

Working status (Only NuGroup-Related)

Son Cao

January 19, 2018

GLOBES scripts for Ngoc

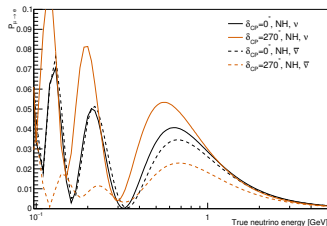
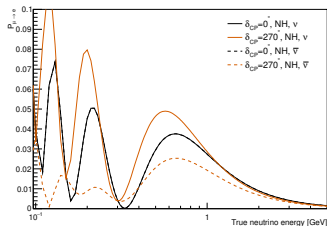
- ▶ To plot from GLOBES output with ROOT
- ▶ To check oscillation probability encoded in GLOBES
- ▶ To project sensitivity (a.k.a χ^2 on θ_{13} and δ_{CP})
- ▶ On-going
 - ▶ Check flux, cross section, event rate
 - ▶ T2K-II, NOvA and updated Reactor AEDL files,

Code will be copied to `/home/cvson/soft/globes-3.1.11/examples/globes-tutorials/T2K-tutorial/script/`

NOTE:

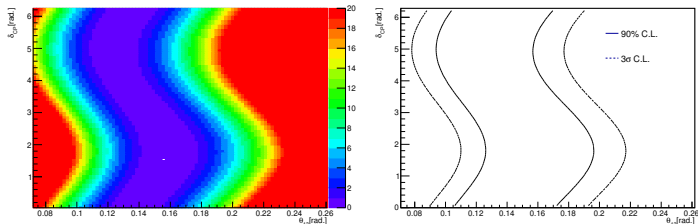
- ▶ We are not using gnuplot to make plot for the paper.
- ▶ Depend on Ngoc's progress. The more he makes progress, the more I put it in. We are working together!
- ▶ Learn yourself hard and grow yourself steady. If not, we are always behind!

Oscillation probability from GloBES



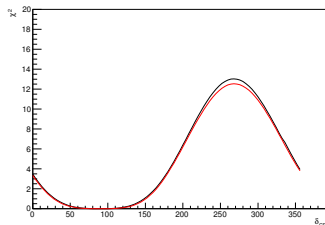
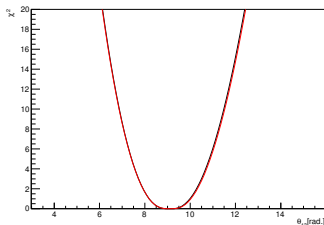
- ▶ Oscillation probability: Left: in vacuum; Right: in matter environment
- ▶ Can you see the difference?

Sensitivity



- ▶ Warning: this is with old AELD definition of T2K experiment. We need to update this with latest information from T2K
 - ▶ Flux
 - ▶ Cross section
 - ▶ Signal, background detection
 - ▶ Systematics
 - ▶ Maybe more
 - ▶ How even generator work can involve: ex. bias in energy reconstruction and impact to CP violation search

Sensitivity



- ▶ Warning: this is with old AELD definition of T2K experiment.
- ▶ Simple projection on one parameter: θ_{13} and δ_{CP}
- ▶ How much we exclude CP-conservation hypothesis here?

Other activities

- ▶ Vietnam School on Neutrino 2018
<http://ifirse.icise.vn/nugroup/vson/2018/overview.html>, 8-20 July 2018
- ▶ International Symposium on Neutrino Frontiers
<http://ifirse.icise.vn/nugroup/conf/nufrontier2018/index.html>, 16-19 July 2018
- ▶ Discuss to join WAGASCI (for Truong & Van), maybe within 2 weeks.
- ▶ Discuss to buy hardware (for Truong's project), there is some options for ADC which is under discussion