

Thoughts and initial work on fitting infrastructure

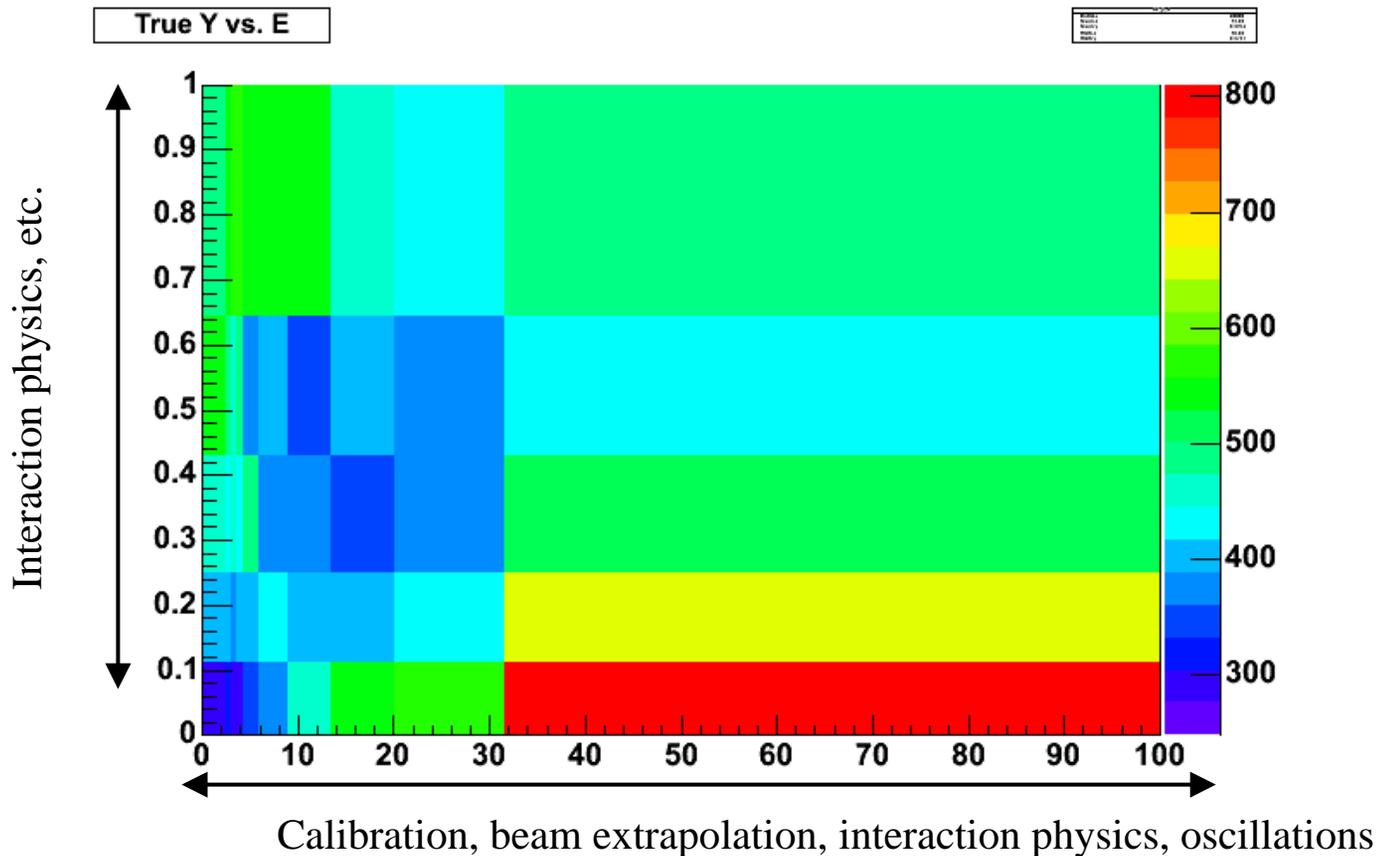
-incorporating systematic
uncertainties at the fit level

- Fits will compare expected to observed reconstructed “NC” Evis distributions.
 - These distributions will contain NC and CC, in ratios depending on cuts
- Make series of templates to build NC+CC e_{vis} spectrum for each iteration of fit parameters
 - CC Evis and NC Evis distributions in (E_ν, y) bins
 - Truth CC/NC I.D., E_ν, y
 - Reconstructed Evis
 - Oscillations change E_ν distributions in each iteration
 - Input E_ν and y distributions can be altered as systematics, e.g. cross sections

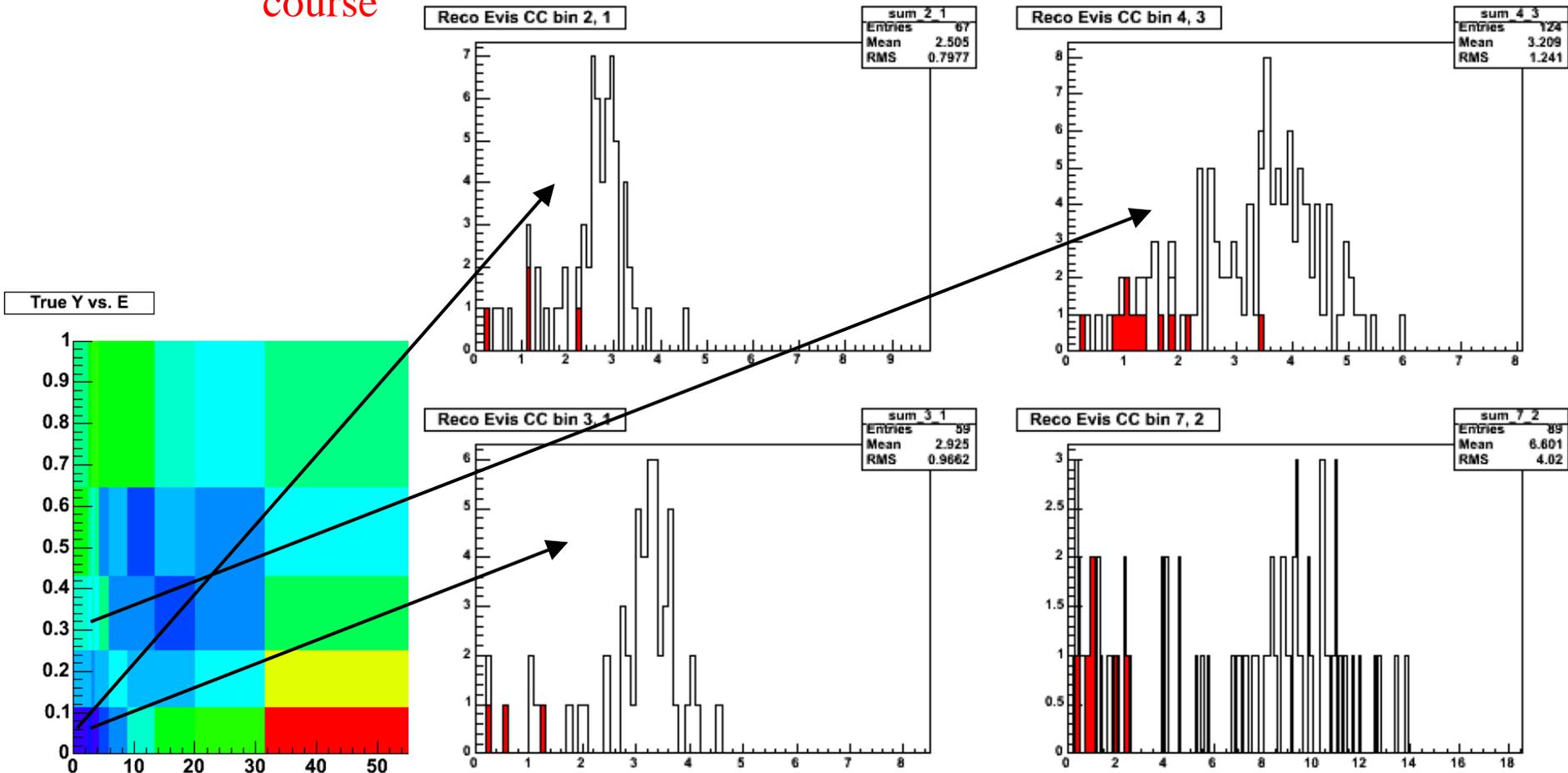
- Variable binning

- Try to get reasonable statistics in each E_ν, y bin

- Very low stats in this plot, even with virtually no cuts



- No attempt to separate NC/CC here
 - When you do apply NC cuts, Evis is weaker discriminant, of course



Background Subtraction

- After cuts, NC and CC Evis distributions are much more similar
 - Even true in $E_{\text{nu}} - y$ bins
 - May need to do explicit background subtraction
 - Normalize with CCs prior to “NC” cuts
 - Same infrastructure will be useful

Potential Issues

- MC Statistics
- Binning effects/smoothing
- Other variables in fit model
- How to incorporate blindness.
- Near Term:
 - Interface with Tom's fitting package.