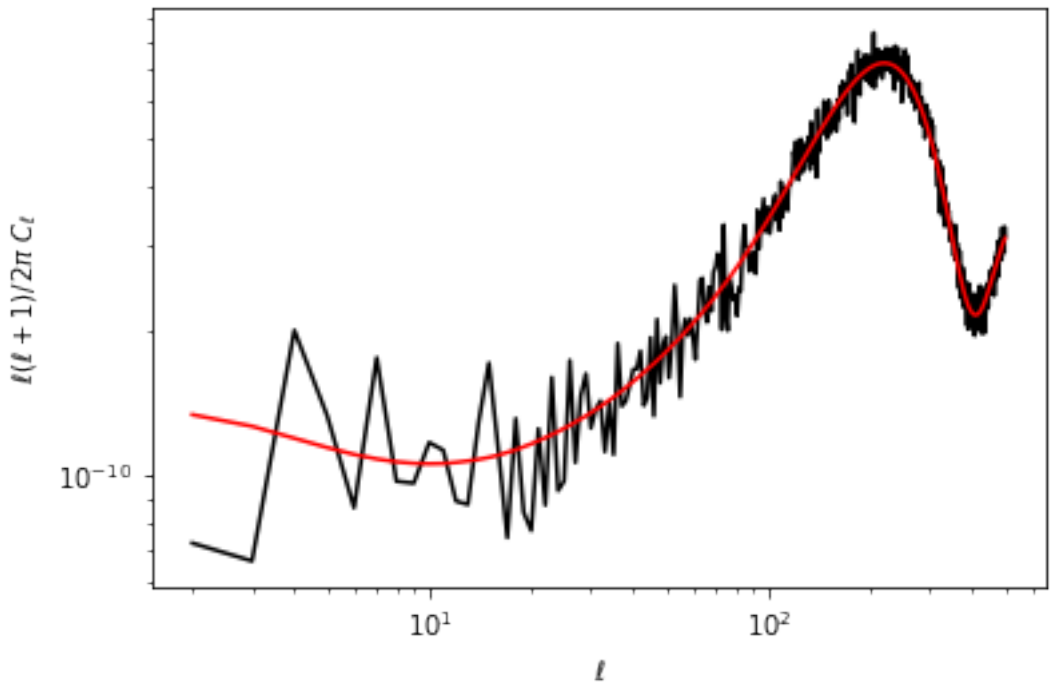
# likelihood

May 29, 2019

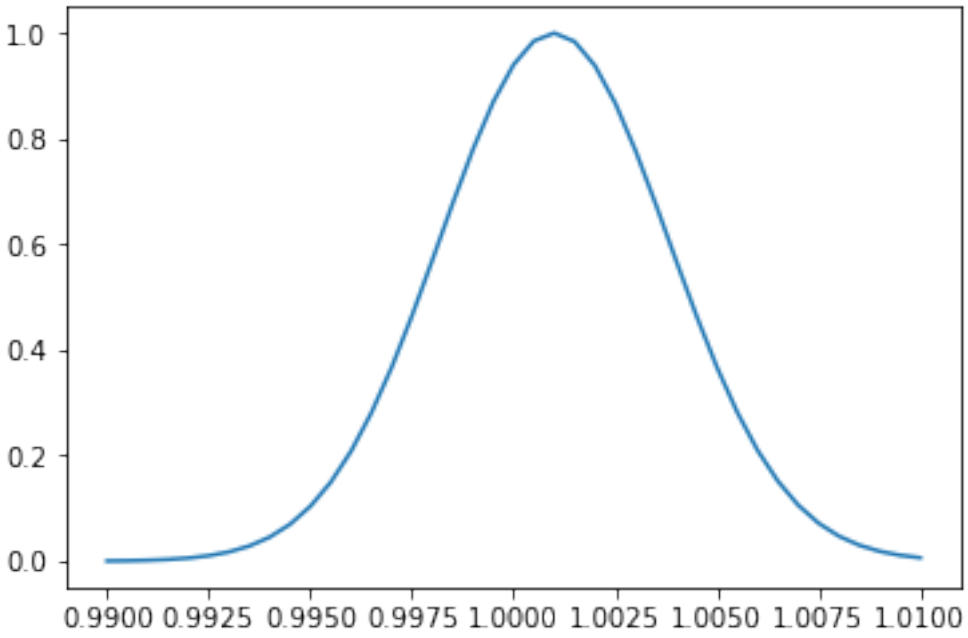
In [1]:
```
import numpy as np
import matplotlib.pyplot as plt
import posterior as pos

posterior = pos.posterior()
```

In [2]:
```
lmax = 500

ns_range = [0.85, 1.15, 0.005]
file_scal = 'cls_scal_lmax2500_ns0p85-1p15_step0p005.npy'
file_tens = 'cls_tens_lmax2500.npy'
file_data = 'cls_data_lmax2500.npy'

posterior.load_theory(file_scal, file_tens, lmax, ns_range)
posterior.load_data(file_data, lmax)
```

In [3]:
```
l = np.arange(2, lmax+1)
fl = l*(l+1)/(2.*np.pi)
plt.loglog(l, fl*posterior.cl_data[2:], color='black')
plt.loglog(l, fl*posterior.cl_scal(0.96)[2:], color='red')
plt.xlabel('$\ell$')
plt.ylabel('$\ell (\ell+1) / 2 \pi \ C_\ell$')
plt.show()
```

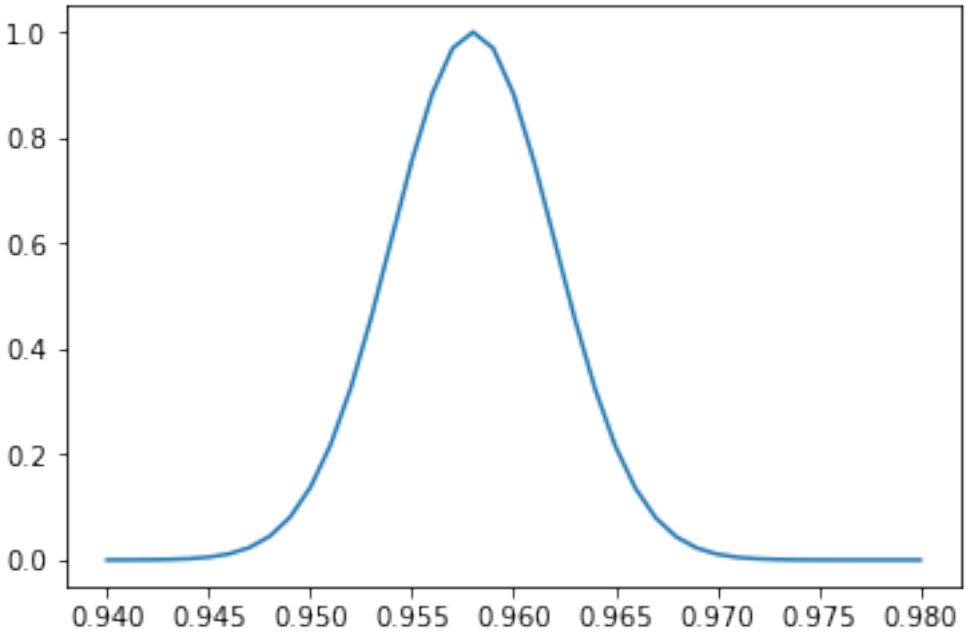



```
In [4]: As = np.arange(0.99, 1.01, 0.0005)
        like = []
        for x in As:
            like.append(posterior.lnlike([x, 0.96, 0.],[]))

In [5]: plt.plot(As, np.exp(like-max(like)))
        plt.show()
```




In [6]:
```
ns = np.arange(0.94, 0.98, 0.001)
like = []
for x in ns:
    like.append(posterior.lnlike([1., x, 0.],[]))
```

In [7]:
```
plt.plot(ns, np.exp(like-max(like)))
plt.show()
```



```
In [8]: r = np.arange(0., 0.2, 0.005)
        like = []
        for x in r:
            like.append(posterior.lnlike([1., 0.96, x],[]))

In [9]: plt.plot(r, np.exp(like-max(like)))
        plt.show()
```