ν+e in CAFAna

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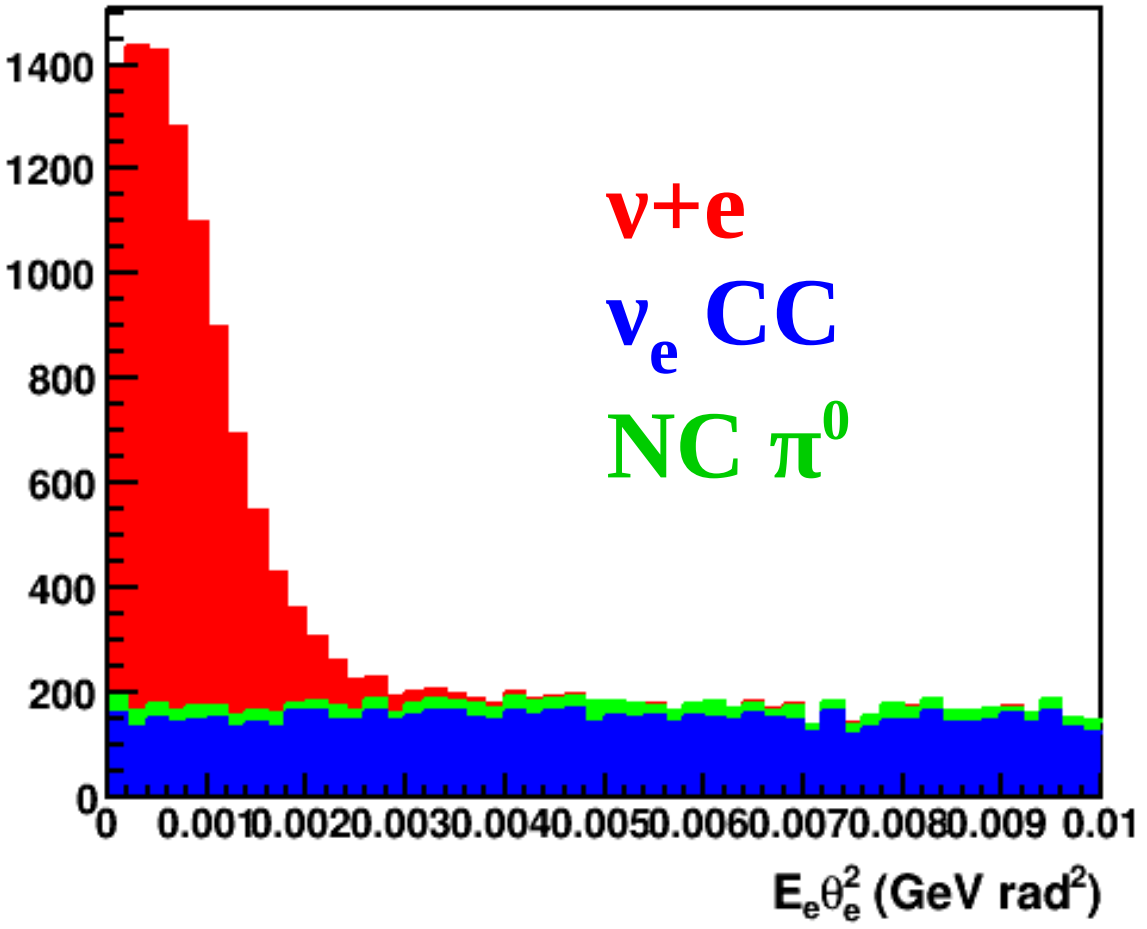
ν+e plans

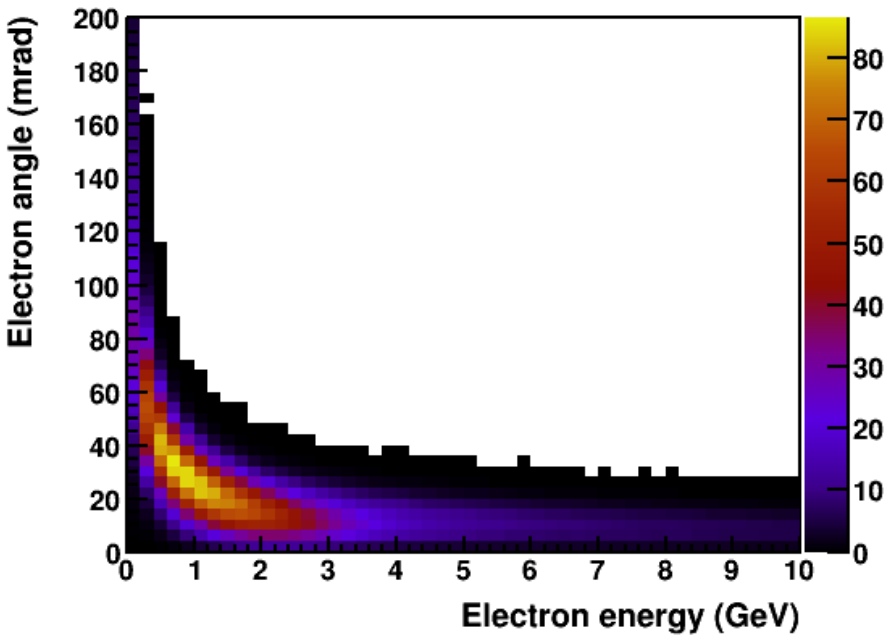
- Generate separate samples of ν+e signal and ν_e only
- Use regular sample for NC background
- Don't need detector simulation – can do with GENIE files directly because signal is very straightforward
- Use detector resolutions determined from previous ν+e studies, including momentum-dependent angular resolution

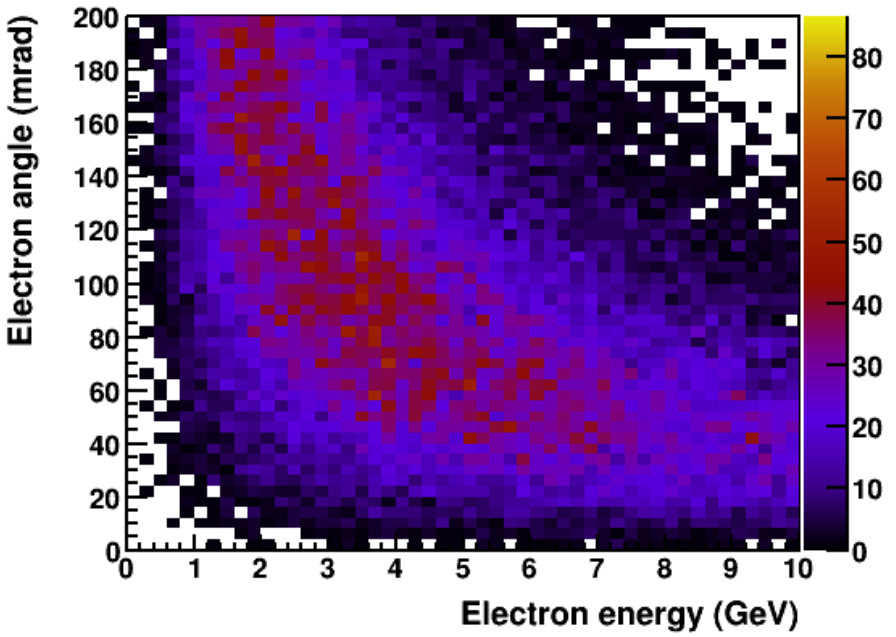
$E\theta^2$ distribution

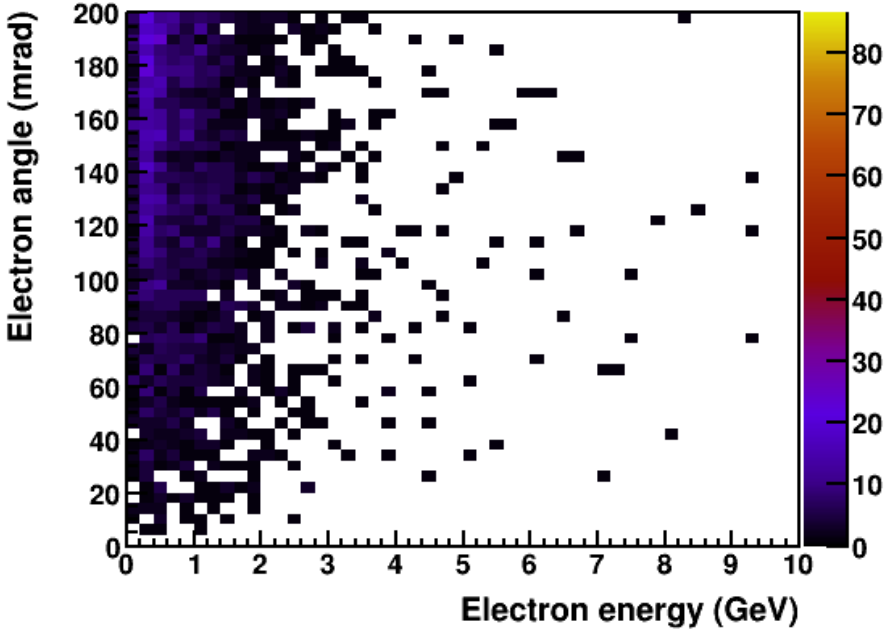


- For normalization-only analysis, we would just cut on this, at ~0.002
- Normalization is per bin per year on axis, with 7x3x5m LAr

(E,θ) templates







- Signal (left)
- ν_e CC (top right)
- NC π^0 (bottom right)

Uncertainties

- Reweight knobs are in the CAFs but not filled
- Dedicated ν+e uncertainty class in CAFAna
  - Reweights ν_e CC background events directly
  - Hook for signal efficiency uncertainty
  - Plan for total systematic to be ~2%
- Ready to be included, but should wait for next reprocessing to pick up consistent POT normalization