Progress Update

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UofT Neutrino/DM Meeting
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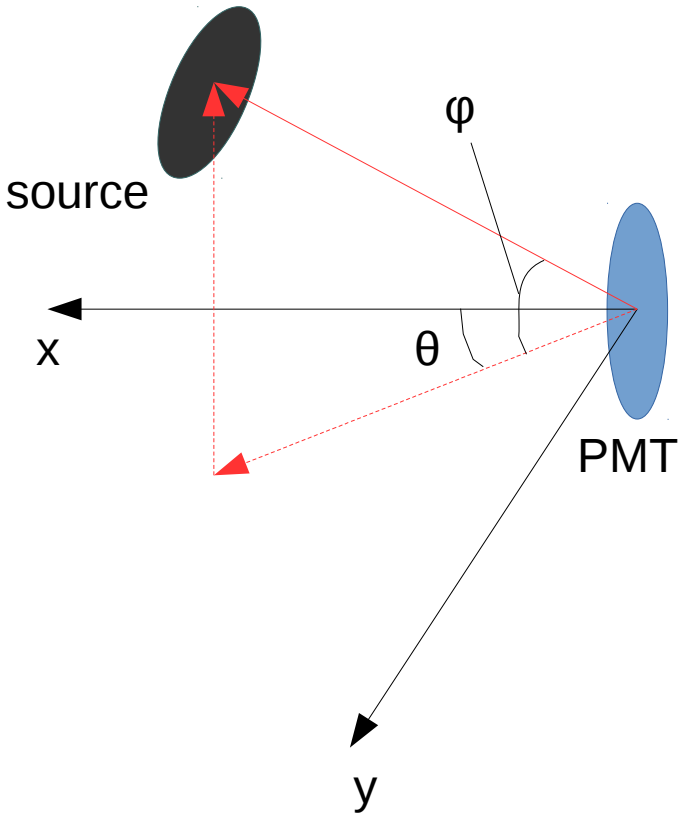
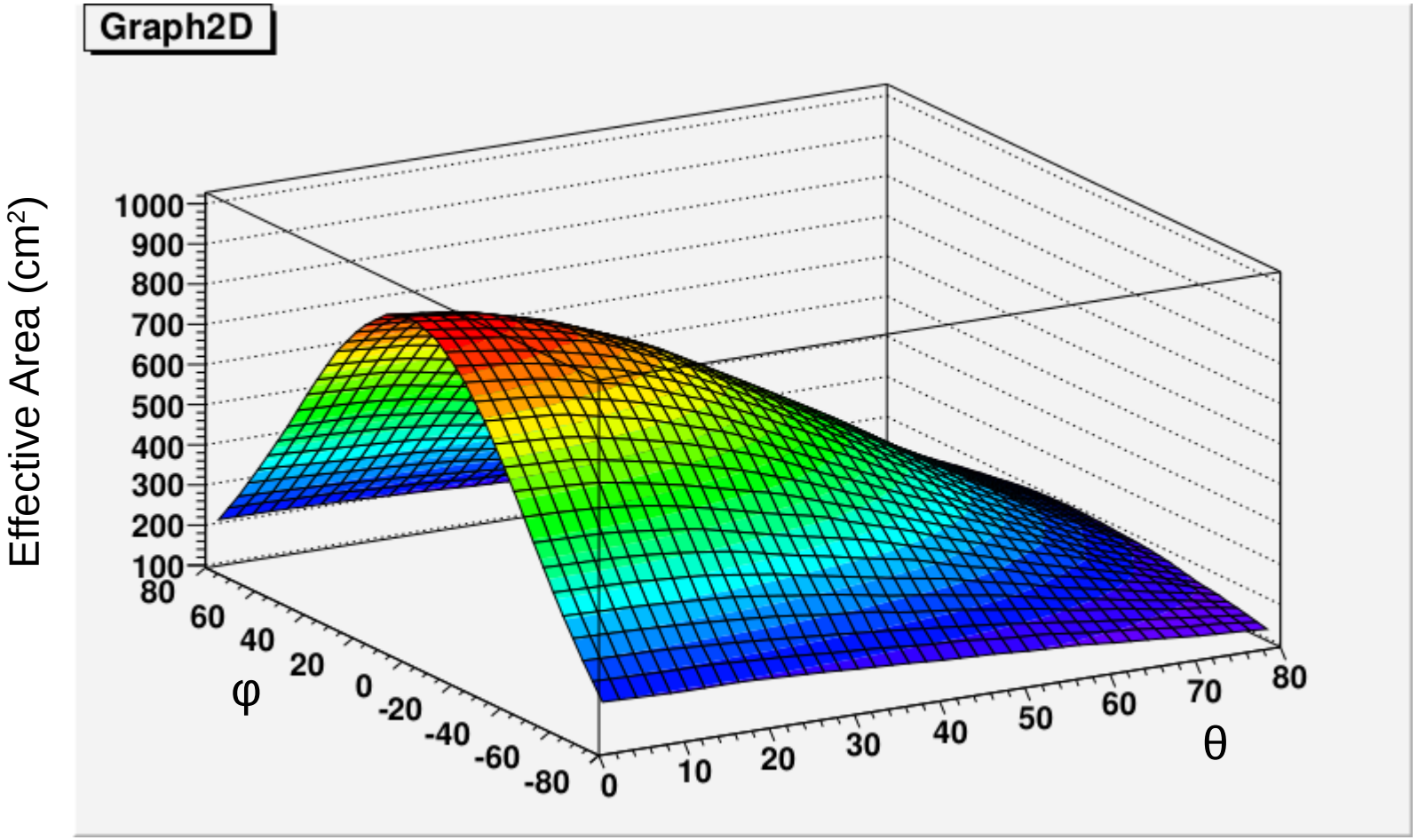
mPMT θ-φ simulations

- Fixed issues I was having with WCSim
- Did simulations for both mPMT configurations
  - 100,000 events instead of 1,000,000 for each angle
- $0° \leq \theta \leq 80°$
- $-80° \leq \varphi \leq 80°$



2D plots (work in progress)



Example shown here for 3-ring configuration
Is -80° ≤ φ ≤ 0° necessary?

Best way to present comparison of two configurations

- 2D plot of difference in effective area?
- perhaps calculate integrated effective area

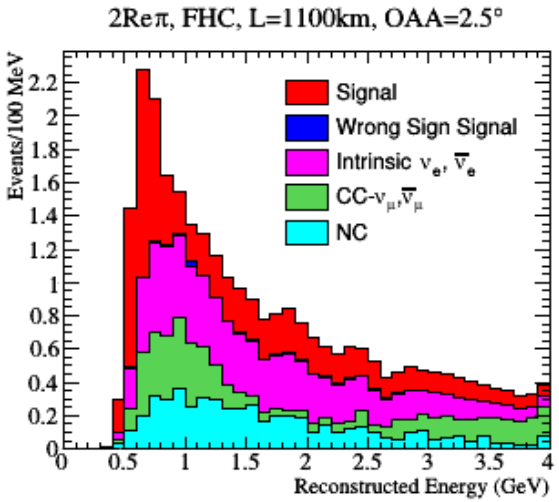
ν_e CC1π^+ Studies

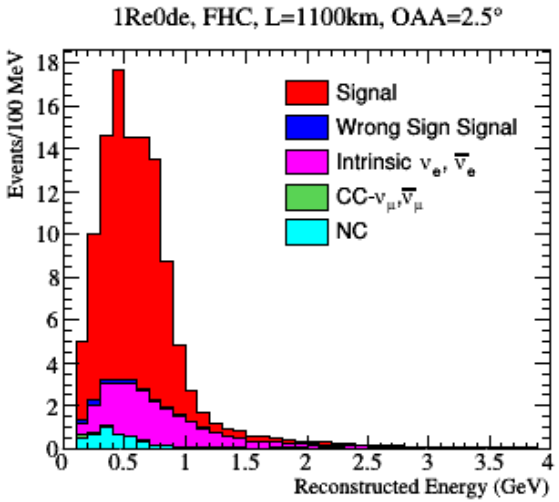
$$\nu_e + p/n \rightarrow e^- + \pi^+ + p/n$$

- Now have selection code working working with T2K MC
- Until yesterday was only using FHC MC
  - copied RHC MC over to neut (thanks Corina!) and will run the RHC selection today
- Made some plots – concerns with NC (see next slide)
  - Mistake in 2R selection?

T2HKK

T2K


2Reπ, FHC, L=1100km, OAA=2.5°
Signal
Wrong Sign Signal
Intrinsic $\nu_e, \bar{\nu}_e$
CC-$\nu_\mu,\bar{\nu}_\mu$
NC
Events/100 MeV
Reconstructed Energy (GeV)


1Re0de, FHC, L=1100km, OAA=2.5°
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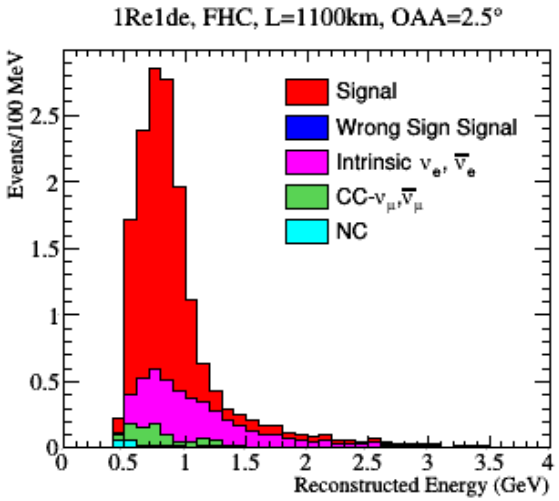
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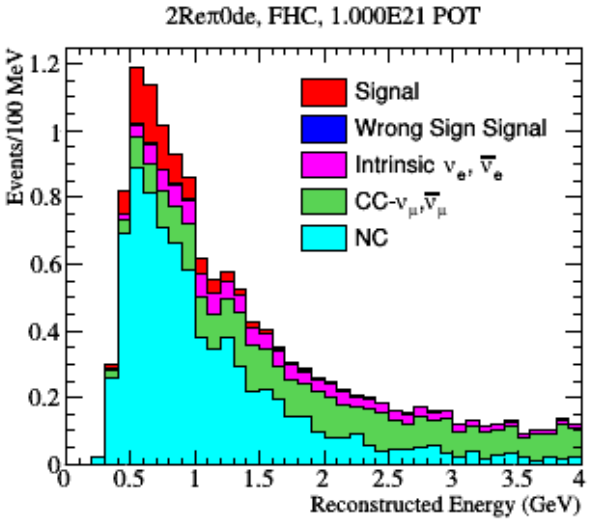
2Reπ0de, FHC, 1.000E21 POT
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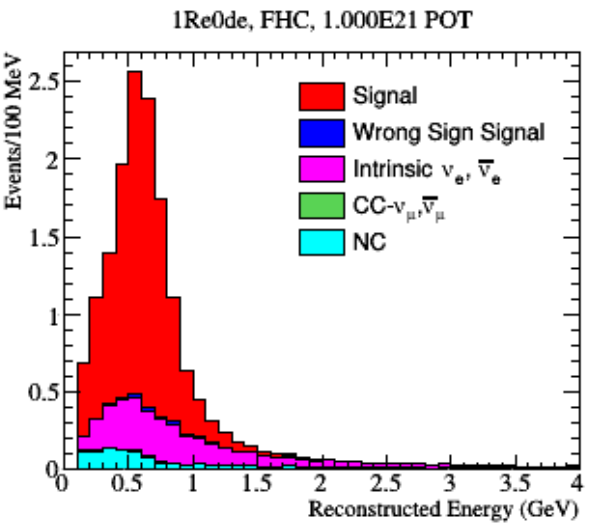
Reconstructed Energy (GeV)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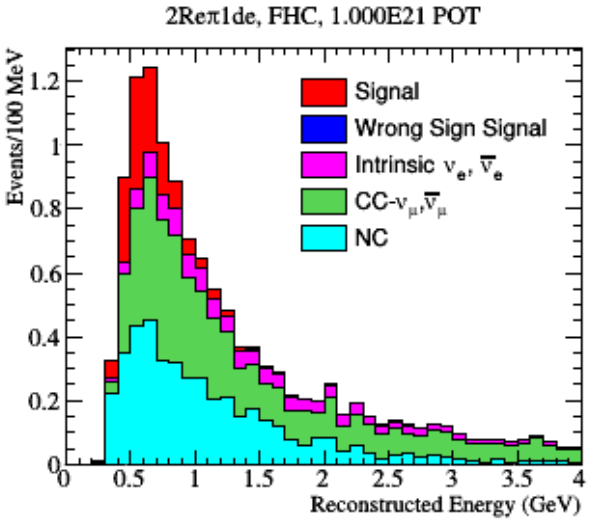
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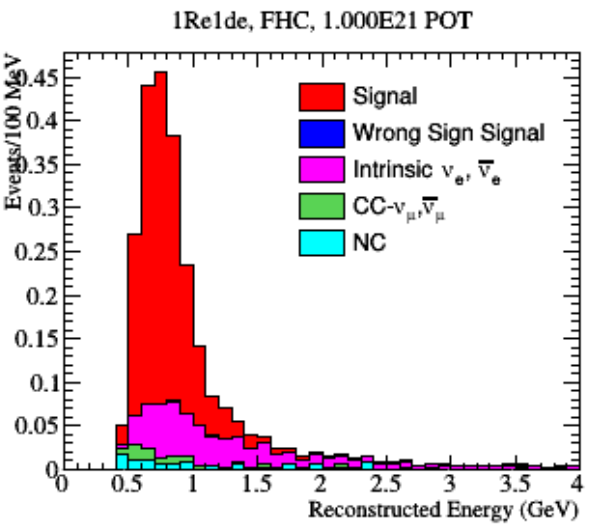
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