In [271…
```
import numpy as np
import matplotlib.pyplot as plt
import astropy as astro
import pandas as pd
import camb as cb
%matplotlib inline
```

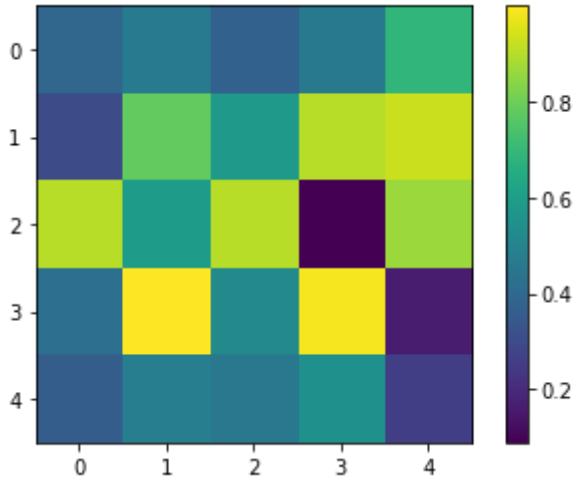
In [272…
```
from pylab import imshow
from numpy import random
from PIL import Image
from scipy.fftpack import fft
from scipy.fftpack import fftfreq
from numpy.linalg import inv
from __future__ import division
```

In [273…
```
#hitsmap part
Hitmap=np.random.rand(5,5) #generate random array and graph
print(Hitmap)
```

```
[[0.38877681 0.46709655 0.3734646  0.45774512 0.68686003]
 [0.29842304 0.78188597 0.58272101 0.90131087 0.92466464]
 [0.90078486 0.59324185 0.90059753 0.08967172 0.86041303]
 [0.42289327 0.99863922 0.51601359 0.98645681 0.16235619]
 [0.35915035 0.47857226 0.45412481 0.54618773 0.25791212]]
```

In [274…
```
plt.colorbar(imshow(Hitmap))
imshow(Hitmap)
```

Out[274]:
```
<matplotlib.image.AxesImage at 0x7f7c1ab125f0>
```



In [275…
```
length=len(Hitmap)
print(length)
M=np.mean(Hitmap)#mean
print(M)
```

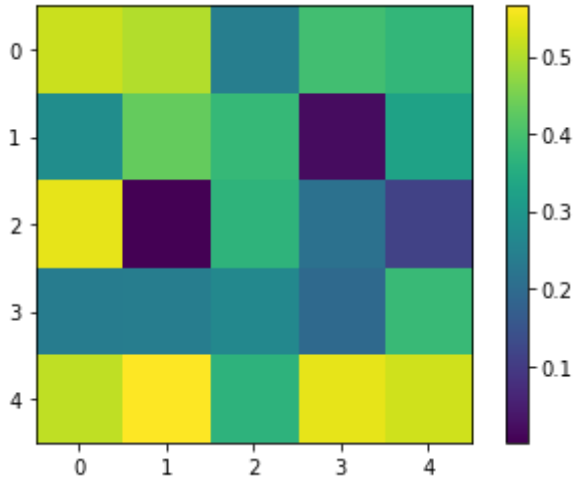
```
5
0.5755985587945621
```

In [276…
```
A_noise=M*np.random.rand(5,5)#Noise is the mean times a random array, which must be changed as Hitmap changes
print(A_noise)
```

```
[[0.52055101 0.50088533 0.24208398 0.39551074 0.37526561]
 [0.27682389 0.43205924 0.38025509 0.01973689 0.32688963]
 [0.54368405 0.0010557  0.36907368 0.2125173  0.11219974]
 [0.23821272 0.24041169 0.26409482 0.19462664 0.38266236]
 [0.5123223  0.56548882 0.36566184 0.54563351 0.52549121]]
```

In [277…
```
plt.colorbar(imshow(A_noise))
imshow(A_noise)
```

Out[277]:
```
<matplotlib.image.AxesImage at 0x7f7c1ac1d2d0>
```



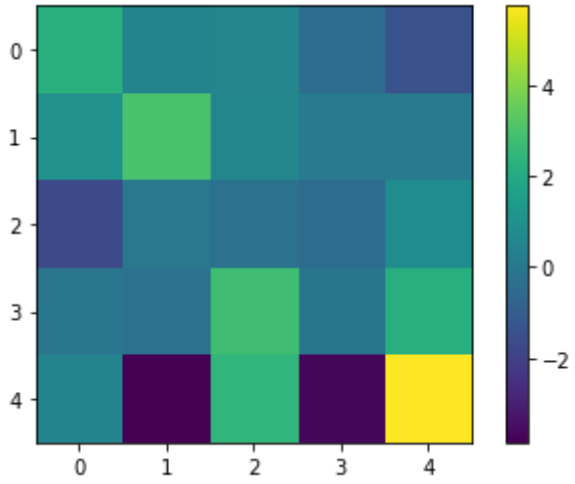
In [278…
```
def Noisemap(Hitmap,A_noise):
    Inital = A_noise * np.random.normal(M,length)
    Final = Inital//Hitmap
    print(Final)
```

In [279…
```
Noisemap(1,1)
```

```
0.0
```

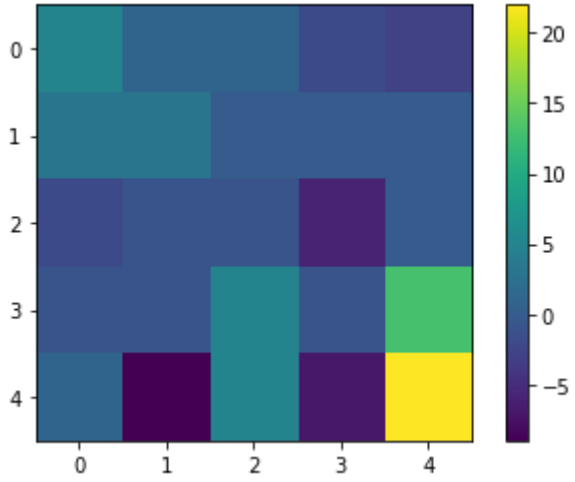
In [280…
```
Inital = A_noise * np.random.normal(A_noise,length)
Final = Inital//Hitmap
plt.colorbar(imshow(Inital))
imshow(Inital)
```

Out[280]:
```
<matplotlib.image.AxesImage at 0x7f7c2ba9ace0>
```



In [281…
```
plt.colorbar(imshow(Final))
imshow(Final)
```

Out[281]:
```
<matplotlib.image.AxesImage at 0x7f7c2bb5aec0>
```



In [ ]: