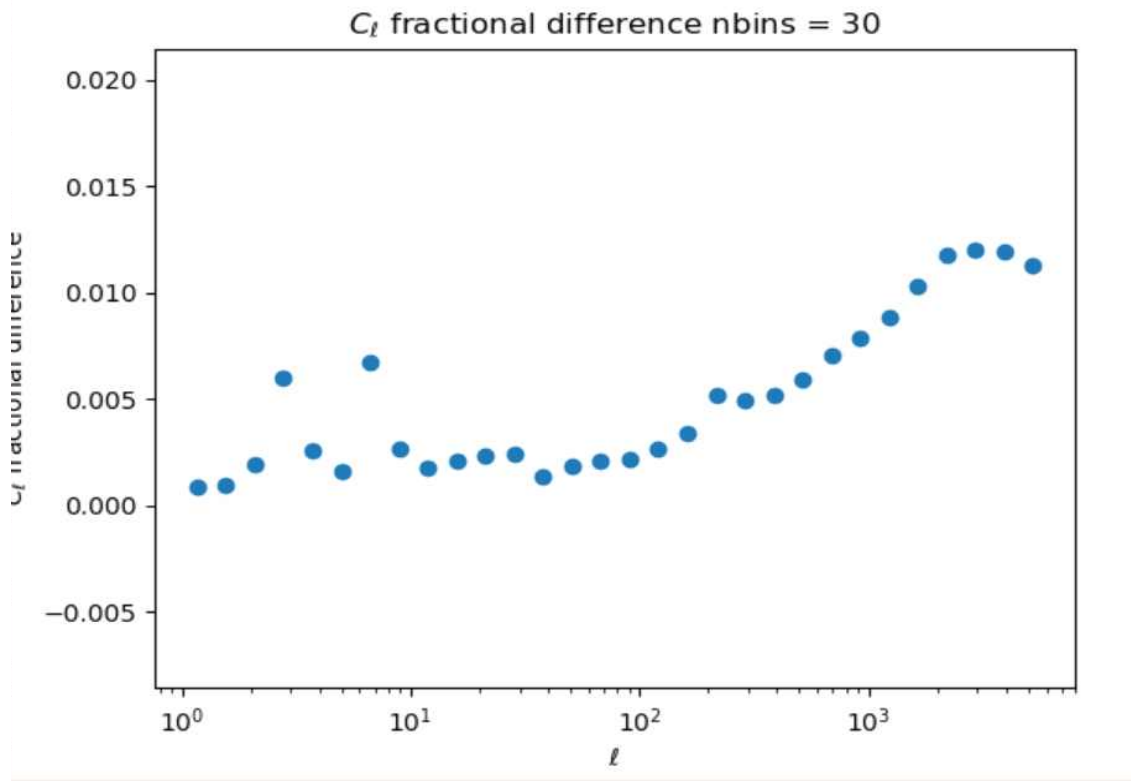
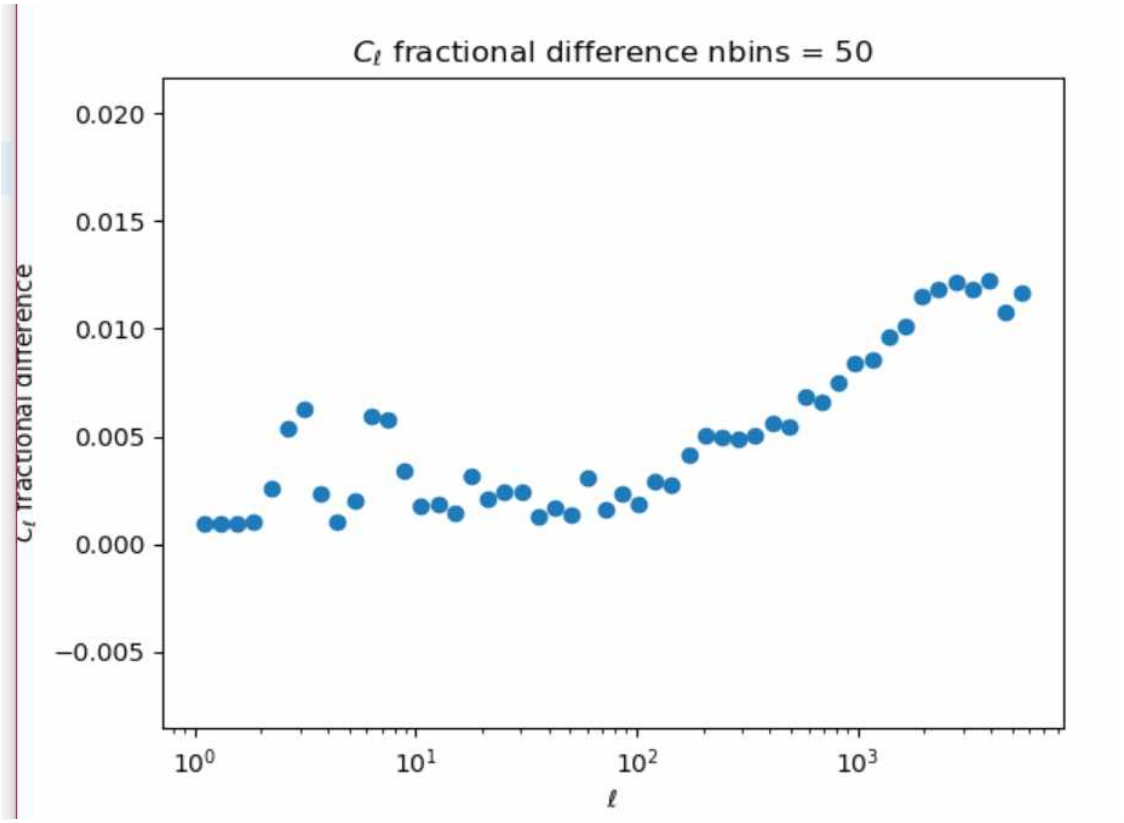
Fractional Difference without bins

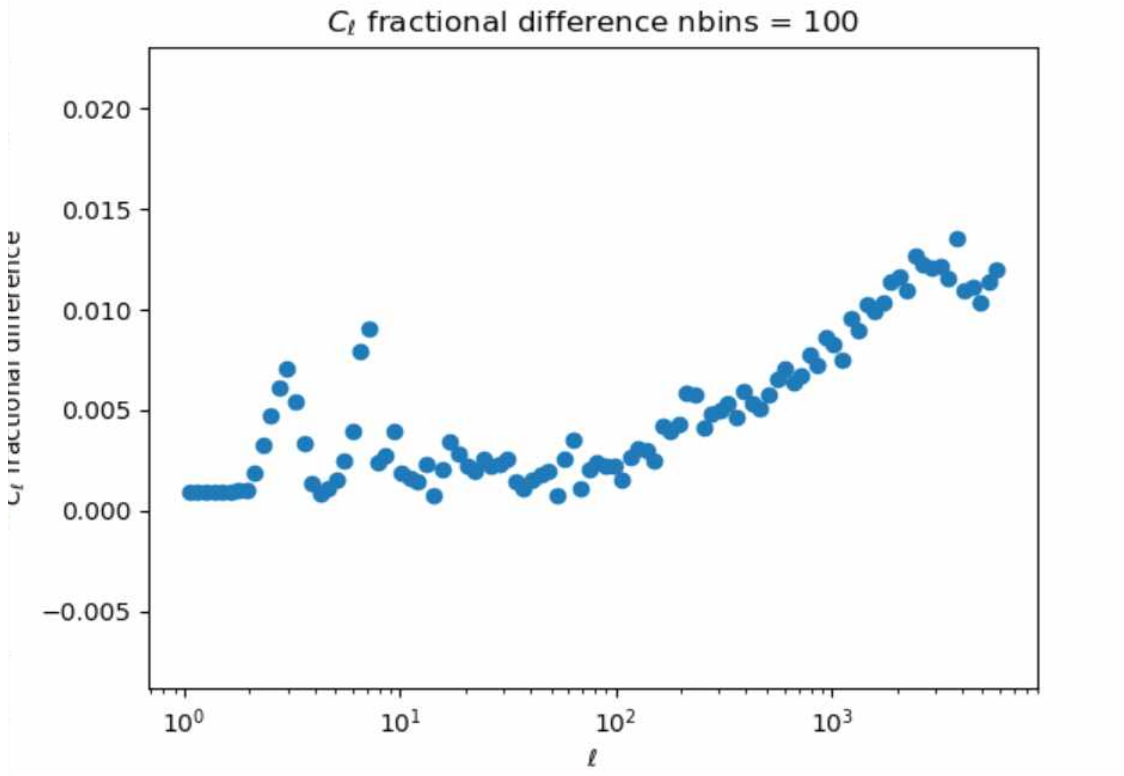


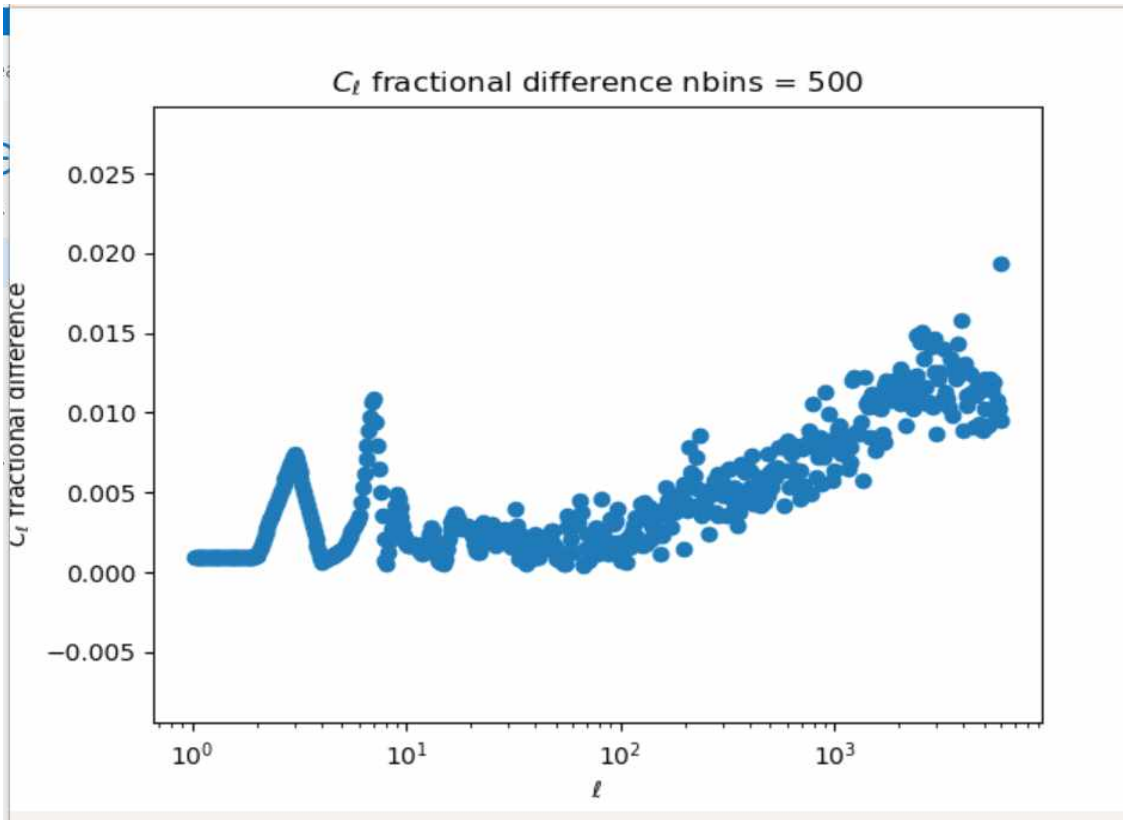


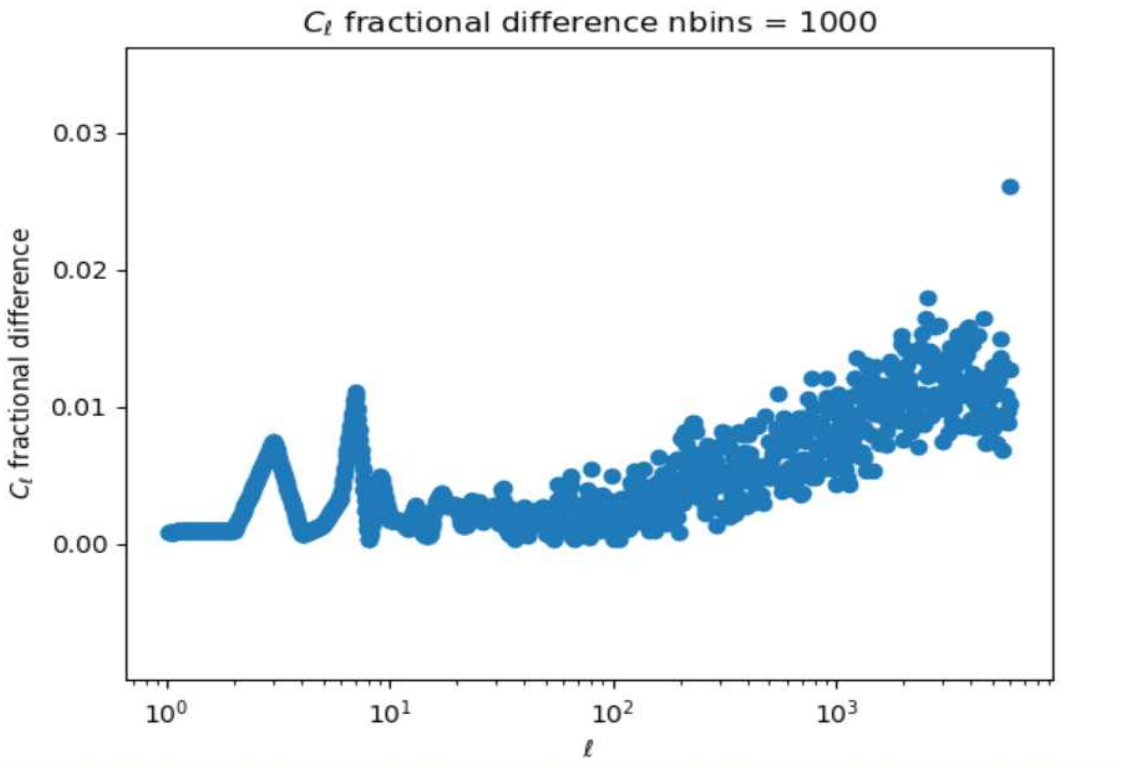

C_ℓ fractional difference nonabsolute
C_ℓ fractional difference
0.15
0.10
0.05
0.00
−0.05
10^0
10^1
10^2
10^3
ℓ


C_ℓ fractional difference nbins = 30
0.020
0.015
0.010
0.005
0.000
−0.005
10^0
10^1
10^2
10^3
ℓ


C_ℓ fractional difference nbins = 50
C_ℓ fractional difference
0.020
0.015
0.010
0.005
0.000
−0.005
10^0
10^1
10^2
10^3
ℓ


C_ℓ fractional difference nbins = 100
C_ℓ fractional difference
0.020
0.015
0.010
0.005
0.000
−0.005
10^0
10^1
10^2
10^3
ℓ


C_ℓ fractional difference nbins = 500
C_ℓ fractional difference
0.025
0.020
0.015
0.010
0.005
0.000
−0.005
10^0
10^1
10^2
10^3
ℓ


C_ℓ fractional difference nbins = 1000
C_ℓ fractional difference
0.03
0.02
0.01
0.00
10^0
10^1
10^2
10^3
ℓ

```
import healpy as hp
import matplotlib.pyplot as plt
import numpy as np
import scipy as sp
import math
import scipy.interpolate
import scipy.stats

a = hp.read_map('./cib_initial/added_map.fits')
b = hp.read_map('./lensed/added_map.fits')

a_cl = hp.anafast(a)
b_cl = hp.anafast(b)

ell = np.arange(len(a_cl))
fd = (a_cl - b_cl)/a_cl
'''
plt.scatter(ell, fd)
plt.xlim(1, 5500)
plt.xscale('log')
plt.xlabel('$\ell$')
plt.ylabel('$C_\ell$ fractional difference')
plt.title('$C_\ell$ fractional difference nonabsolute')
plt.show()
plt.savefig('Fractional_Difference_scatter_nonabsolute.png')
'''
print ('Mean of fd = ', np.mean(fd))
~
```

```
lensed_map_values.py
lensed_map_values.py~
python_script_template.py
remi_maps
jasonlee@nia-login01:/scratch/r/rbond/jasonlee/jason_cib_lensing/maps/analy
sis_181024/remi_final_maps$ vi fd_analysis.py
jasonlee@nia-login01:/scratch/r/rbond/jasonlee/jason_cib_lensing/maps/analy
sis_181024/remi_final_maps$ python fd_analysis.py
NSIDE = 2048
ORDERING = RING in fits file
INDXSCHM = IMPLICIT
NSIDE = 2048
ORDERING = RING in fits file
INDXSCHM = IMPLICIT
('Mean of fd = ', array([-1.76115989e-06,  9.00477030e-04, -1.00489438e-03,
 ...,
        1.45927529e-01,  1.49870211e-01,  1.58279531e-01]))
jasonlee@nia-login01:/scratch/r/rbond/jasonlee/jason_cib_lensing/maps/analy
sis_181024/remi_final_maps$ vi fd_analysis.py
jasonlee@nia-login01:/scratch/r/rbond/jasonlee/jason_cib_lensing/maps/analy
sis_181024/remi_final_maps$ python fd_analysis.py
NSIDE = 2048
ORDERING = RING in fits file
INDXSCHM = IMPLICIT
NSIDE = 2048
ORDERING = RING in fits file
INDXSCHM = IMPLICIT
('Mean of fd = ', '0.0019841372566161883')
jasonlee@nia-login01:/scratch/r/rbond/jasonlee/jason_cib_lensing/maps/analy
sis_181024/remi_final_maps$
```