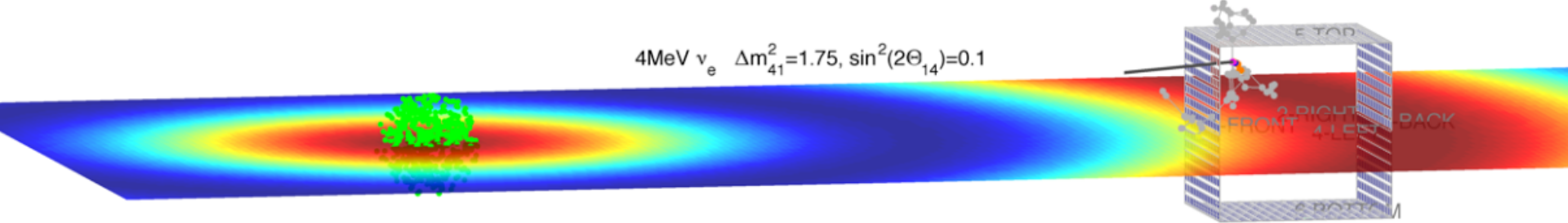


NULAT Detector Talk

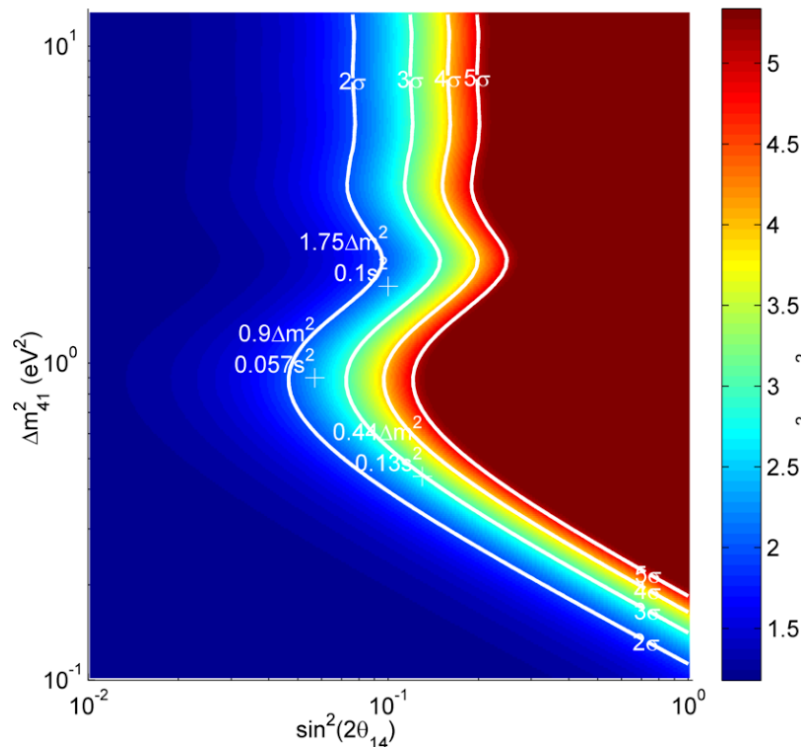
Glenn Jocher

Paris, December 2014

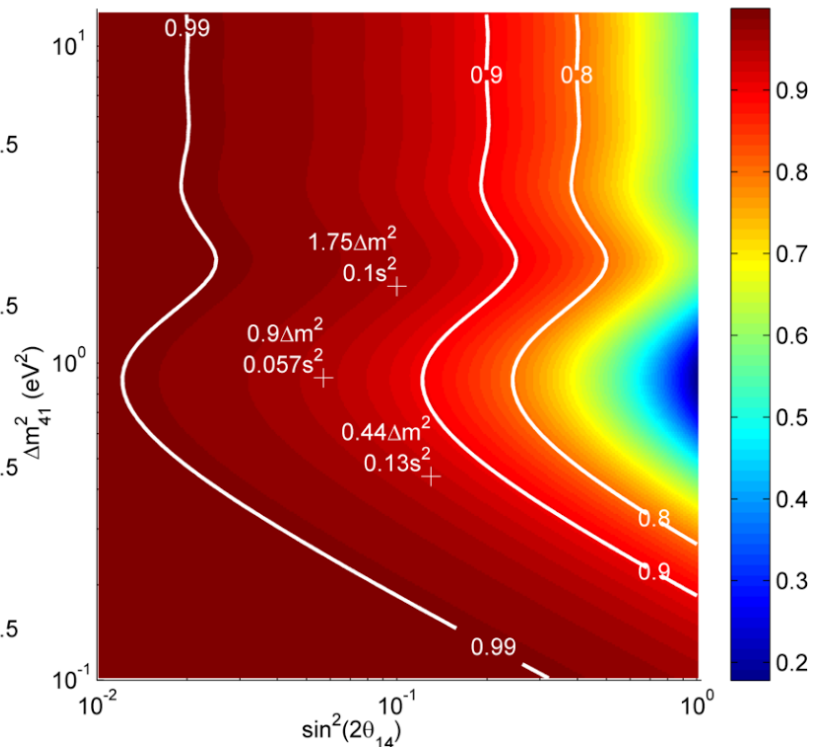




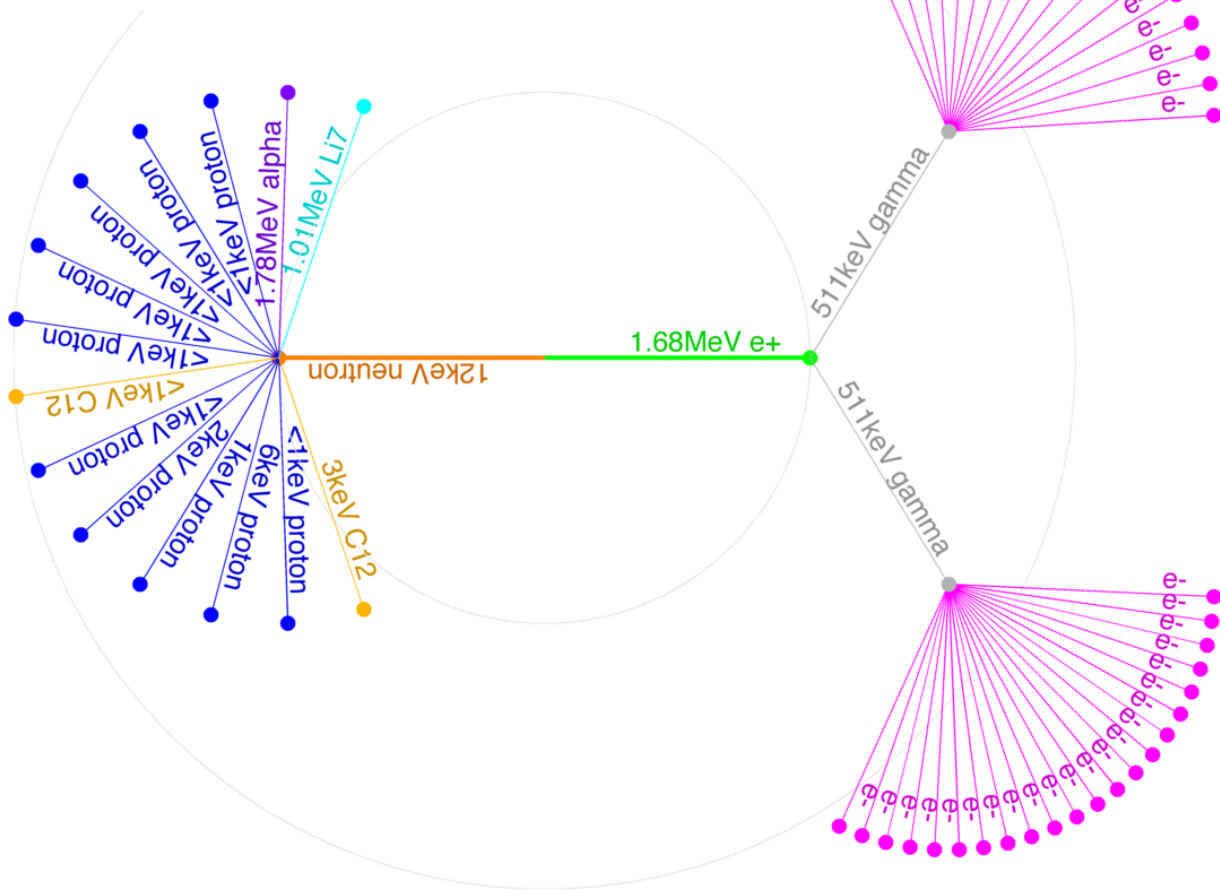
4 flavor confidence (1m^3 , 800MWt, 5m, 1 day, 1/10SBR)

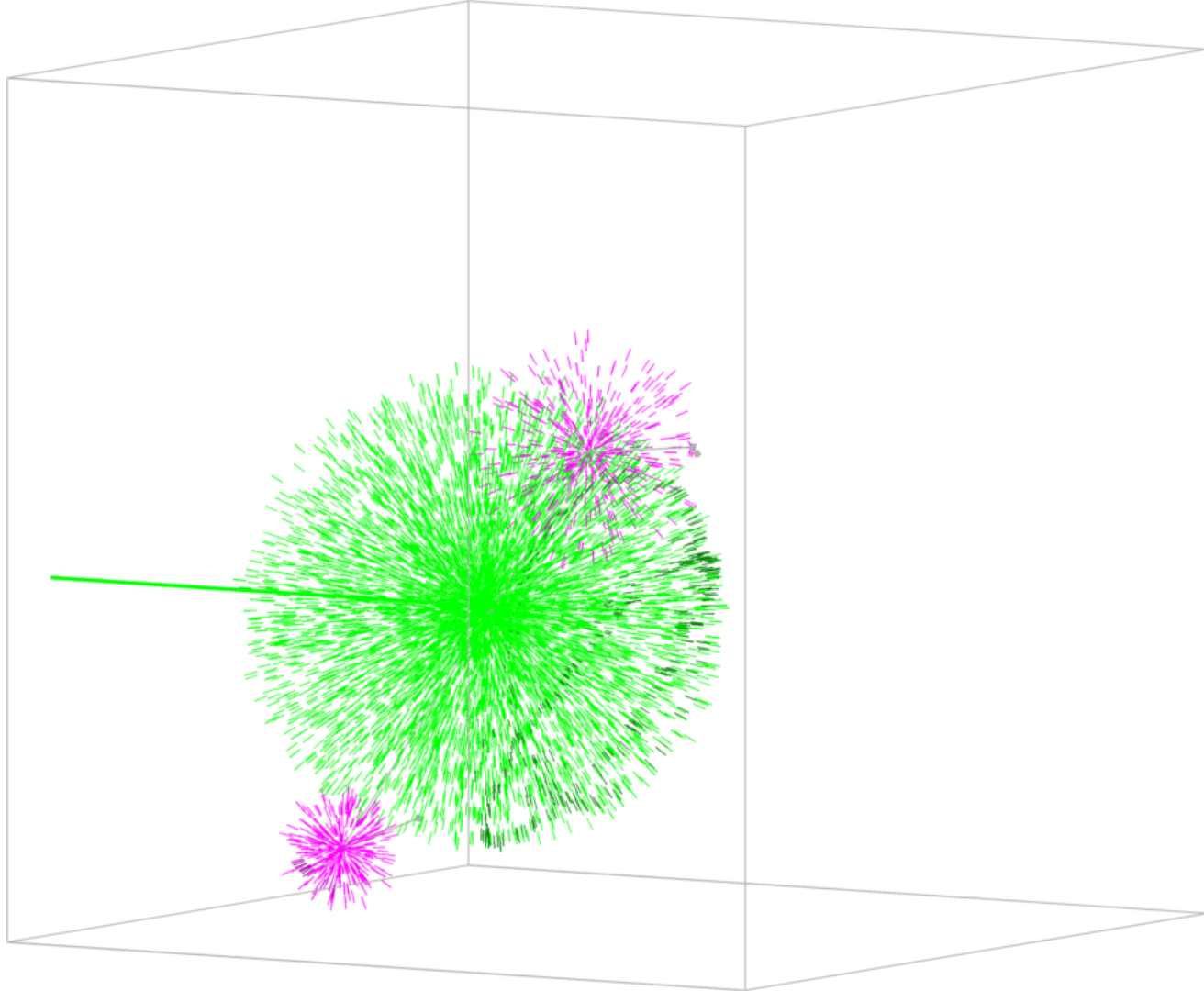


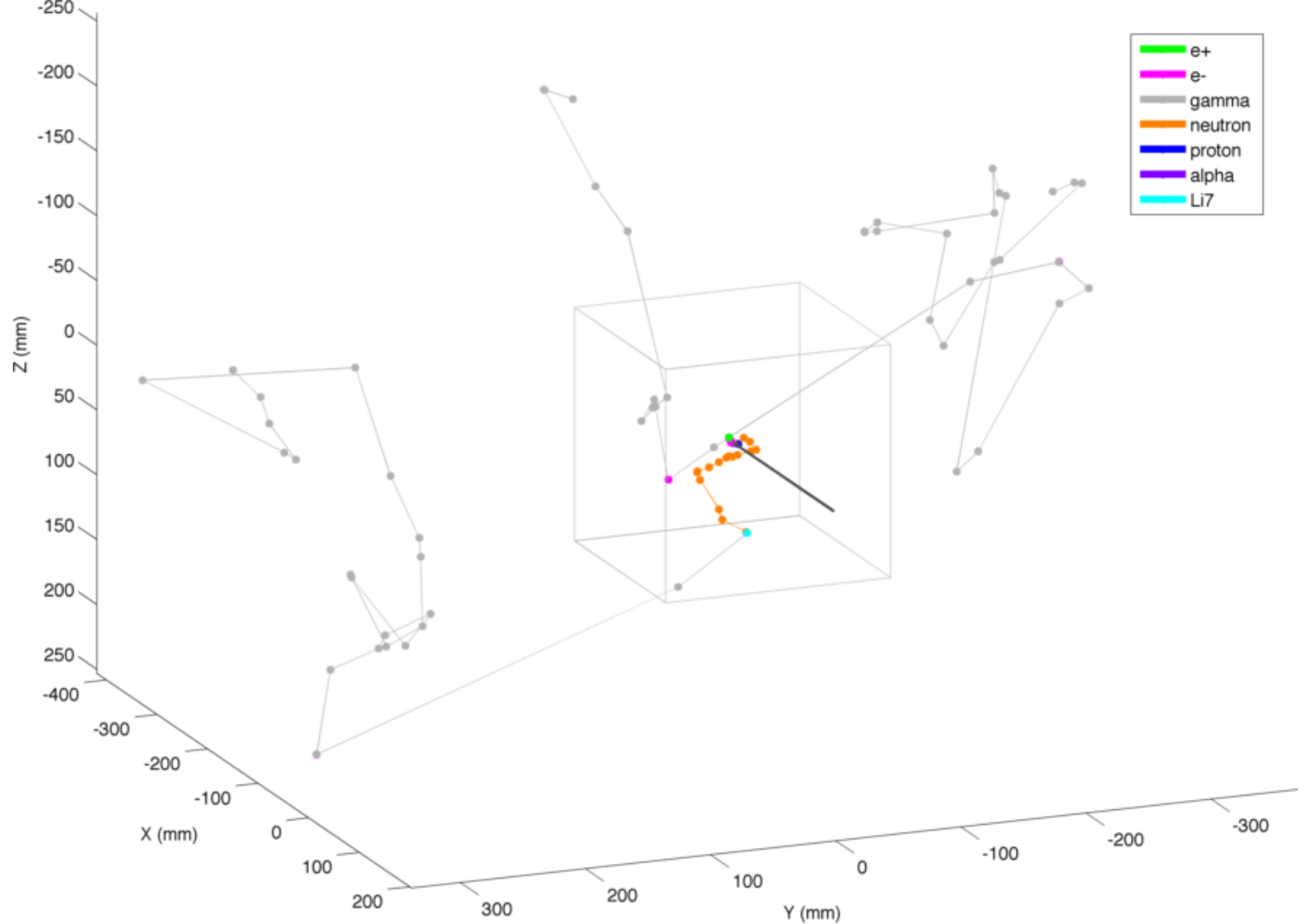
4 flavor survival at 5m

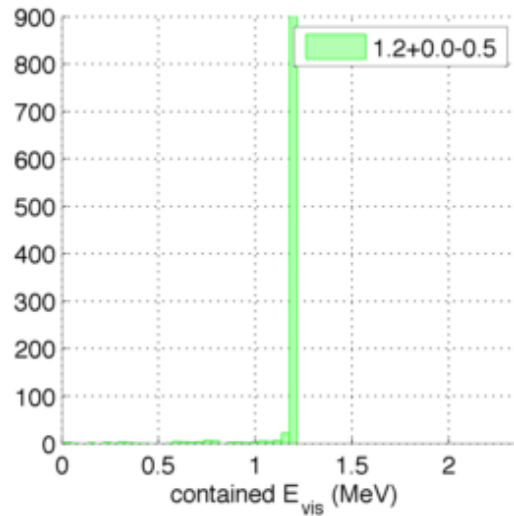
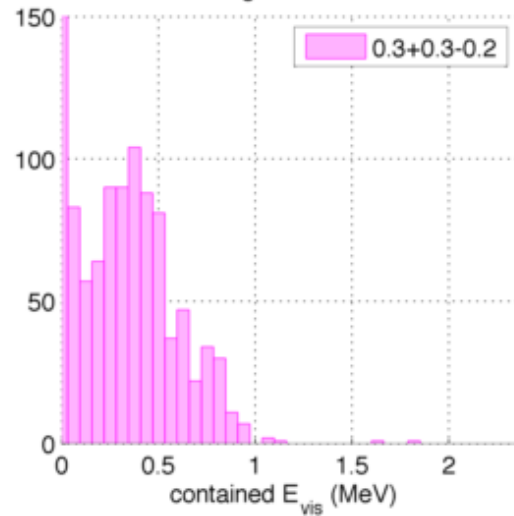
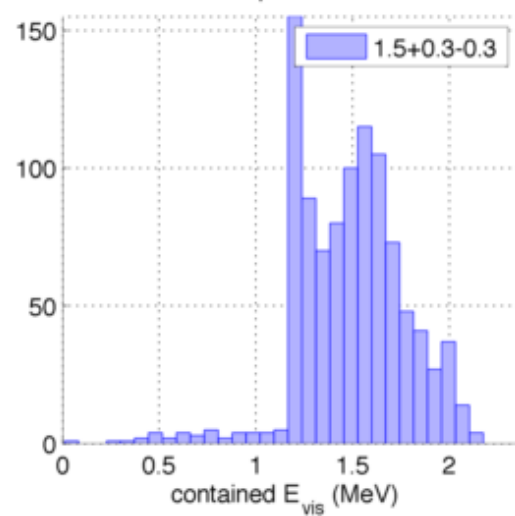
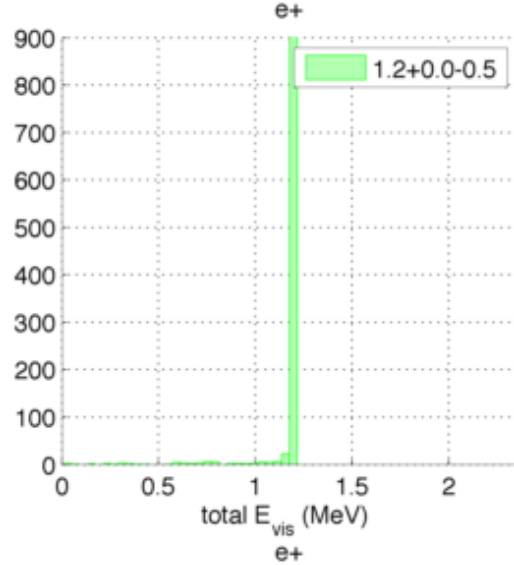
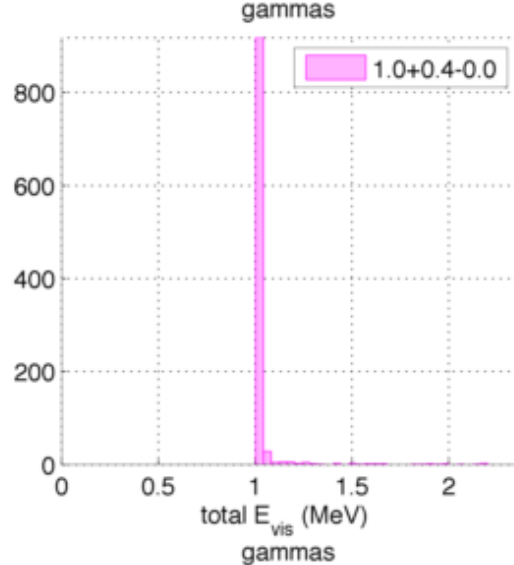
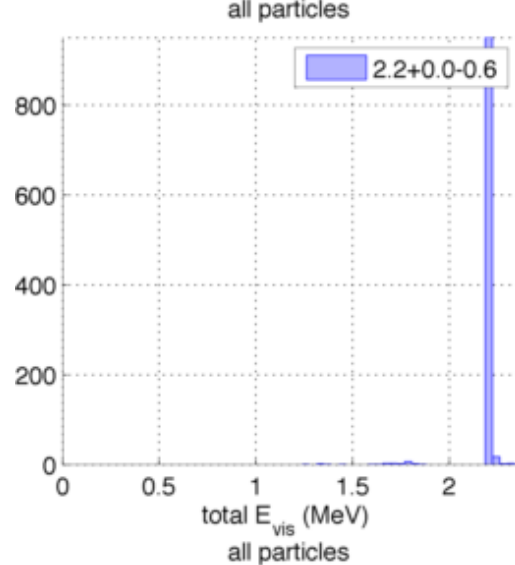


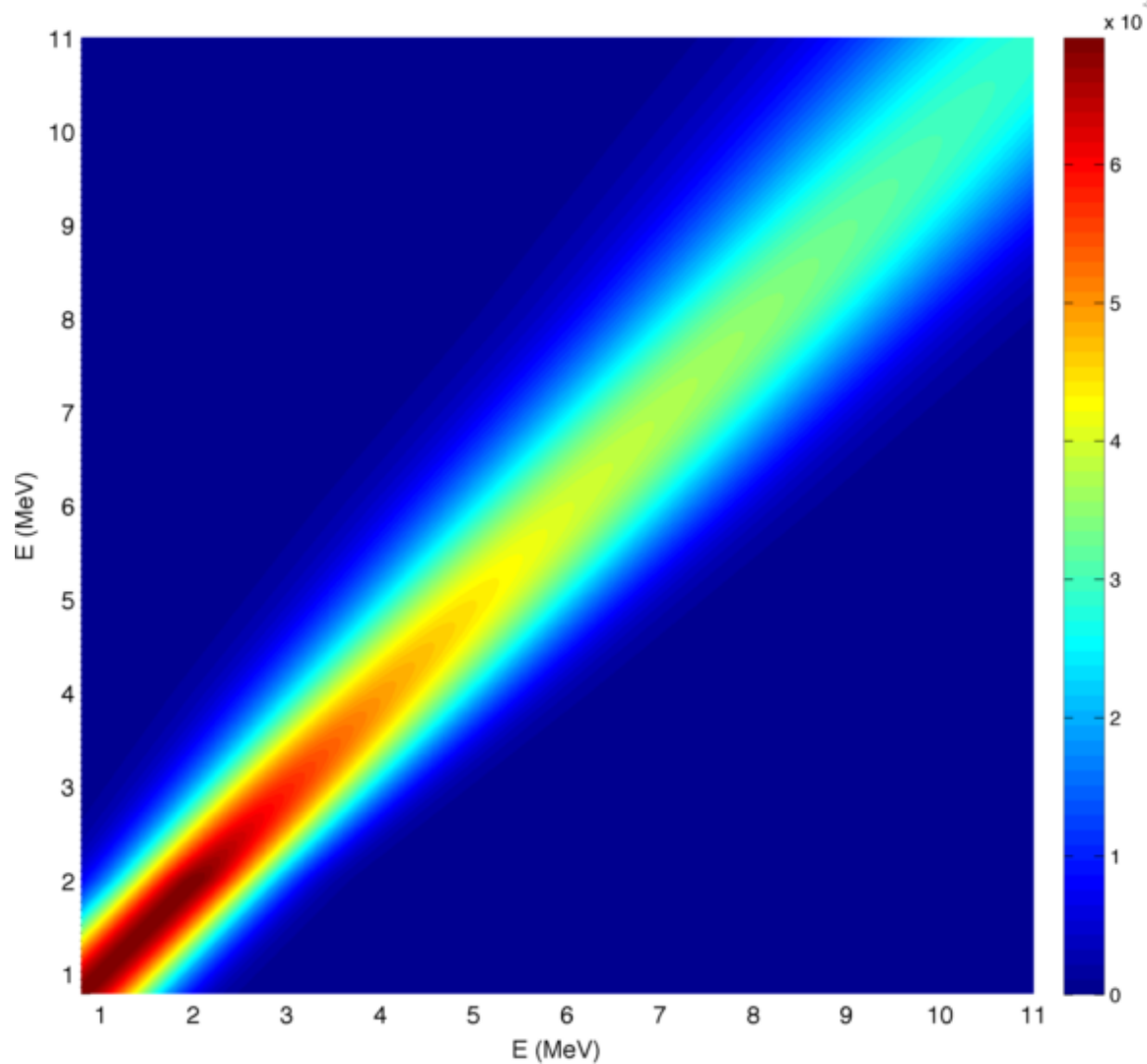
$$\bar{\nu}_e + p \rightarrow e^+ + n$$

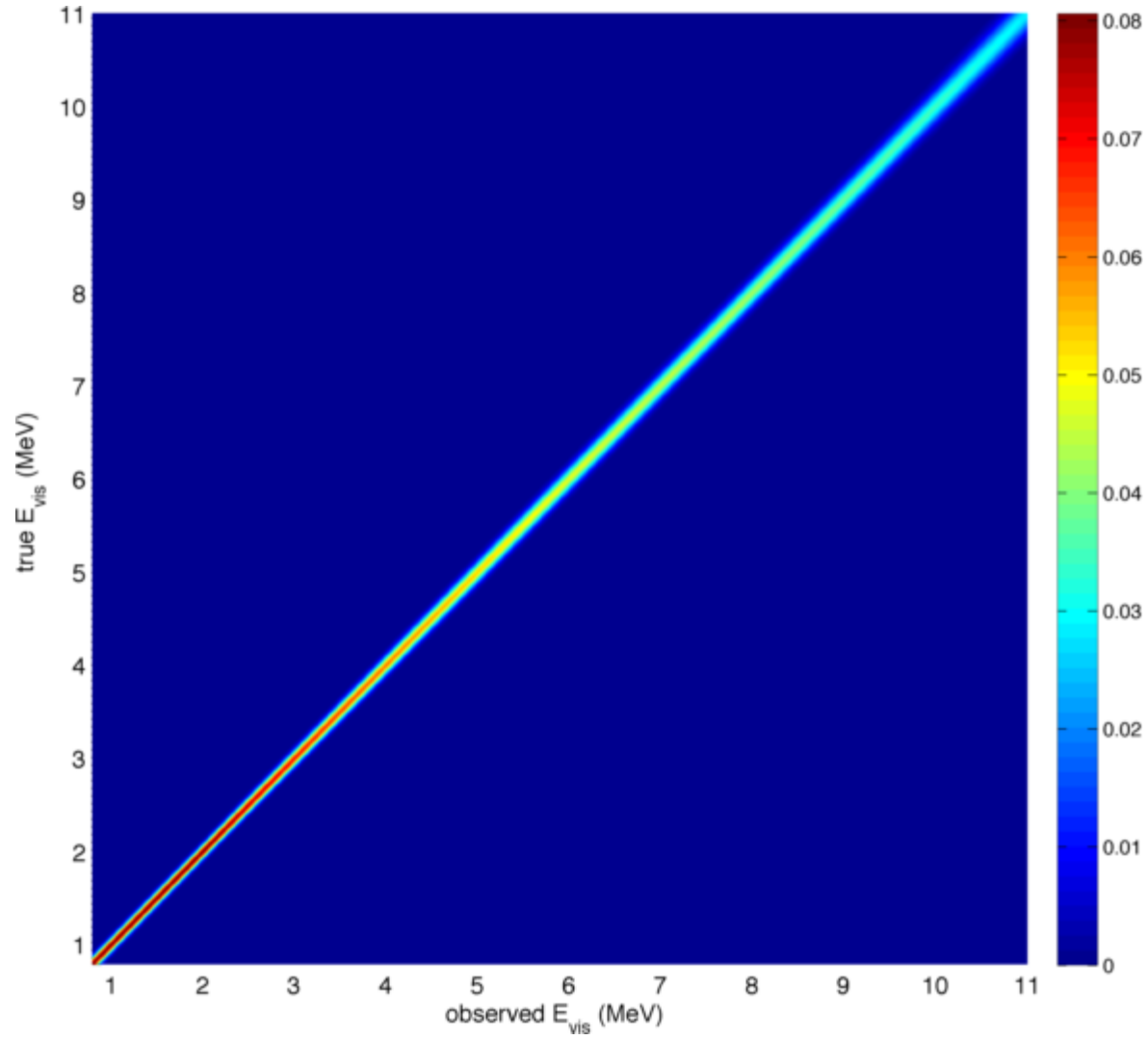




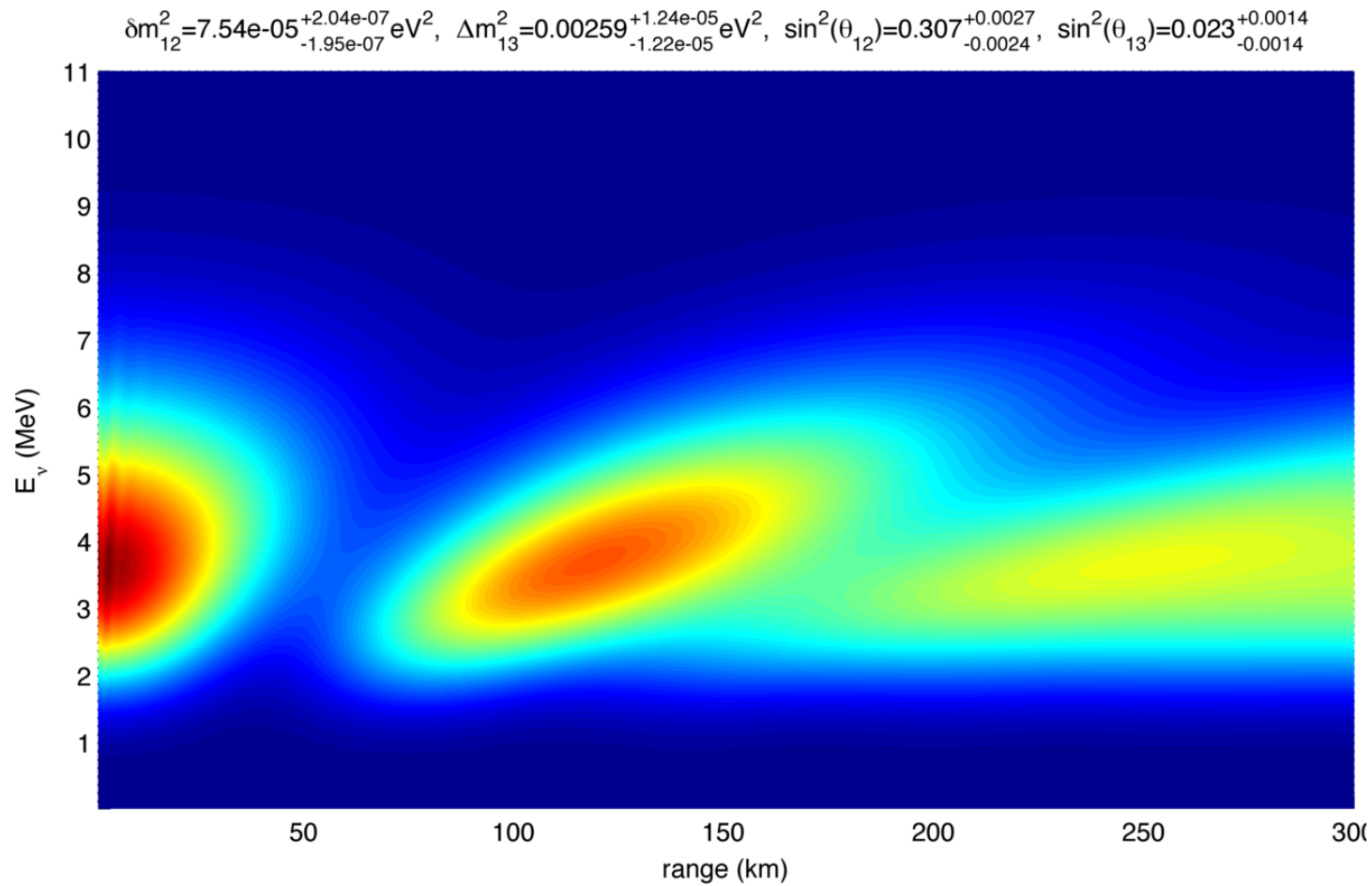




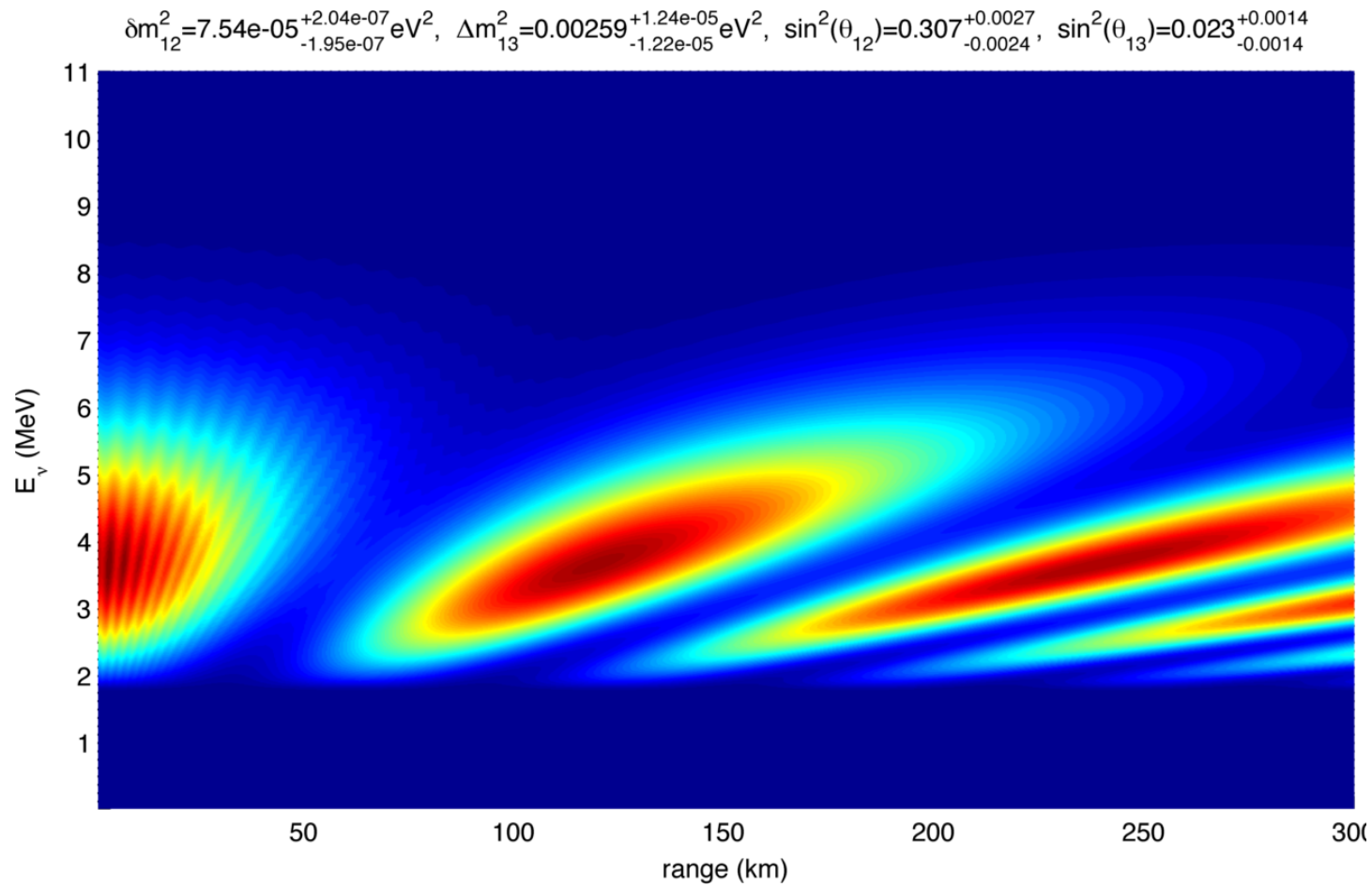


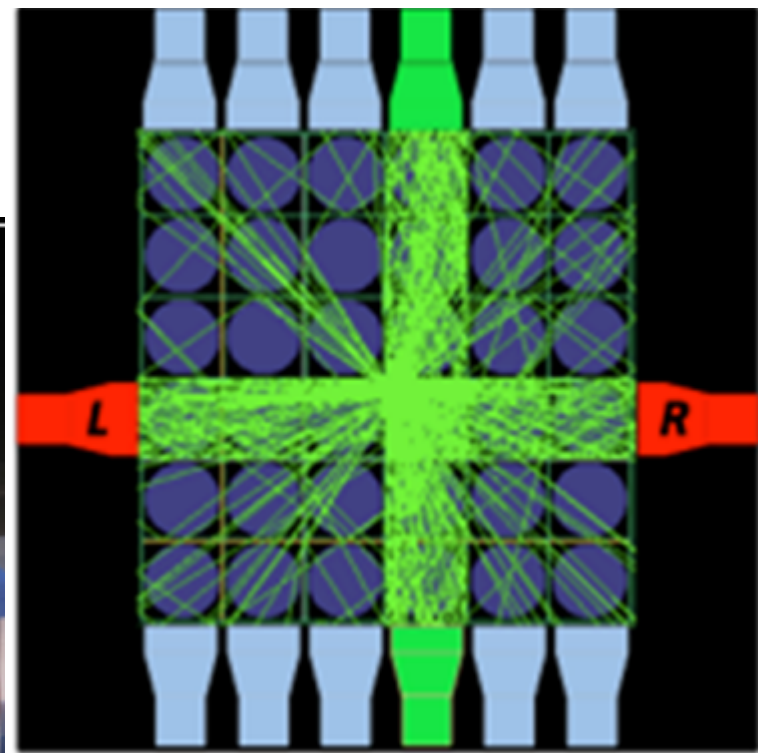
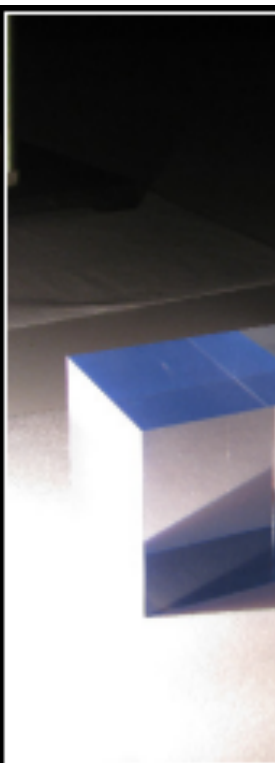
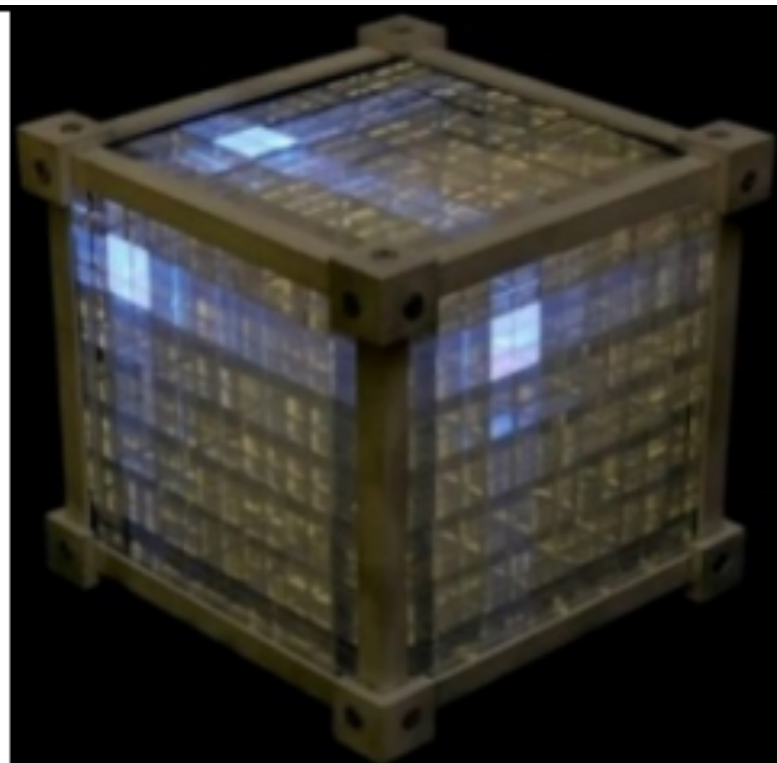


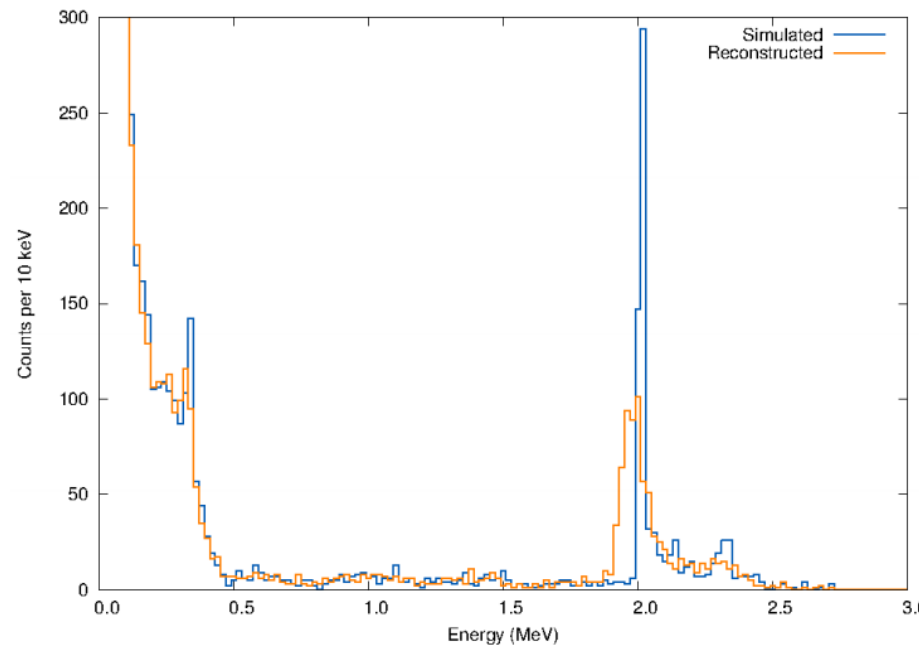
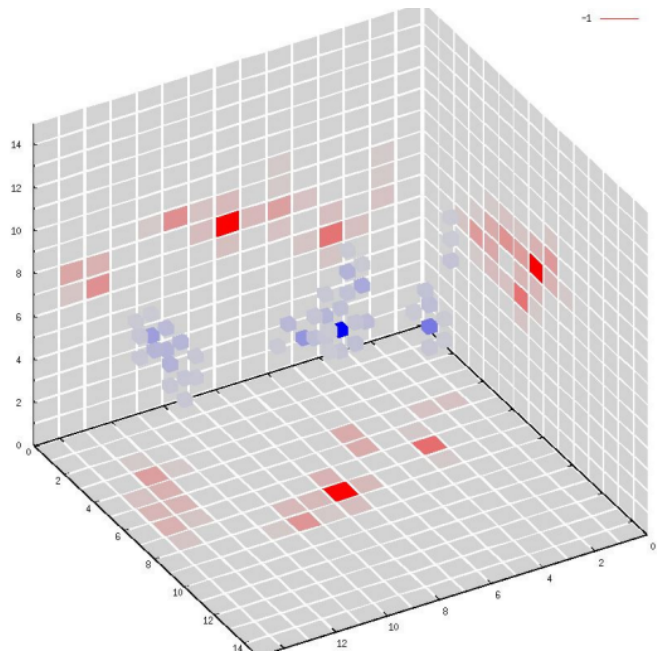
$$P_{e \rightarrow e} = 1 - 4 c_{12}^2 c_{13}^4 s_{12}^2 \sin\left(\frac{1.27 L \Delta m_{21}^2}{E}\right)^2 - 4 c_{12}^2 c_{13}^2 s_{13}^2 \sin\left(\frac{1.27 L \Delta m_{31}^2}{E}\right)^2 - 4 c_{13}^2 s_{12}^2 s_{13}^2 \sin\left(\frac{1.27 L \Delta m_{32}^2}{E}\right)^2$$



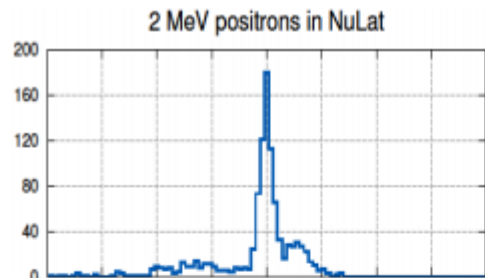
$$P_{e \rightarrow e} = 1 - 4 c_{12}^2 c_{13}^4 s_{12}^2 \sin^2\left(\frac{1.27 L \Delta m_{21}^2}{E}\right) - 4 c_{12}^2 c_{13}^2 s_{13}^2 \sin^2\left(\frac{1.27 L \Delta m_{31}^2}{E}\right) - 4 c_{13}^2 s_{12}^2 s_{13}^2 \sin^2\left(\frac{1.27 L \Delta m_{32}^2}{E}\right)$$



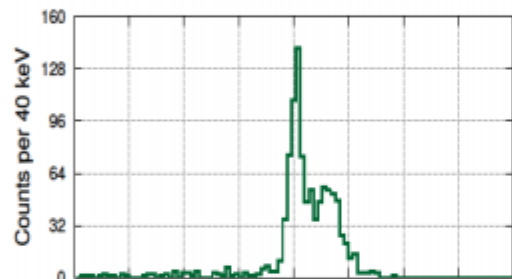




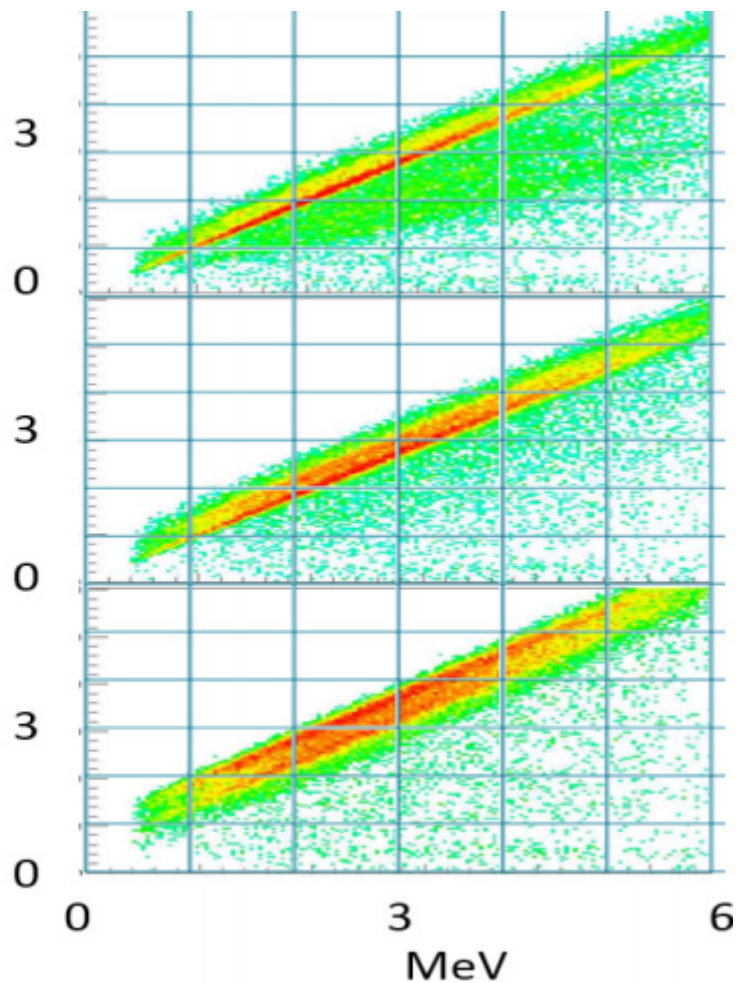
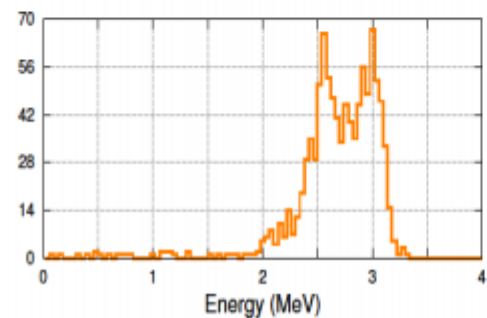
Largest
Cell
Only



Largest
Cell and
nearest
max cell

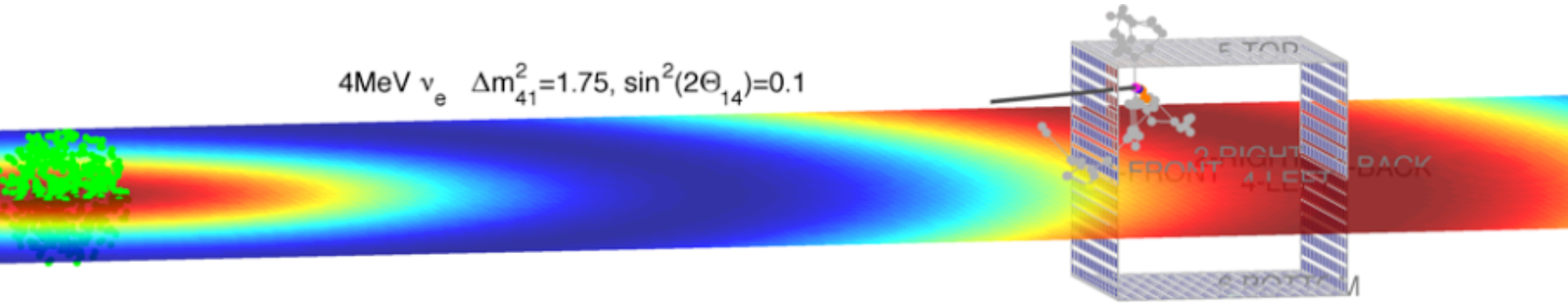


Total
Energy
in
Detector

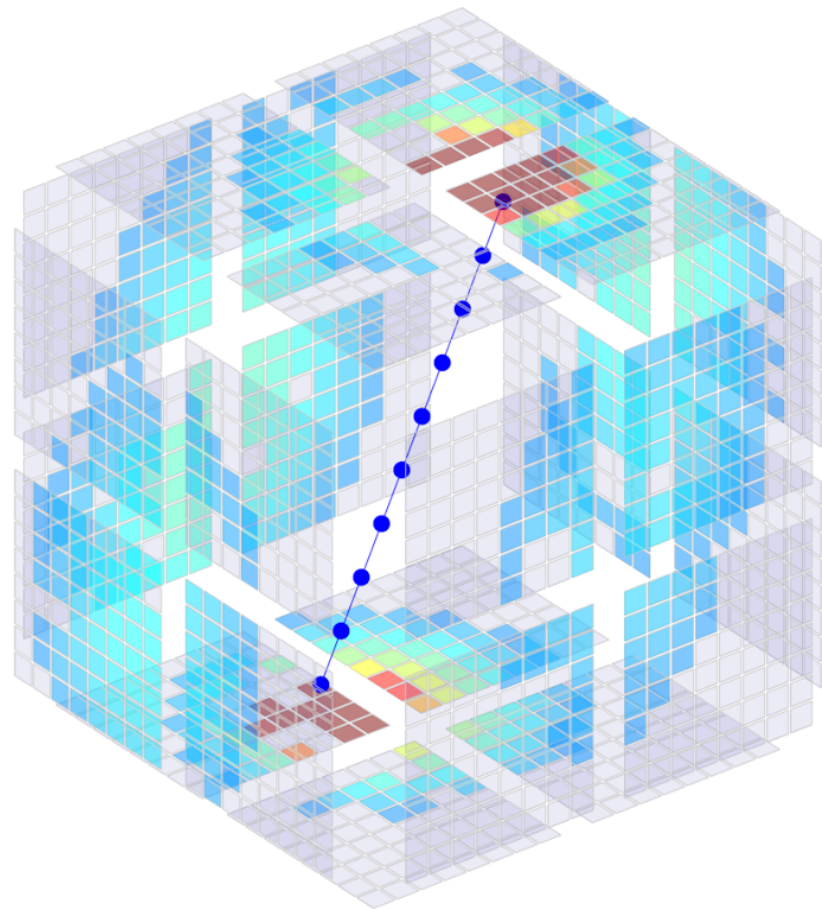
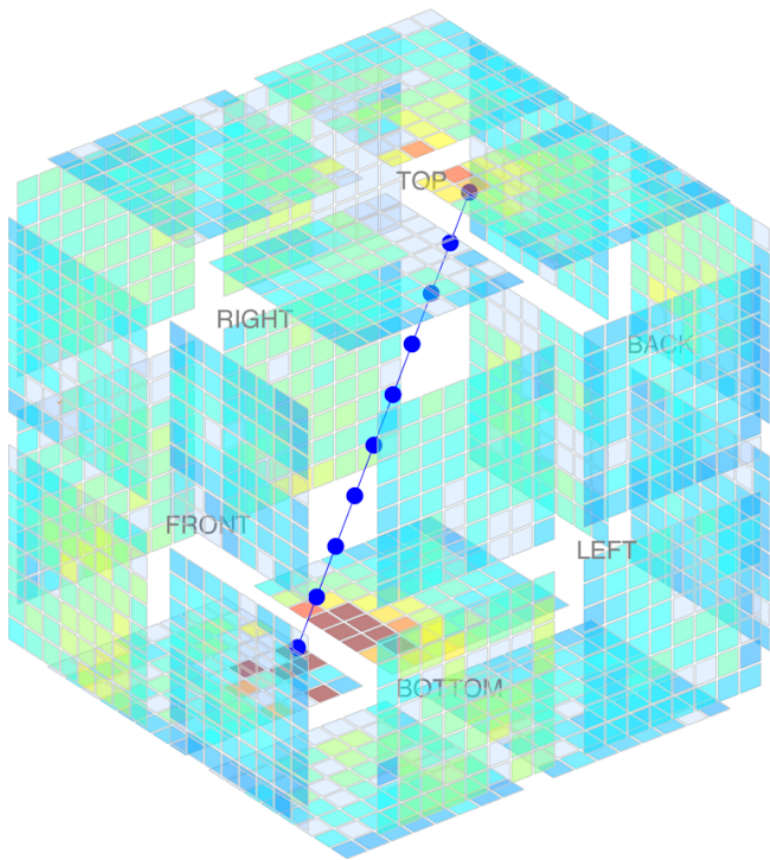


Questions?

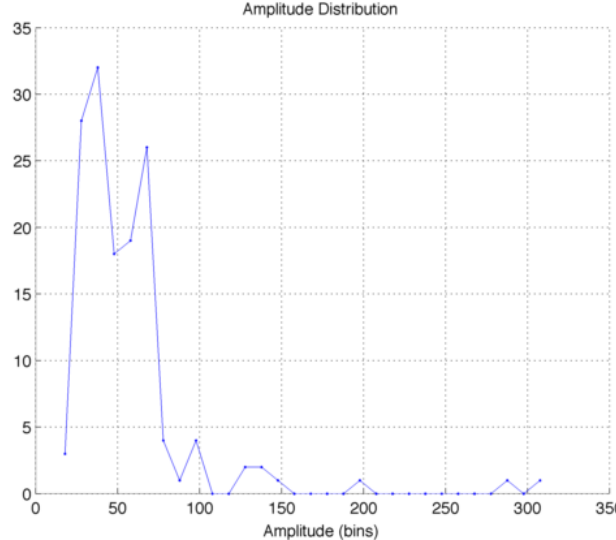
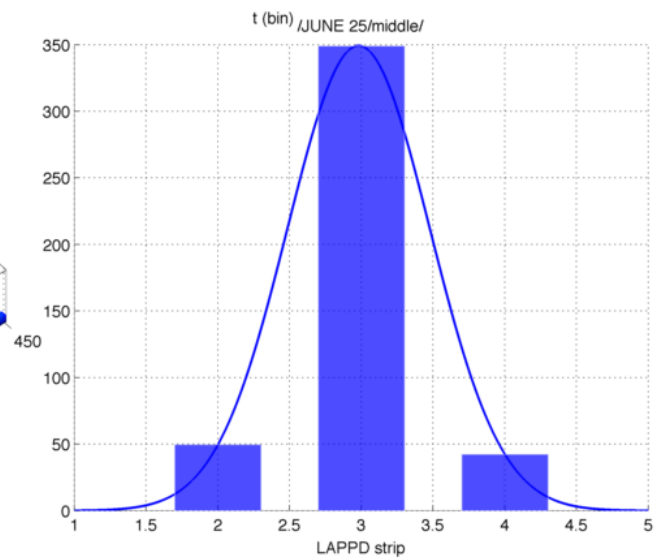
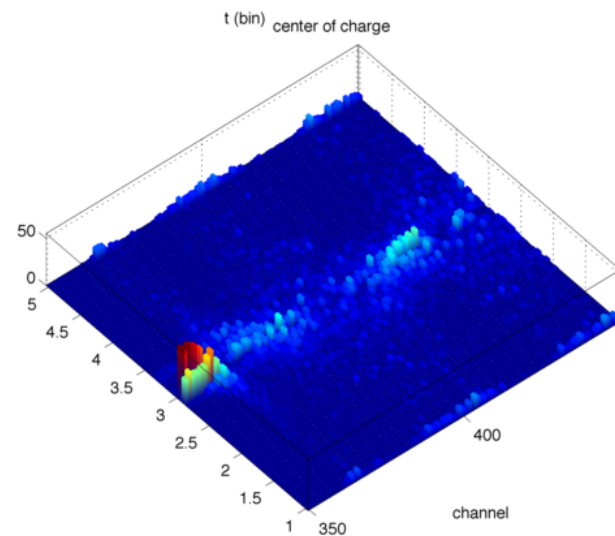
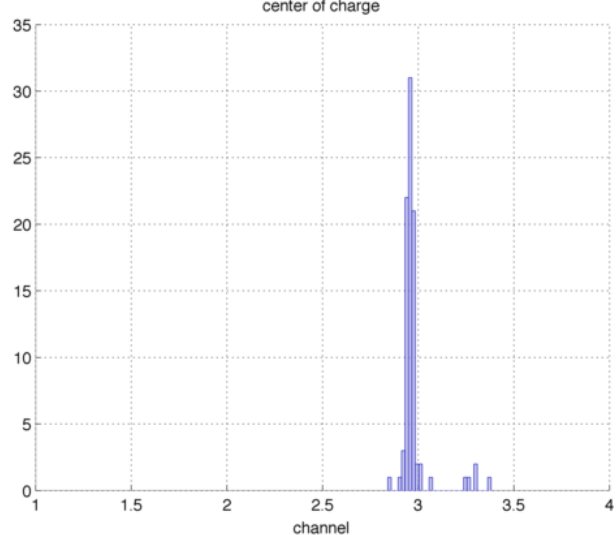
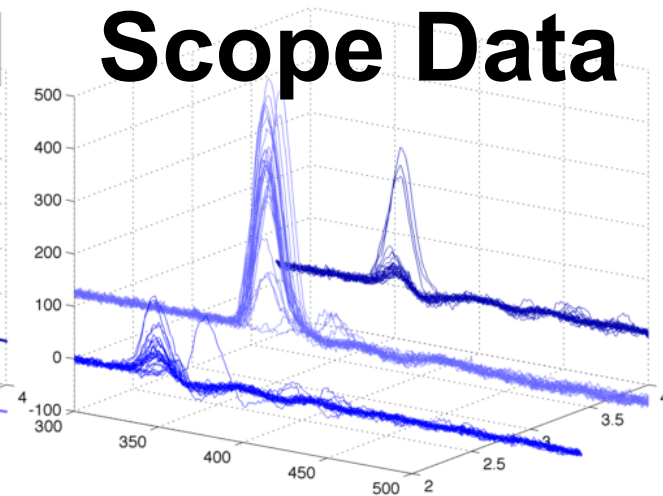
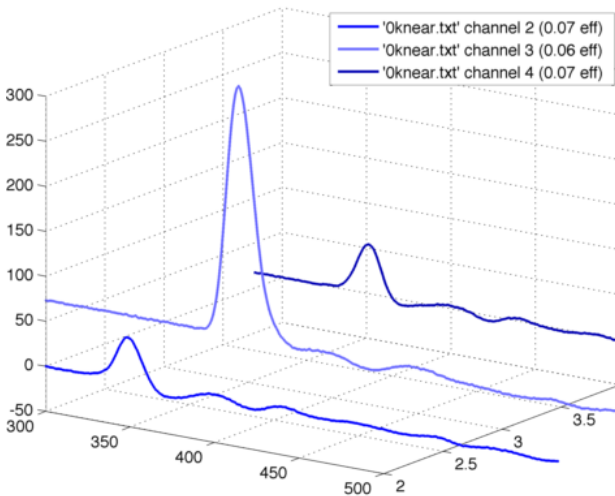
$$4\text{MeV } \nu_e \quad \Delta m_{41}^2 = 1.75, \sin^2(2\Theta_{14}) = 0.1$$



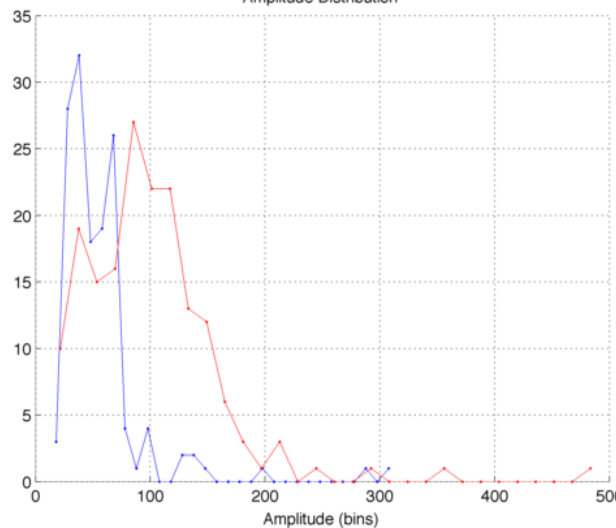
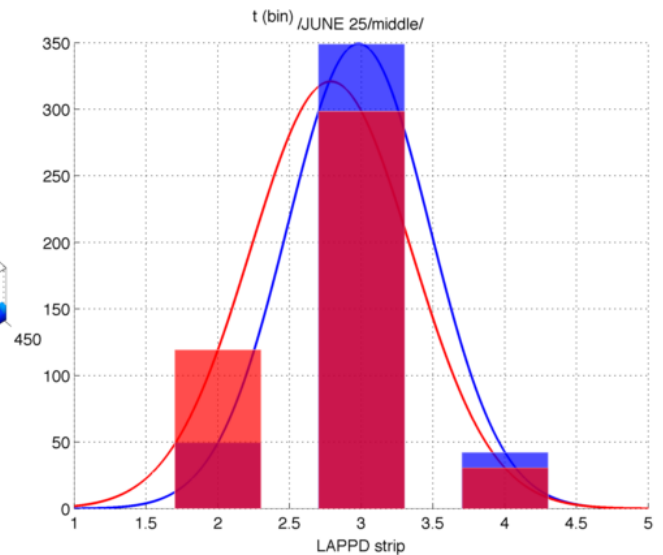
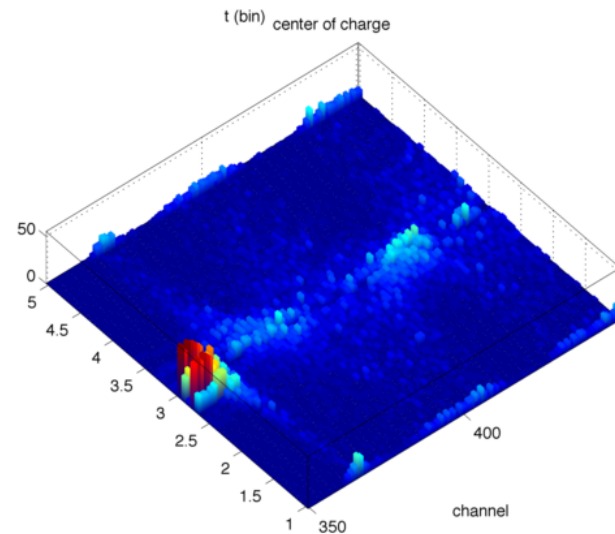
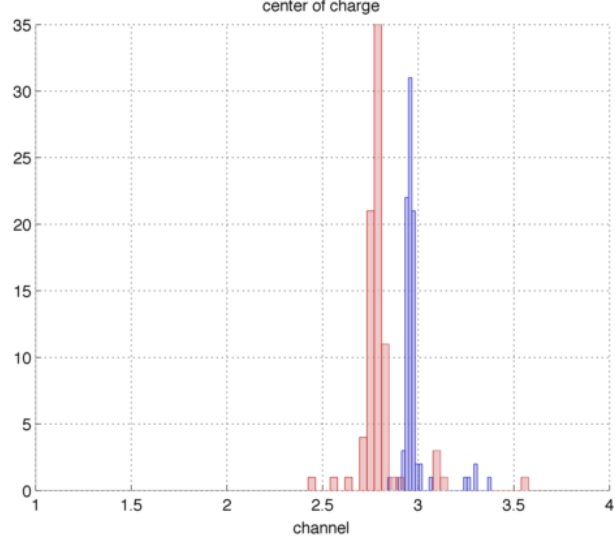
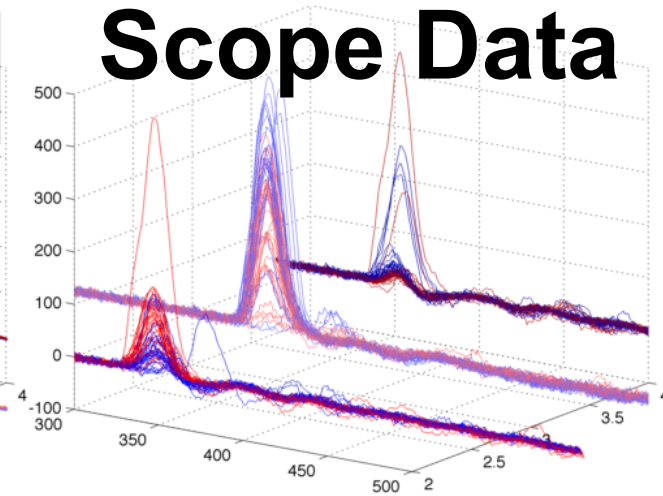
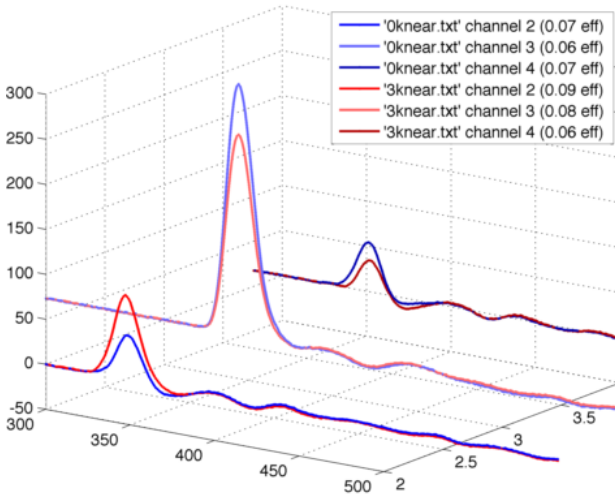
BACKUP SLIDES



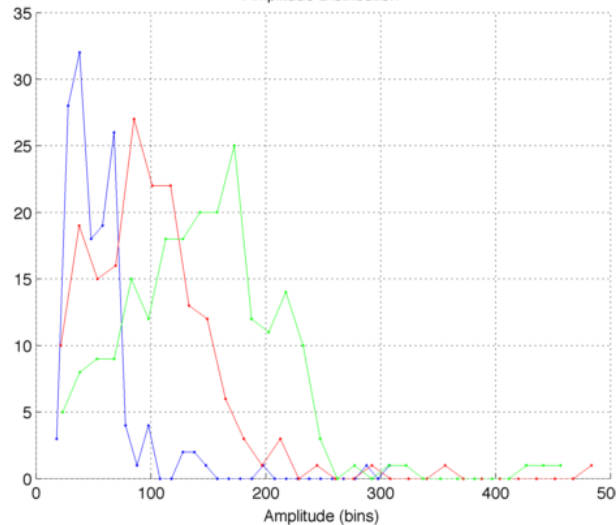
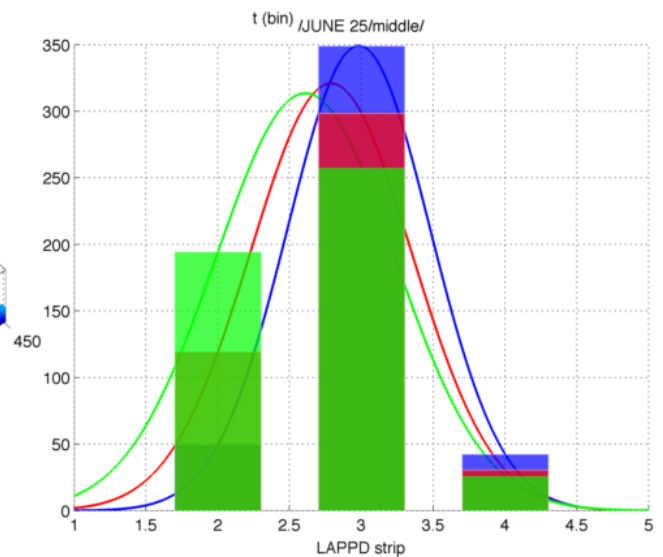
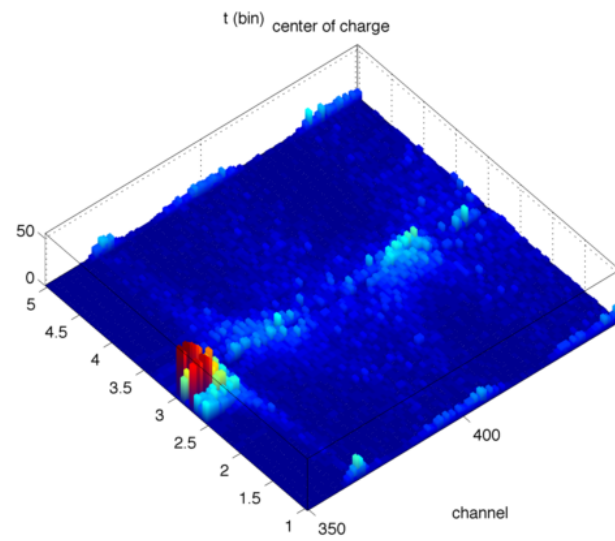
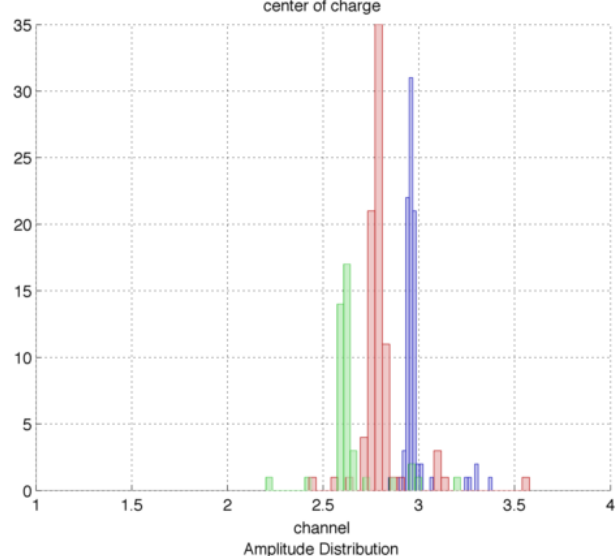
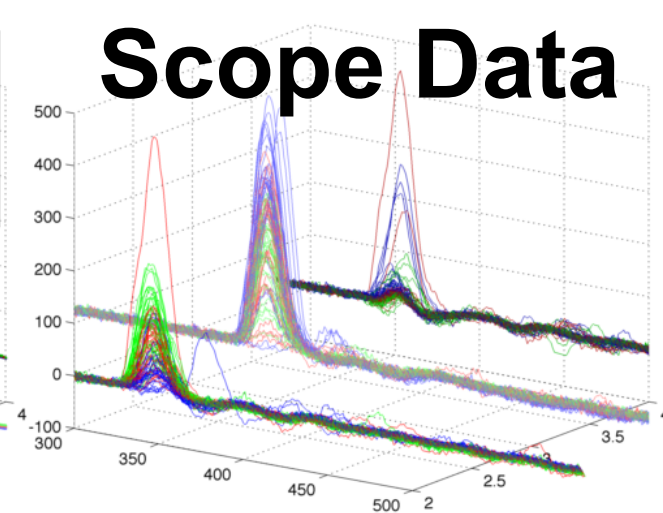
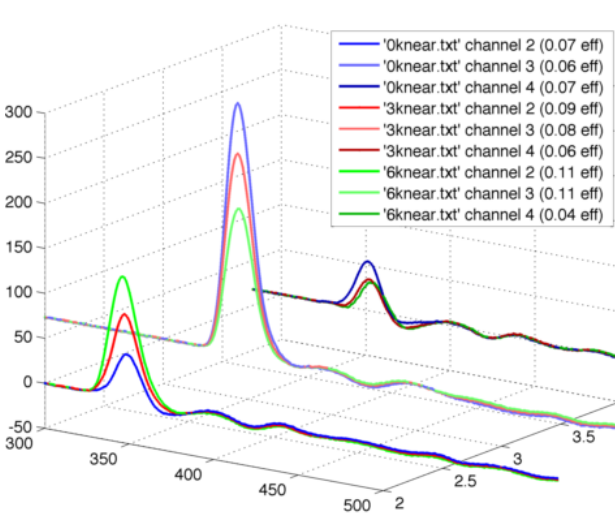
Scope Data



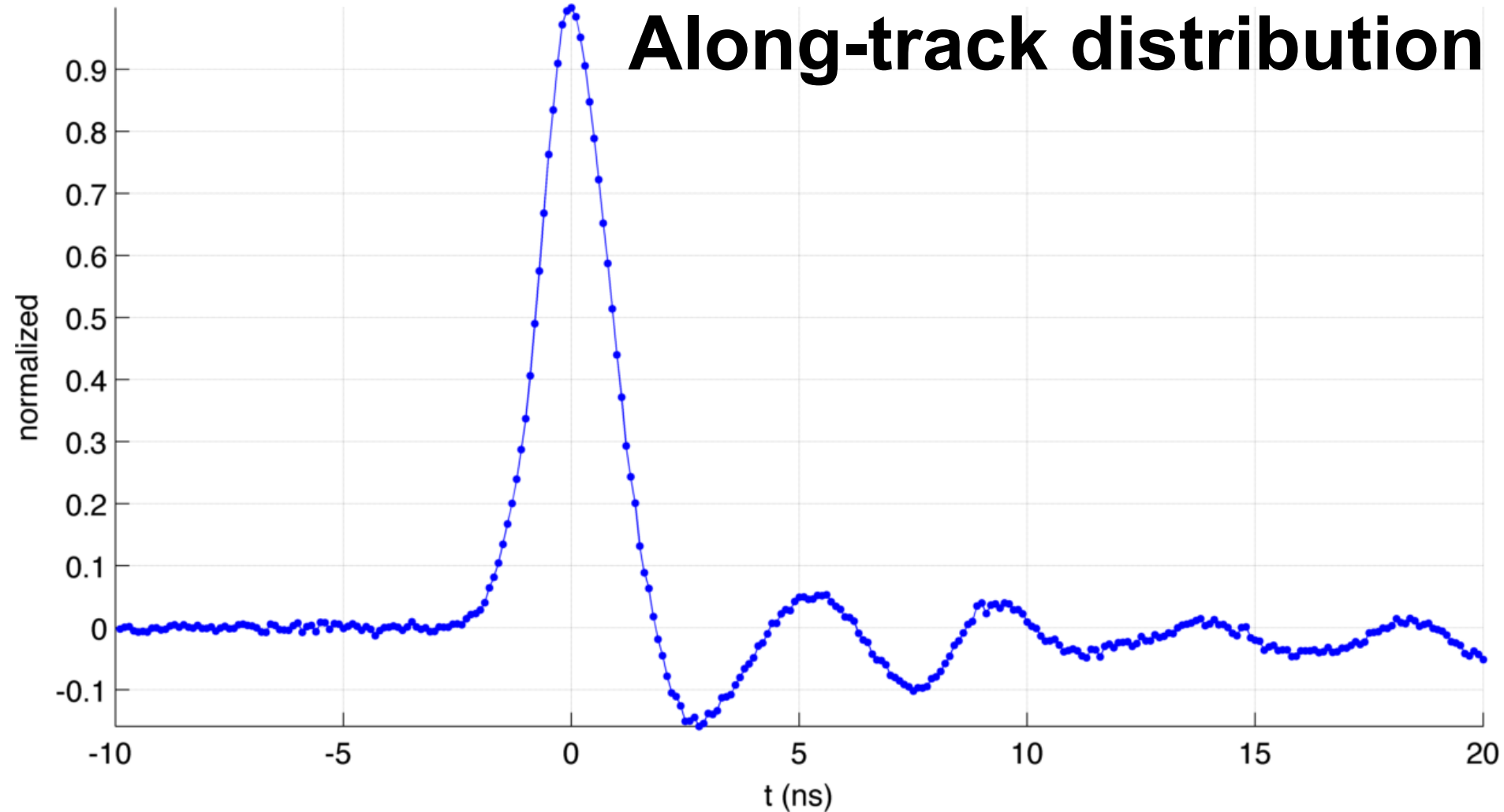
Scope Data



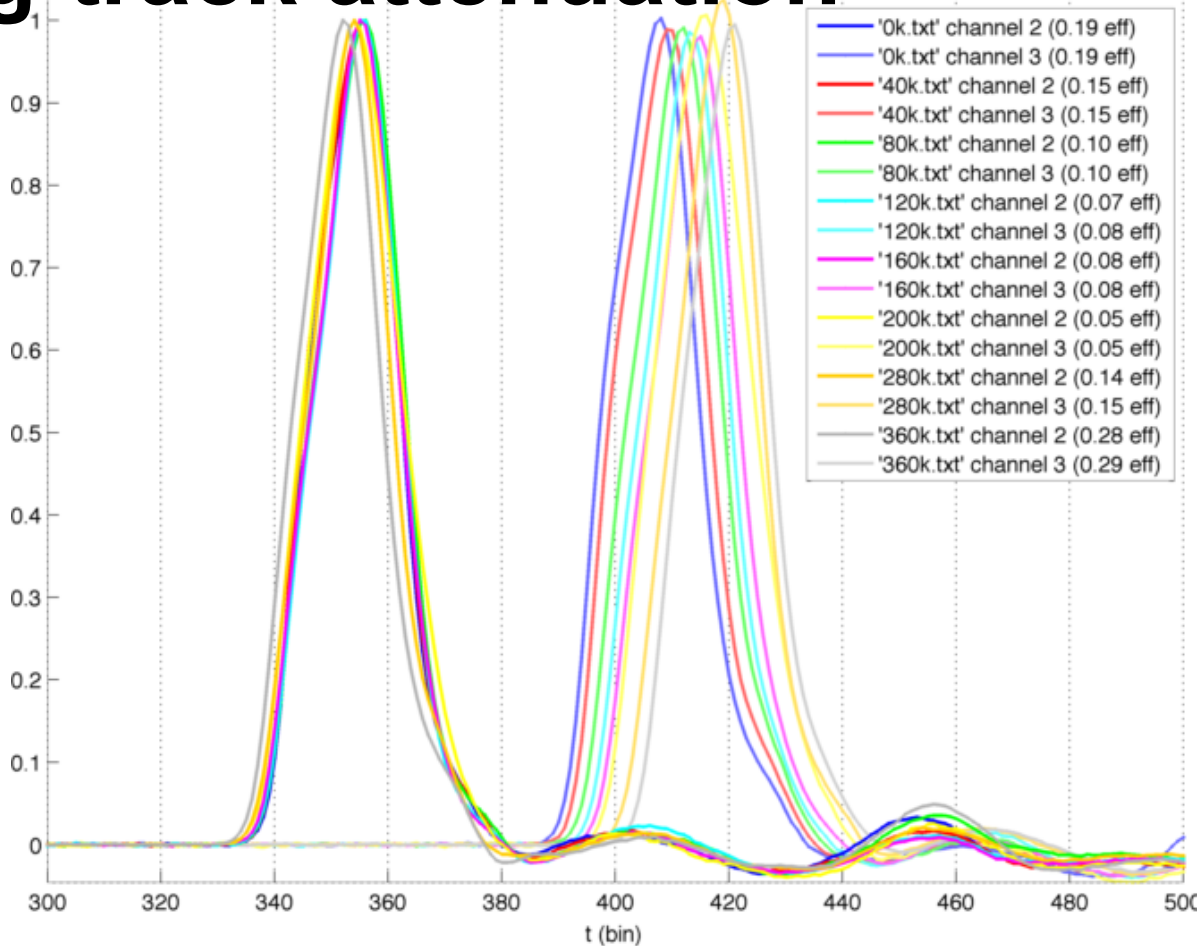
Scope Data



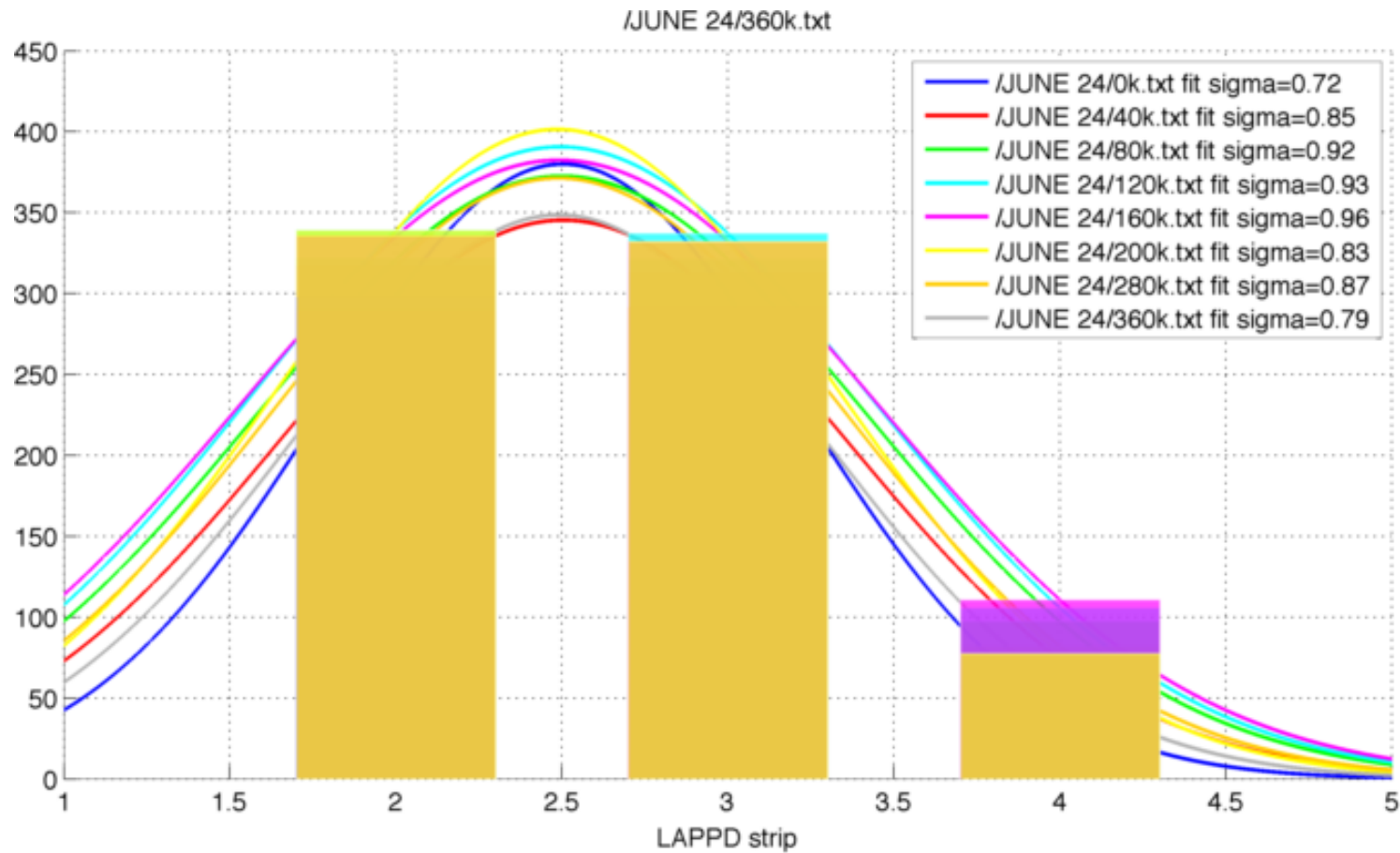
Along-track distribution



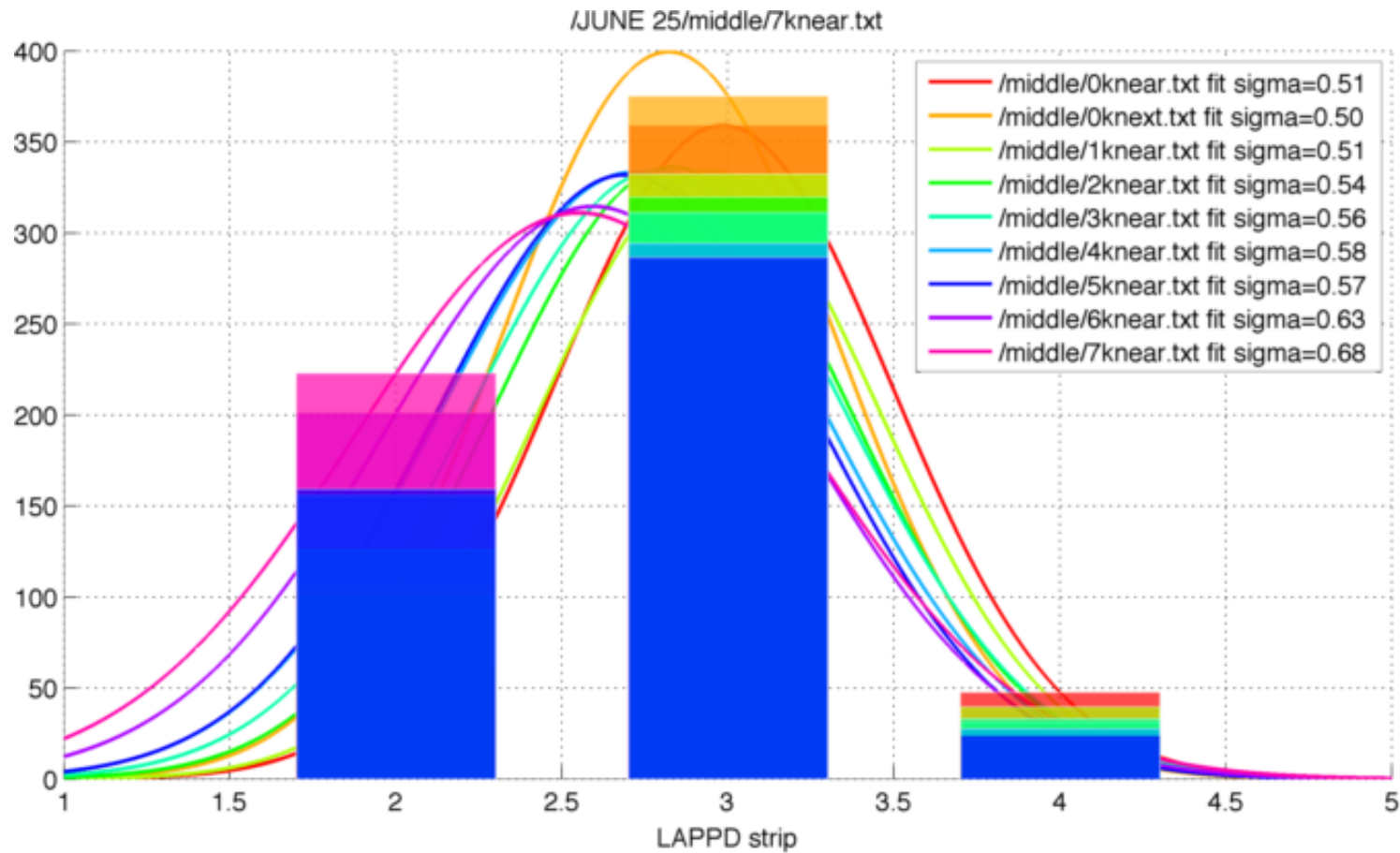
Along-track attenuation



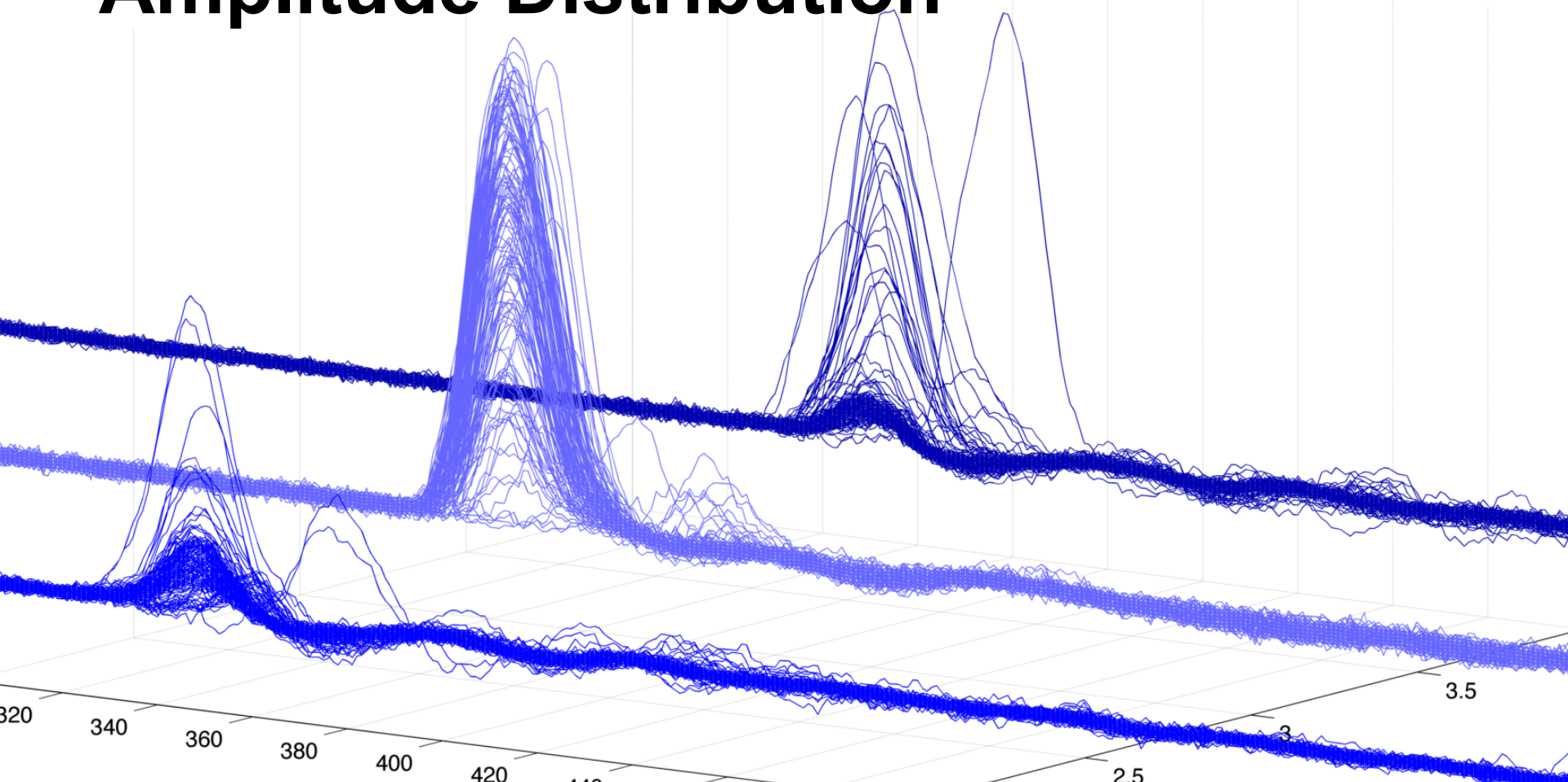
Across-track distribution



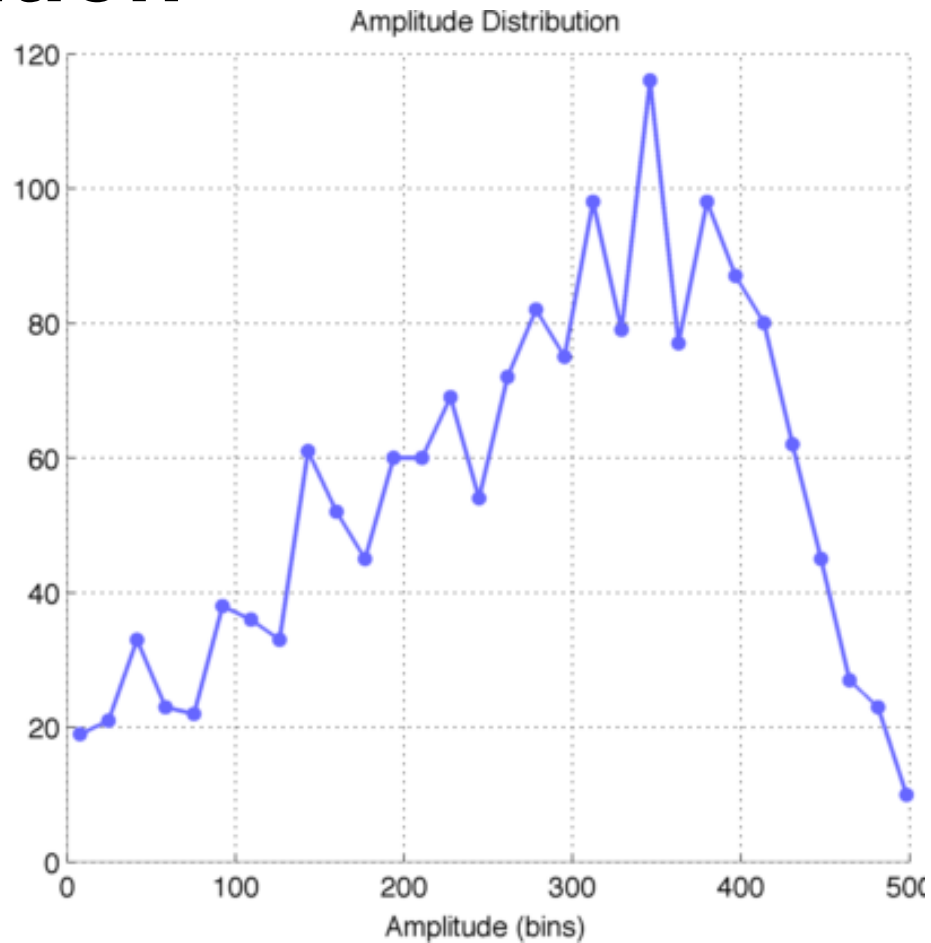
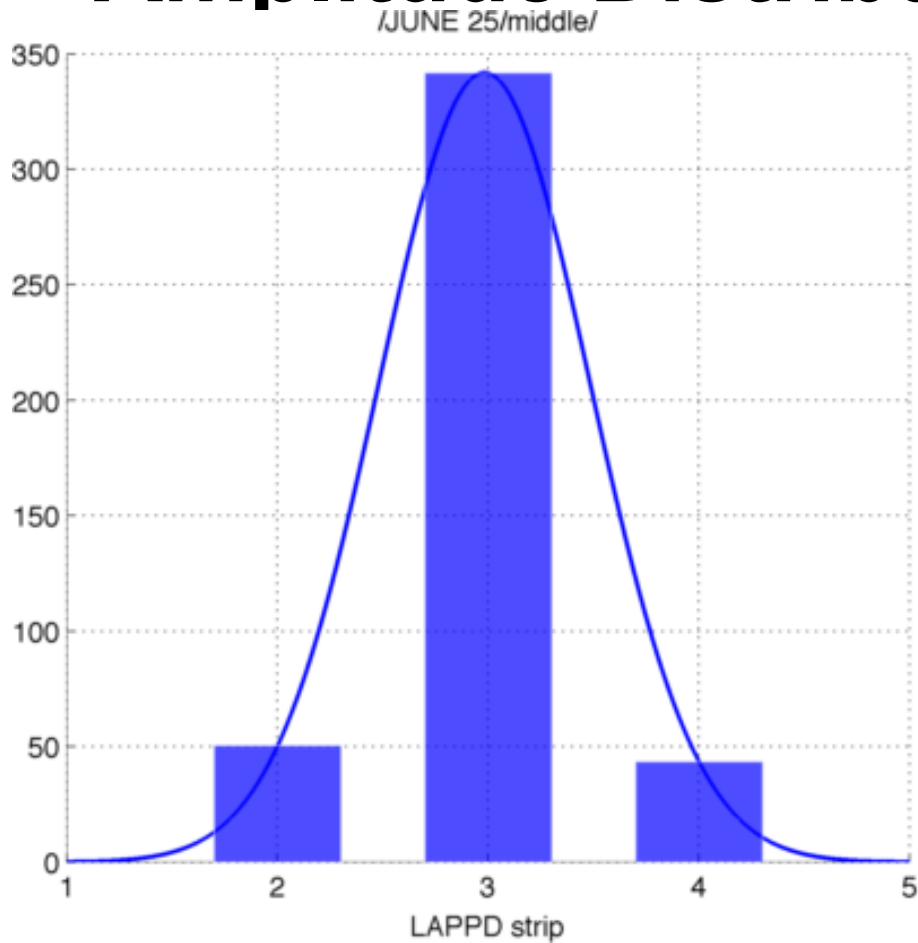
Across-track distribution



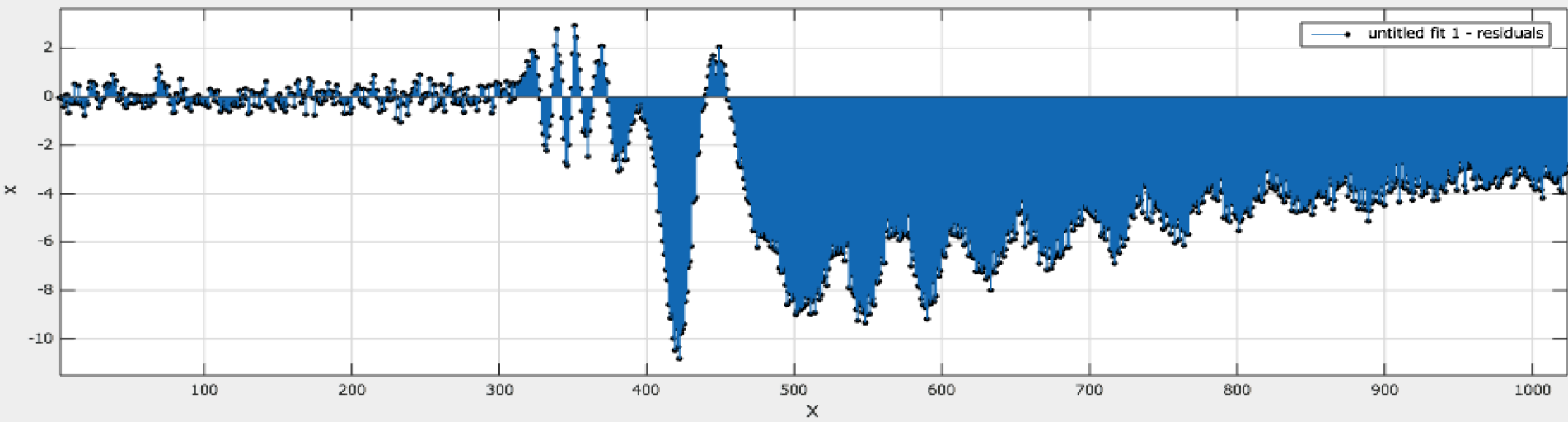
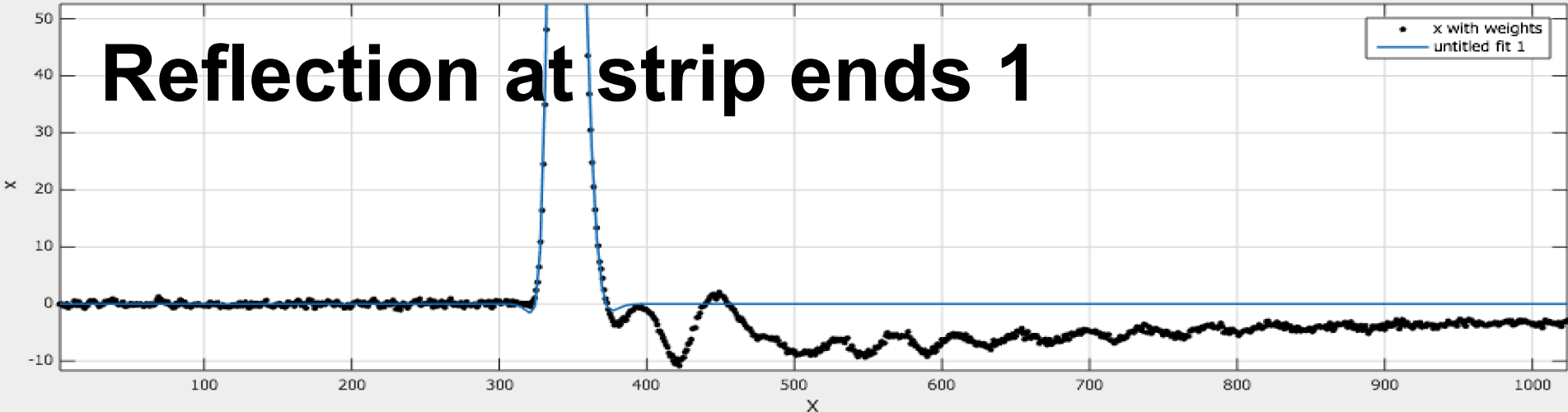
Amplitude Distribution



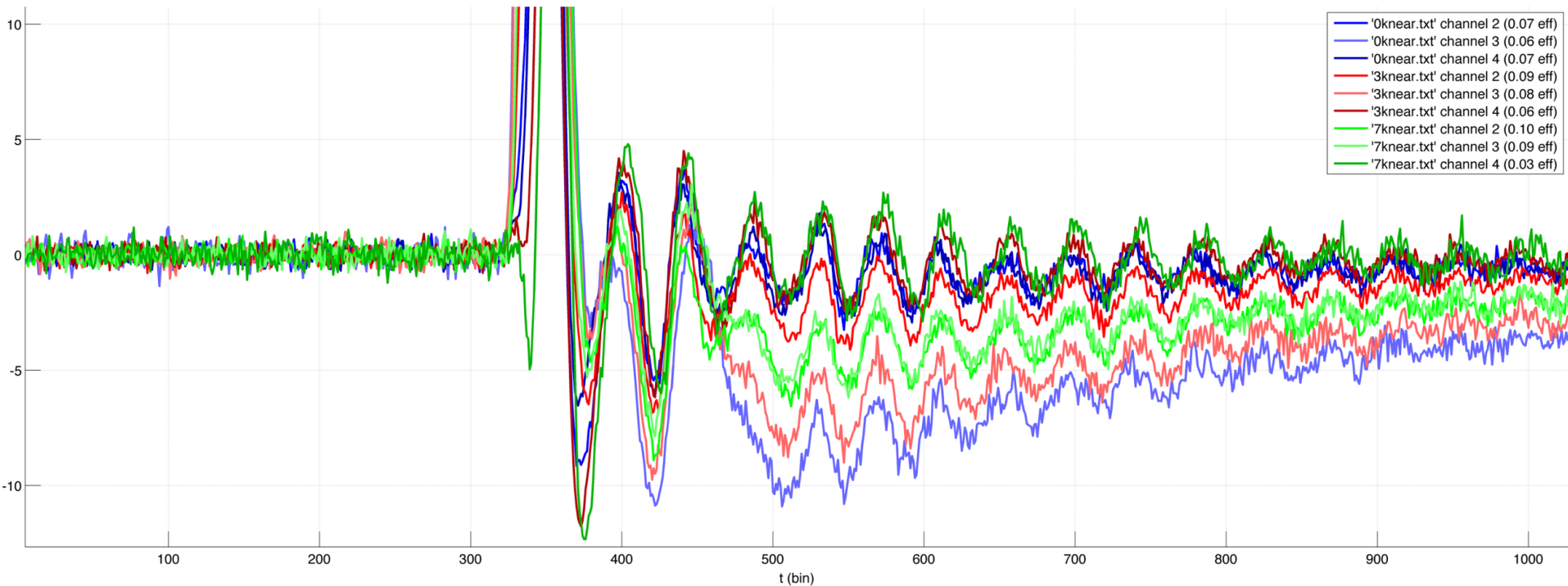
Amplitude Distribution



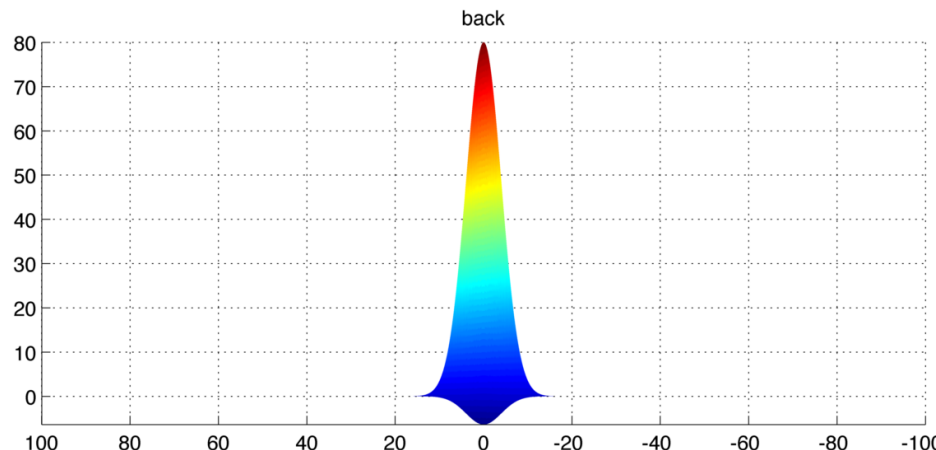
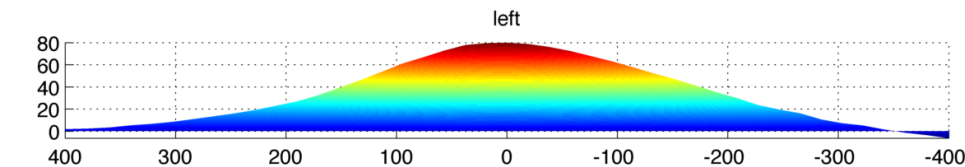
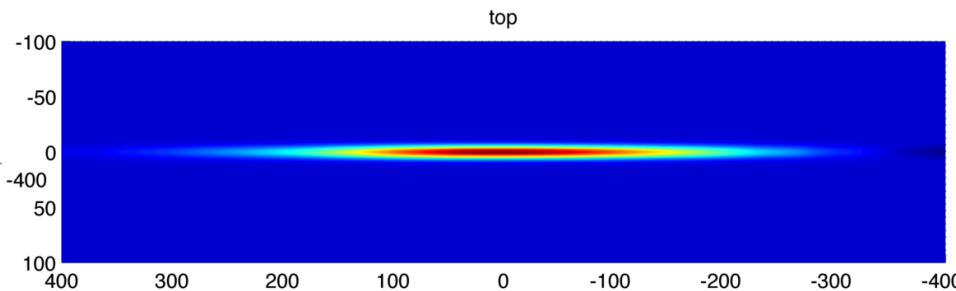
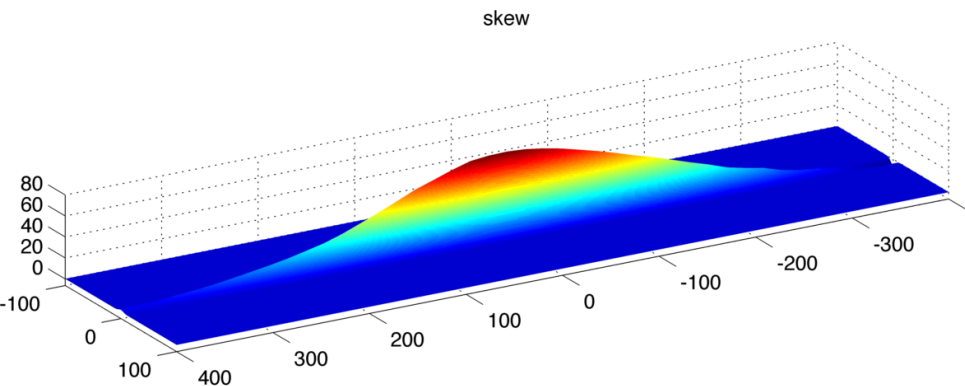
Reflection at strip ends 1



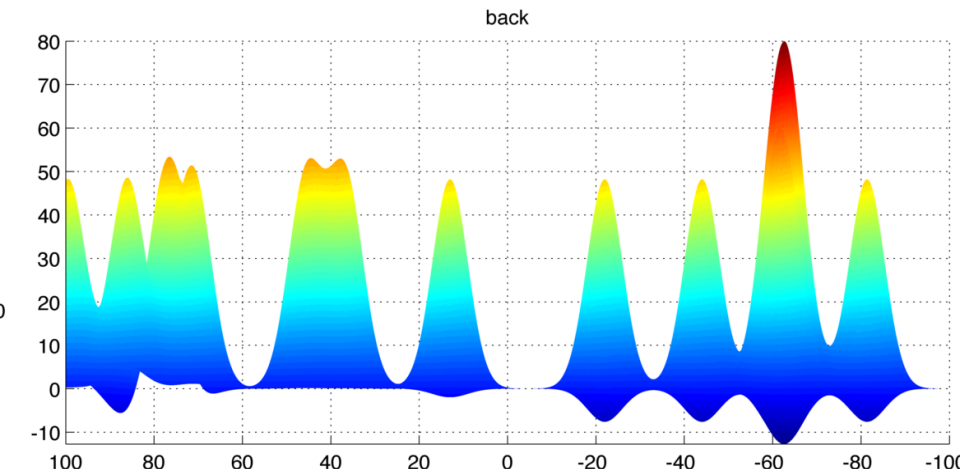
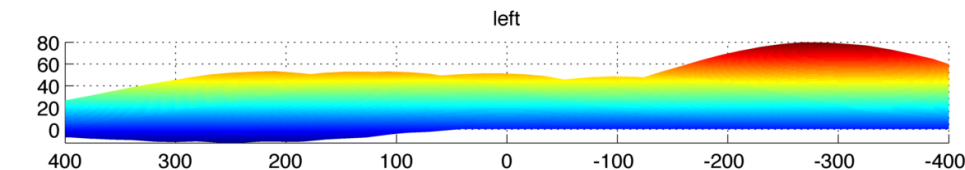
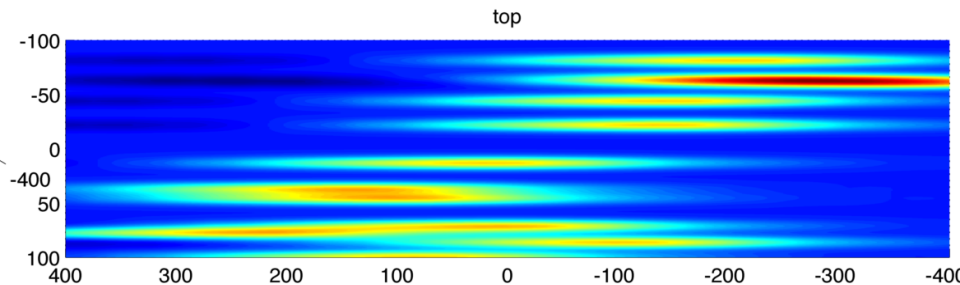
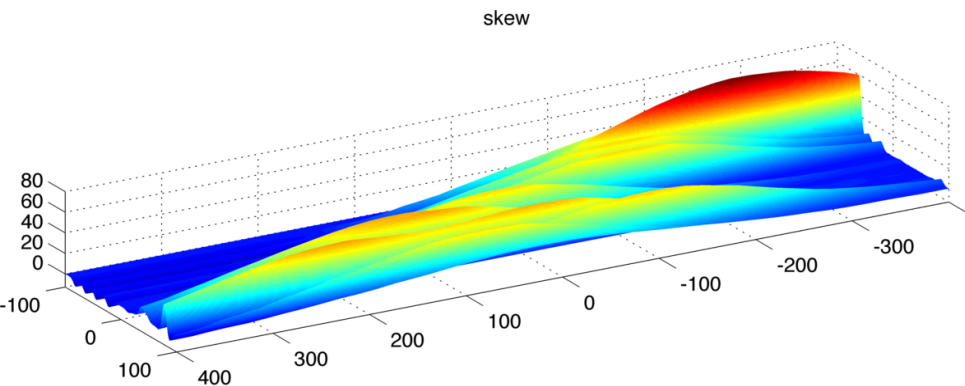
Reflection at strip ends 2



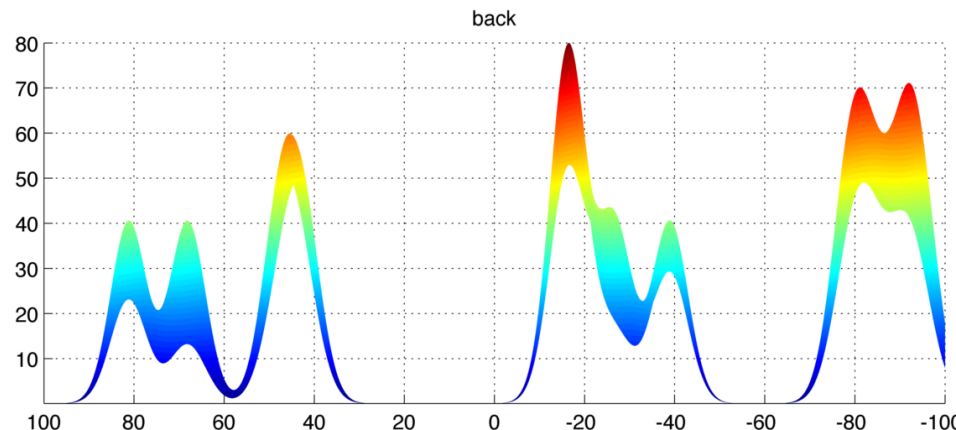
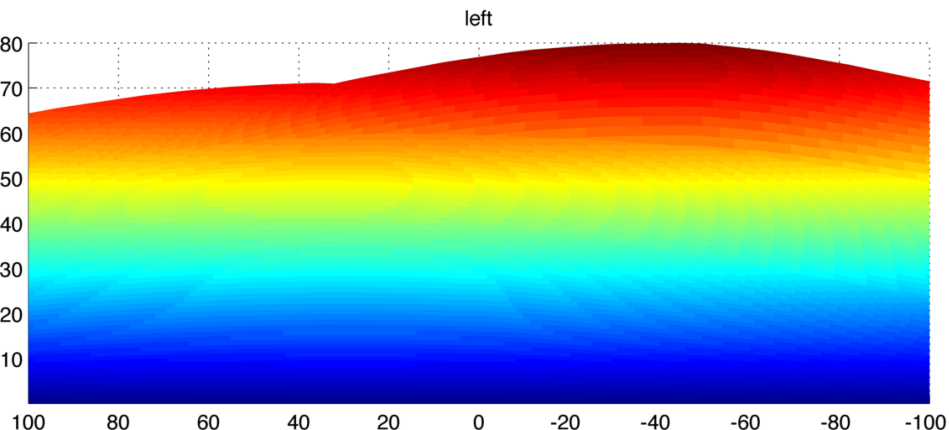
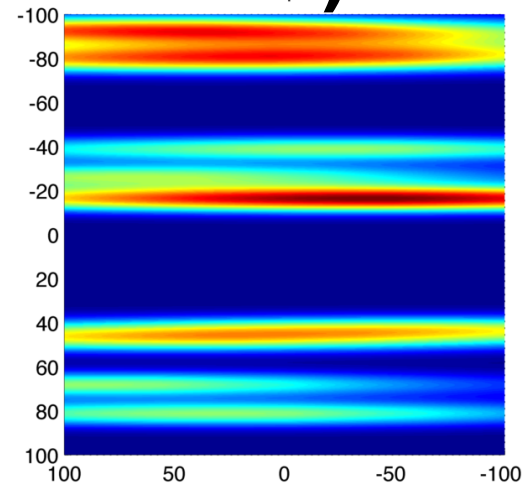
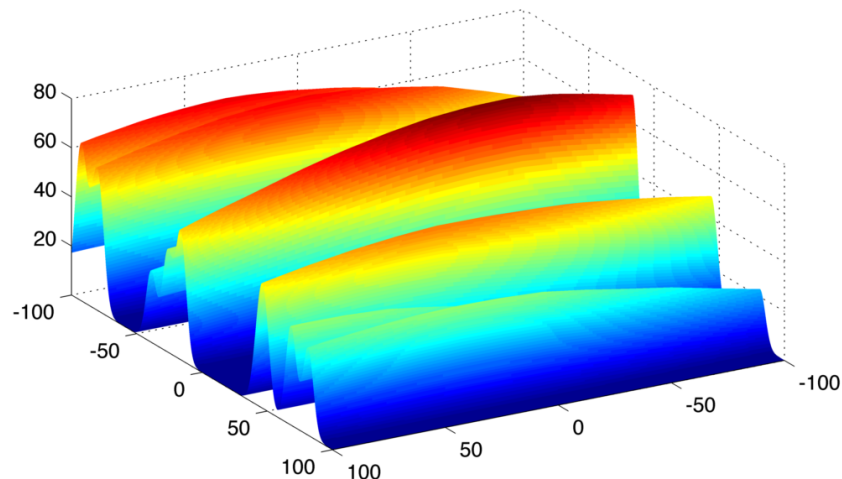
Single Photon Response (SPR) 80cm

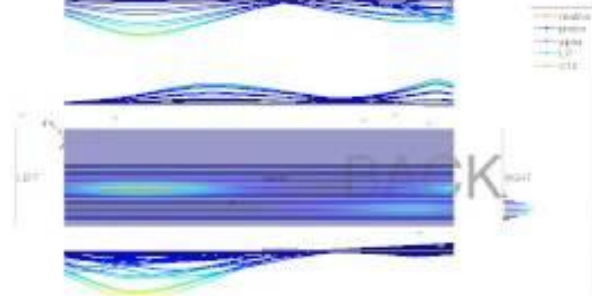
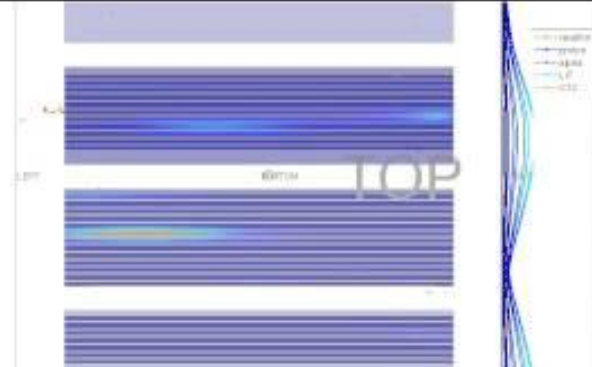
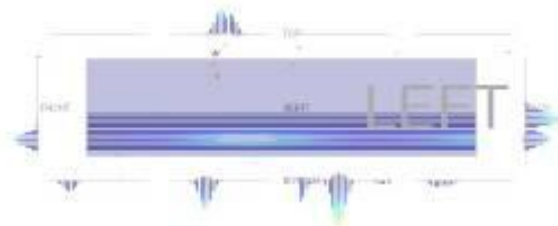
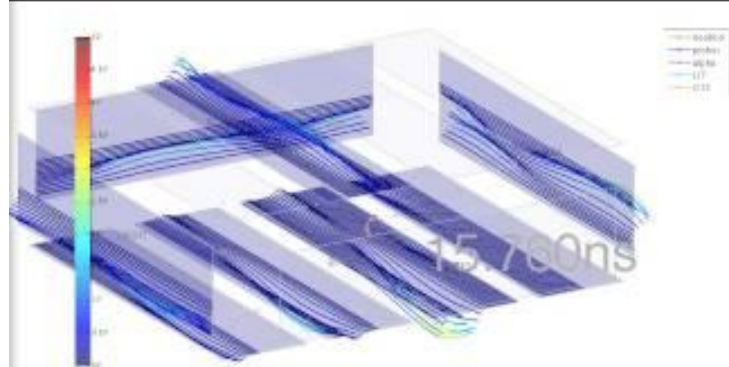


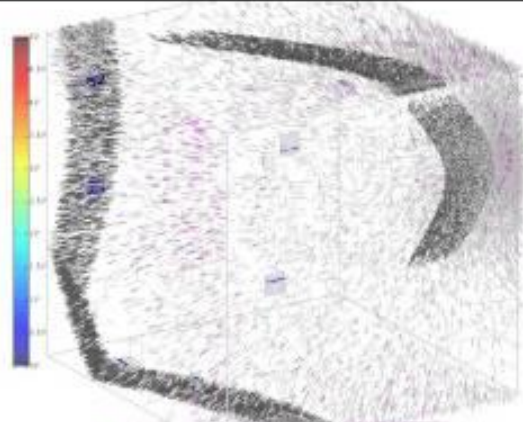
Sum of 12 random SPRs



Sum of 12 MC SPRs (20cm tile)



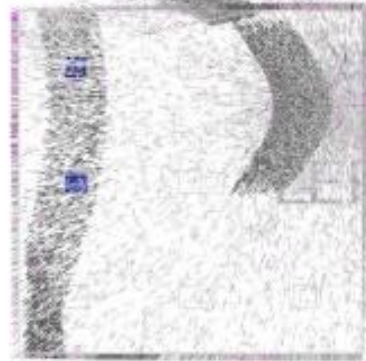




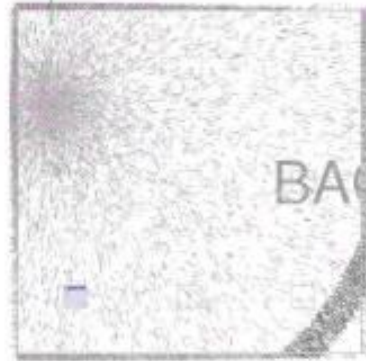
21.600ns



TOP



LEFT



BACK



Questions?