

```
In [402... import numpy as np
import matplotlib.pyplot as plt
import astropy as astro
import pandas as pd
import camb as cb
%matplotlib inline
```

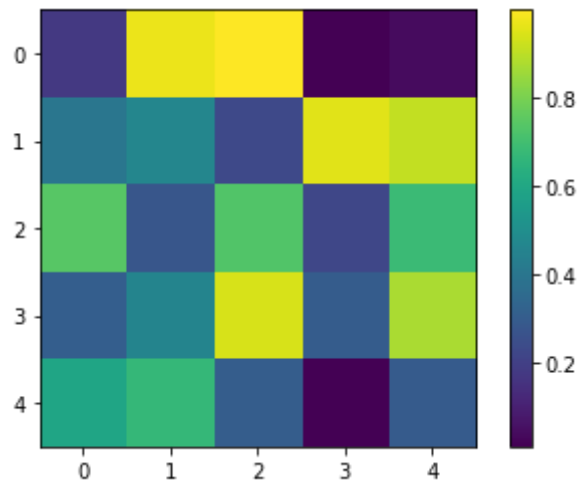
```
In [403... from pylab import imshow
from numpy import random
from PIL import Image
from scipy.fftpack import fft
from scipy.fftpack import fftfreq
from numpy.linalg import inv
from __future__ import division
```

```
In [404... #hitsmap part
Hitmap=np.random.rand(5,5) #generate random array and graph
print(Hitmap)
```

```
[[0.17434015 0.9695653 0.99715461 0.01212119 0.03966499]
 [0.40017514 0.46327019 0.23051314 0.9528769 0.90760927]
 [0.73971939 0.27523266 0.72828736 0.22081748 0.68188063]
 [0.30646148 0.45756654 0.9380612 0.29844447 0.87146015]
 [0.59049689 0.66844469 0.30088454 0.01541688 0.29656958]]
```

```
In [405... plt.colorbar(imshow(Hitmap))
imshow(Hitmap)
```

```
Out[405]: <matplotlib.image.AxesImage at 0x7fb19a773160>
```



```
In [406... M=np.mean(Hitmap)
print(M) #random values of Hitmap
print(np.median(Hitmap))
print(np.var(Hitmap))
```

```
0.501481393187287
0.45756653611855136
0.1004827925558515
```

```
In [407... #Fourrier Space Amplitude
```

```
In [408... length=len(Hitmap)
wave=(length - 1) // 2
print(length)
print(wave)
```

```
5
2
```

```
In [409... #A_noise
```

```
In [410... Spectrum=np.fft.fft(Hitmap) #fft of Hitmap
Abs=np.abs(Spectrum)
#print(Spectrum)
#print(Abs)

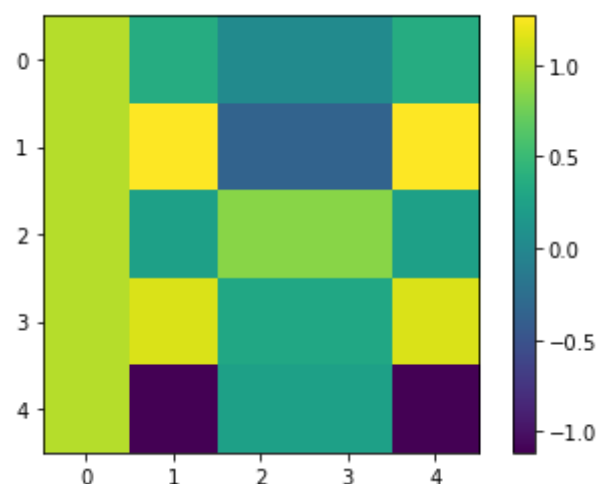
Inverse=inv(np.matrix(Hitmap))
#Transpose=np.transpose(Hitmap)
```

```
A_noise= Inverse * Abs #I am not sure that this is the amplitude, but is supposed to give the Amplitude
print(A_noise) #hitmap/frequency may be the amplitude
```

```
[[ 1.          0.36121272  0.02768989  0.02768989  0.36121272]
 [ 1.          1.26756121 -0.35804461 -0.35804461  1.26756121]
 [ 1.          0.23931447  0.84273885  0.84273885  0.23931447]
 [ 1.          1.1343926   0.3036256   0.3036256   1.1343926 ]
 [ 1.         -1.11305621  0.24033483  0.24033483 -1.11305621]]
```

```
In [411... plt.colorbar(imshow(A_noise))
imshow(A_noise)
```

```
Out[411]: <matplotlib.image.AxesImage at 0x7fb1bafdeb90>
```



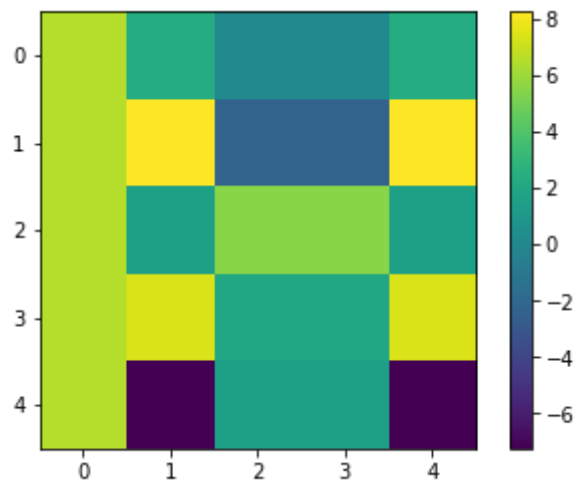
```
In [412... def Noisemap(Hitmap,A_noise):
    Inital = A_noise * np.random.normal(M,length) #I think something went wrong in this calculation
    Final = Inital//Hitmap
    print(Final)
```

```
In [413... Noisemap(1,1)
```

```
0.0
```

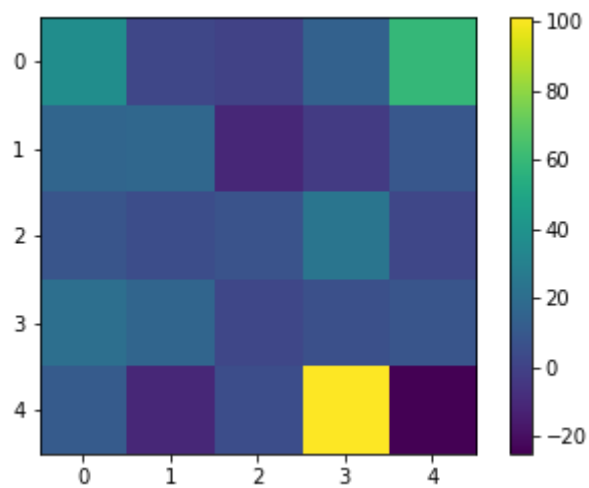
```
In [414... Inital = A_noise * np.random.normal(M,length)
plt.colorbar(imshow(Inital))
imshow(Inital)
```

```
Out[414]: <matplotlib.image.AxesImage at 0x7fb1bb0a25f0>
```



```
In [415... Final = Initial//Hitmap  
plt.colorbar(imshow(Final))  
imshow(Final)
```

Out[415]: <matplotlib.image.AxesImage at 0x7fb1baf72830>



In [ ]:

In [ ]: