

This week I still learn how to work on the adaptive sampling and dual frequency comb spectroscopy. I tried to follow and understand the problems by listening to Hsieh, Ichikawa, and Hayashi. There are still a lot of things I need to study from them before I can start the experiments by myself.

This week, I will prepare new report for Emmanuel related to THz wavefront experiment and for the preparation to submit to Photonics West. I may need to prepare some new images to emphasize the advantages of our THz wavefront experiment. One of the most important things is the capability to clearly show the evolution of THz wavefront.

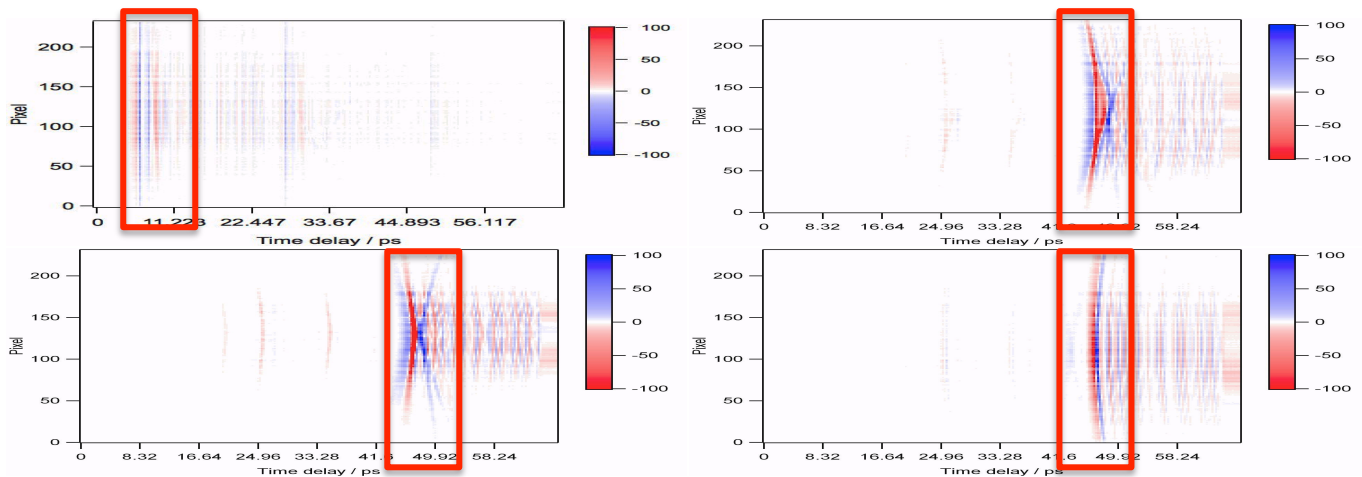


Fig. 1. The comparison of THz wavefront for planar (upper left), convergent (upper right), focusing (bottom left), and divergent (bottom right); box = area of interest

I also noticed that the result of the plot of electric field amplitude in frequency domain might be also interesting. The behaviors of the plots were changed along with the evolution of the beams. I still have not found any sufficient references yet to explain these phenomena.

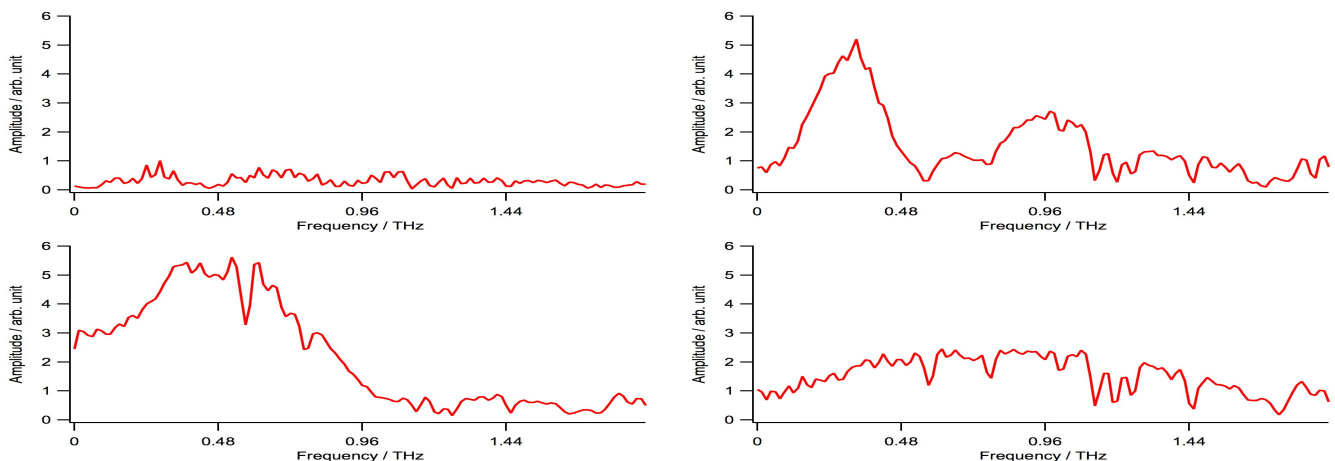


Fig. 2. The comparison of electric field amplitude of THz beam in frequency domain for planar (upper left), convergent (upper right), focusing (bottom left), and divergent (bottom right)

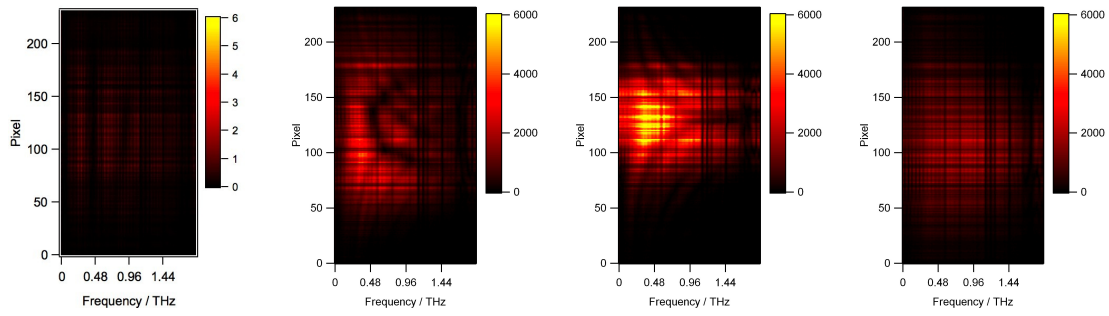


Fig. 3. The comparison of electric field amplitude of THz beam in frequency domain at YZ view; from left to right: planar, convergent, focusing, and divergent

As suggested by Emmanuel, I should observe the evolution of electric field amplitude of THz beam in frequency domain at XY view. I still do not understand what he would like to achieve from these results. In my opinion, the results in Fig. 2 and 3 were more comprehensible.

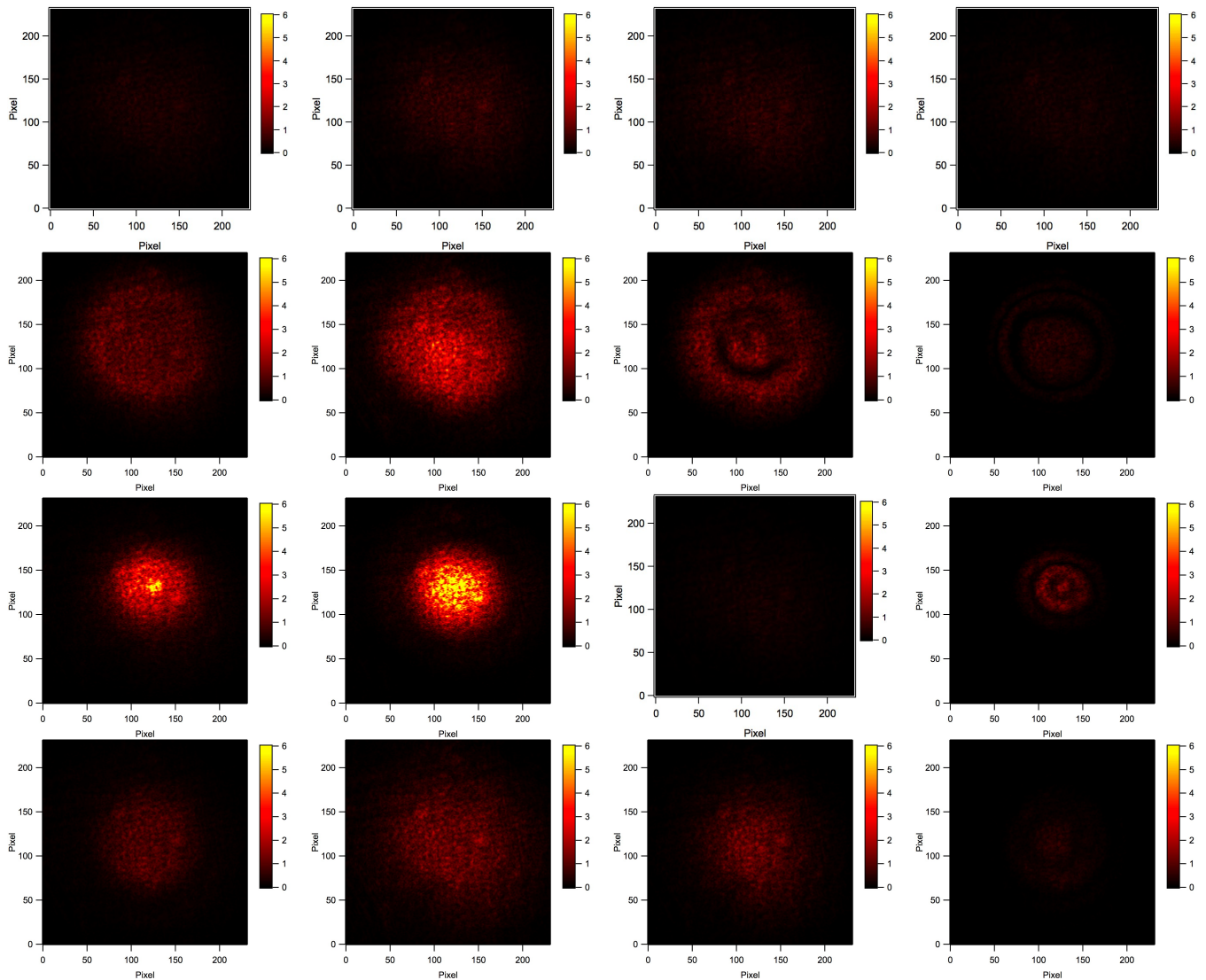


Fig. 4. The comparison of electric field amplitude of THz beam in frequency domain at XY view; row from upper to bottom: planar, convergent, focusing, and divergent; column from left to right: 0.105 THz, 0.300 THz, 1.005 THz, and 1.905 THz.

For that purpose, I use of Igor procedure to generate images above. Since working with Igor in Mac and Windows are different, I attempt to make the Igor more user-friendly. In the last version, it was a little bit difficult because the presence of many windows. Basically, I just organize the windows into one panel and control the operation from it. The adjustments of the routines from previous version to the newer one were quite challenging. By adding some more function, this problem will be also useful for other image handling purpose.

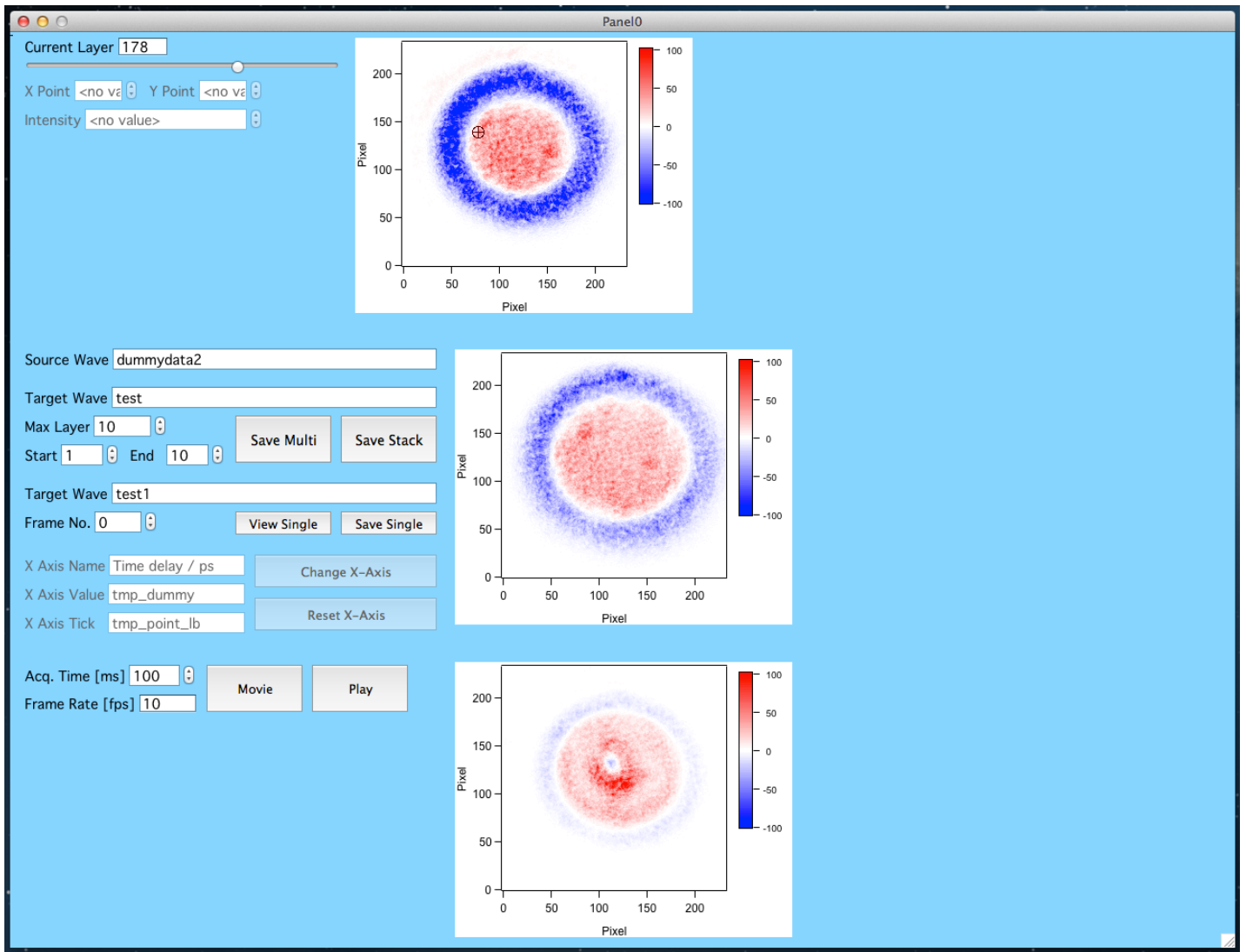


Fig. 6. Last version of Igor procedure for image handling