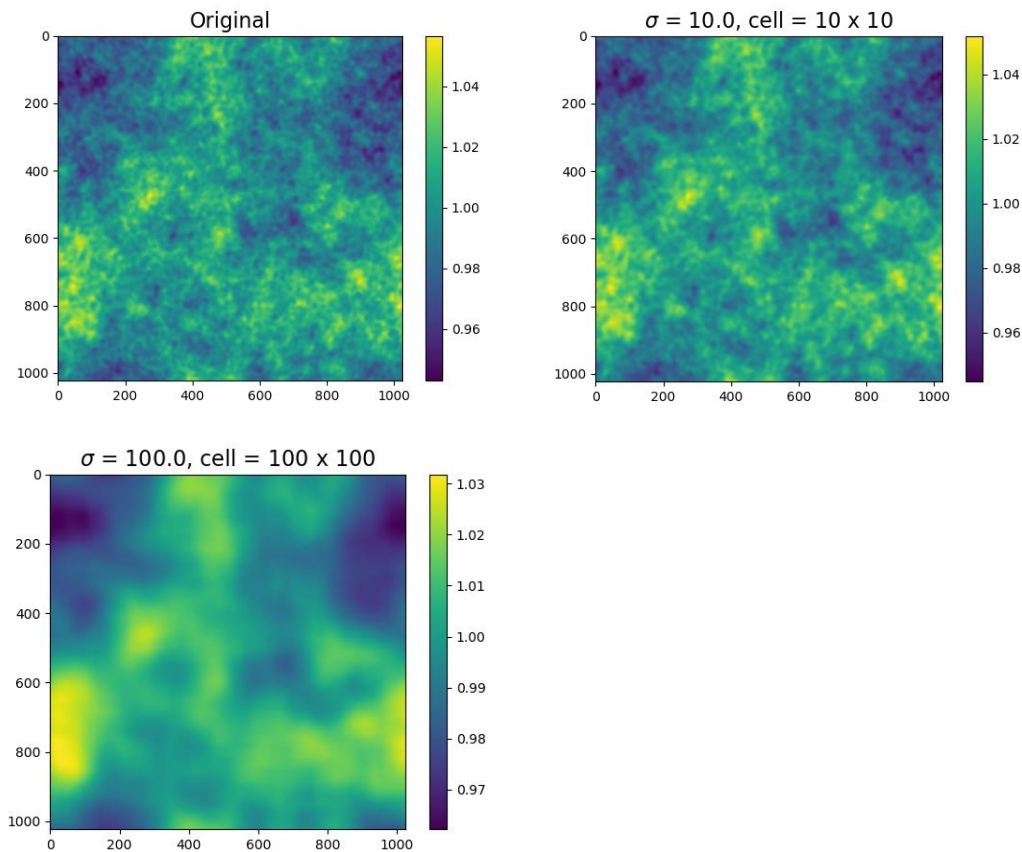


Computational Astrophysics HW4

R08244002 蔡欣蓉

- Applied Gaussian filter with $\sigma = 10$ and $\sigma = 100$, cell 10×10 and 100×100 respectively

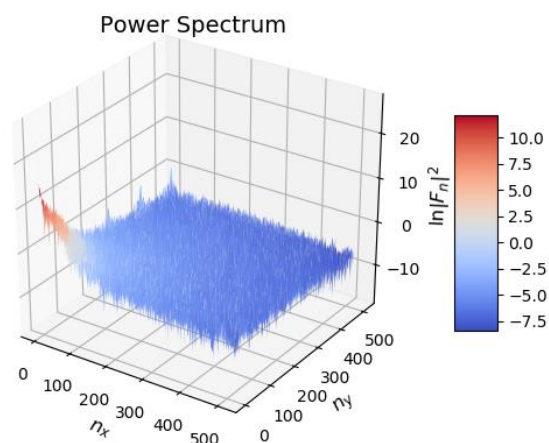
Run the file *convolution_2D_Gaussian.py*.



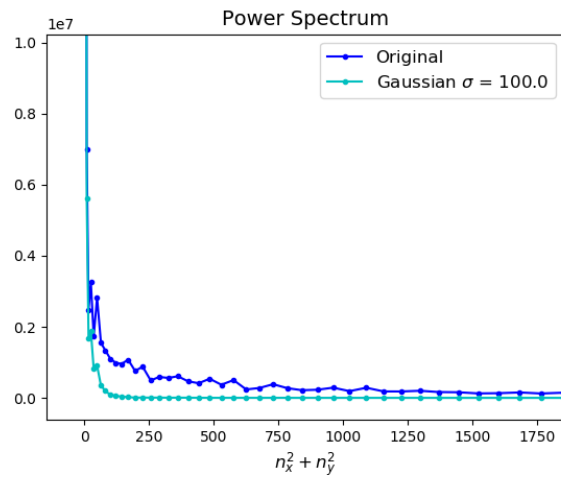
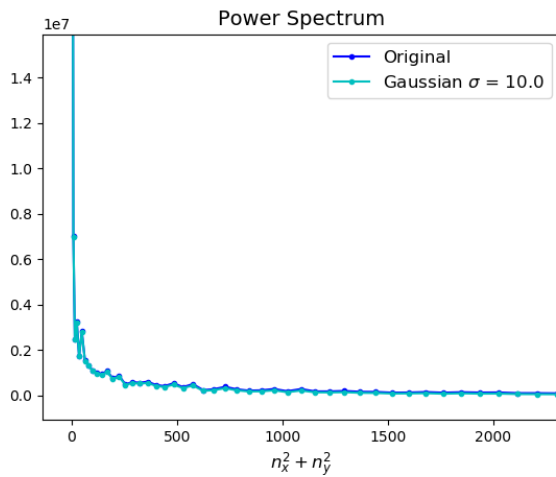
- Power Spectrum**

Run file *convolution_2D_Gaussian.py*.

For each n_x and n_y , we have a power spectrum, we can see that low n_x and n_y contributes a lot.

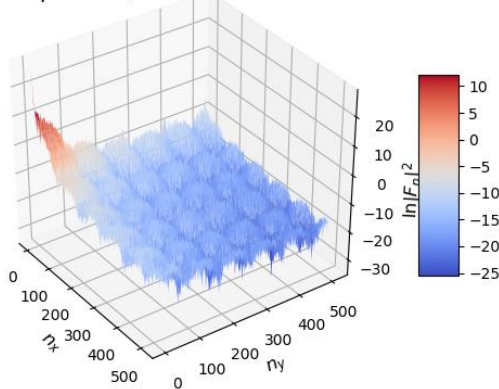


If we sum all the amplitude that have the same $n_x + n_y$, than it gives,



After applying Gaussian filter, if σ is large, which blends more cells together, will eliminate bigger frequencies range. While smaller σ still keeps the characteristics of the original one, but still, removes high frequencies nodes. And their individual n_x and n_y spectrum is really interesting, even though I don't know what cause it to be like this. They are bubble like.

Power Spectrum, Gaussian Filter $\sigma = 10.0$



Power Spectrum, Gaussian Filter $\sigma = 100.0$

