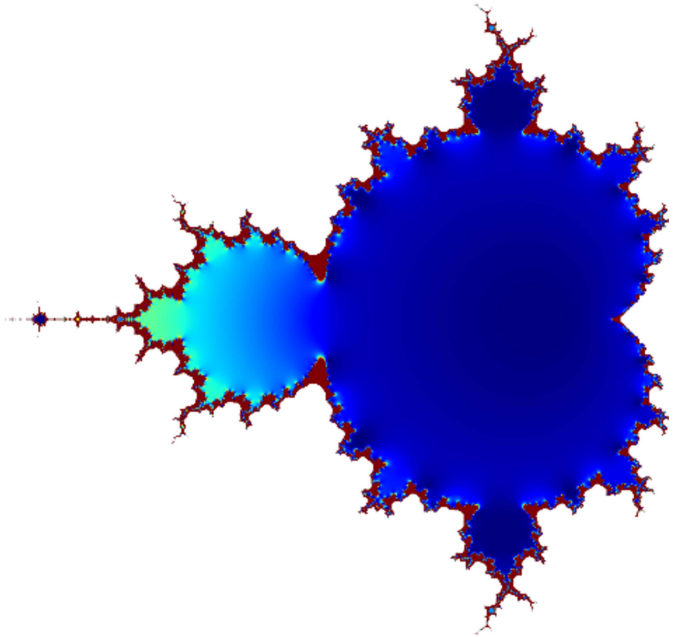
Application: Fractale

La fractale de Mandelbrot est obtenue en itérant la formule suivante:

$$\begin{cases} z_{k+1} = z_k^2 + c \\ z_0 = c \end{cases}$$

Afficher |z| après N iterations pour $c \in [-2-j, 2+j]$



```
import numpy as np
import matplotlib.pyplot as plt

N=1500
u=np.linspace(-2,2,N)

xx,yy=np.meshgrid(u,u)
zz=xx+1j*yy
c=zz

for k in range(20):
  zz=zz**2+c

Z=zz.real**2+zz.imag**2

im=plt.imshow(Z)
im.set_clim(0,4)
plt.show()
```