NC π^0 Update

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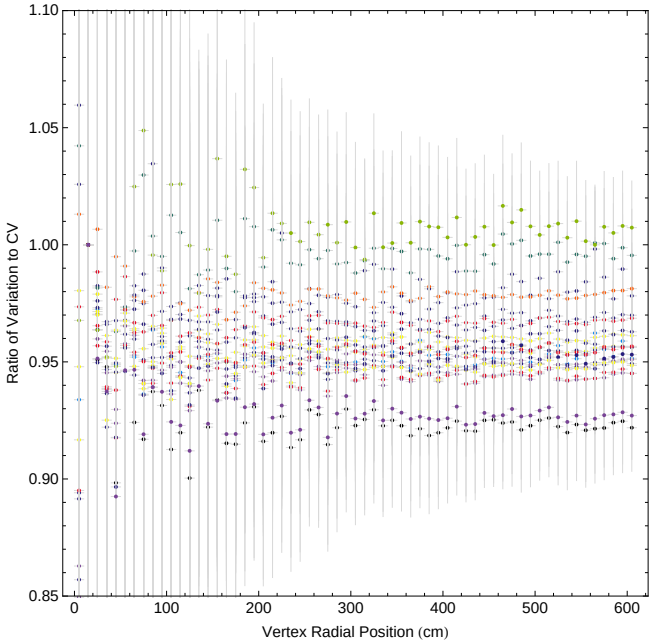
Yale

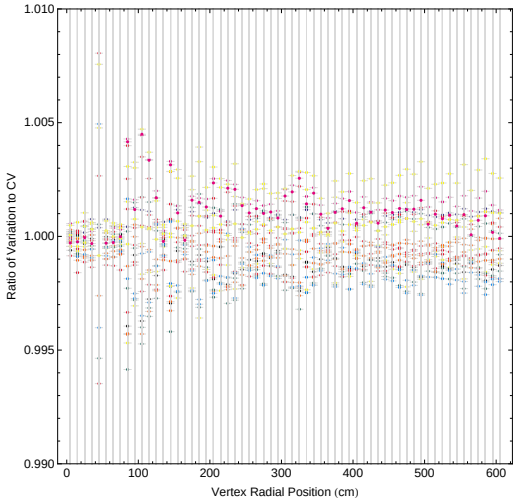
April 23, 2009

Radial Dependence of Cross Section Errors

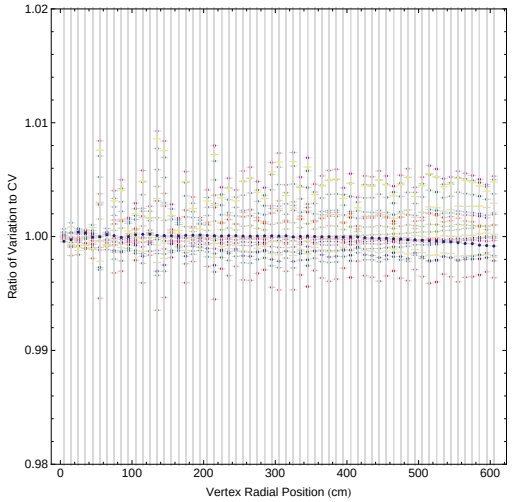
- Setting π cex/abs errors to 0 did not change position dependence of errors
- Separated individual cross section errors into groups and applied groups one at a time
- Plotted ratio of differential radial distribution variations to CV
  - Control Plot: `PipProdRawAboutSW`



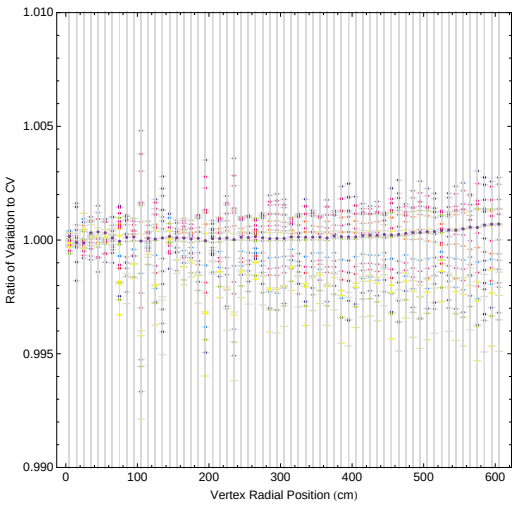
$\bar{\nu}$ Effective Events



Pip Cex, Pip Abs



M_A QE, M_A QE H, EloSF



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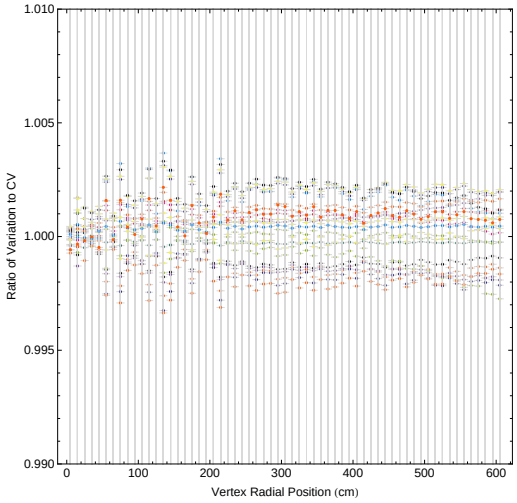
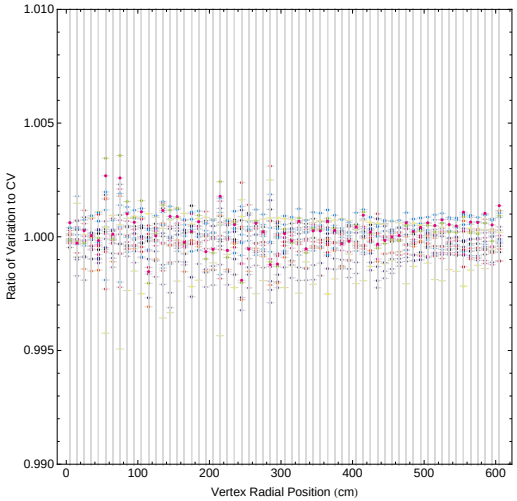
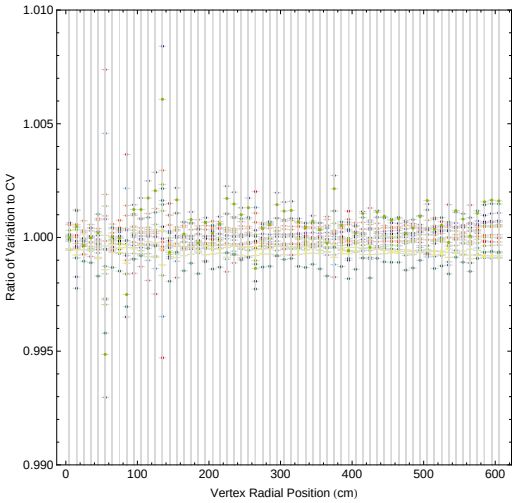


CCQE Norm

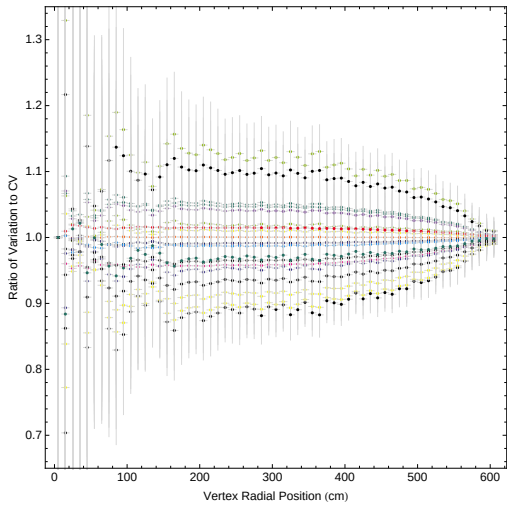


E_B, p_F

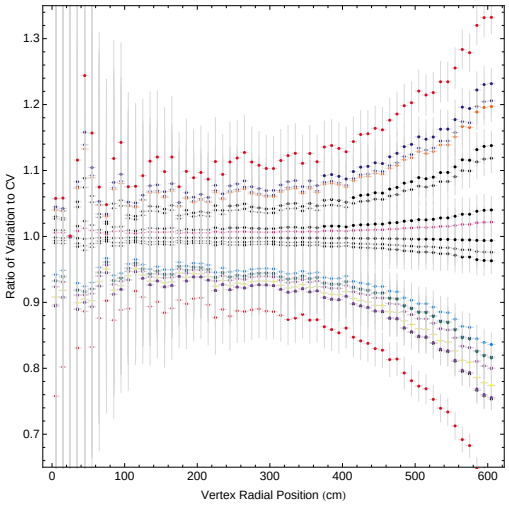


dels

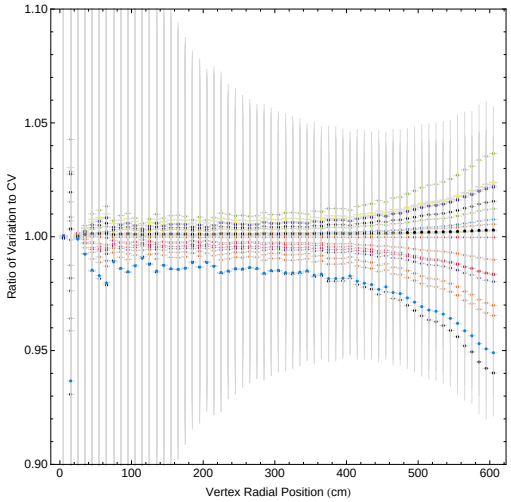
$\bar{\nu}$ Effective Events



coh, Res Pi0



M_A 1pi



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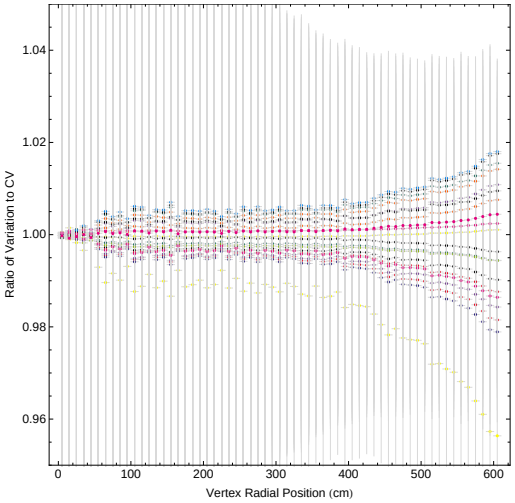

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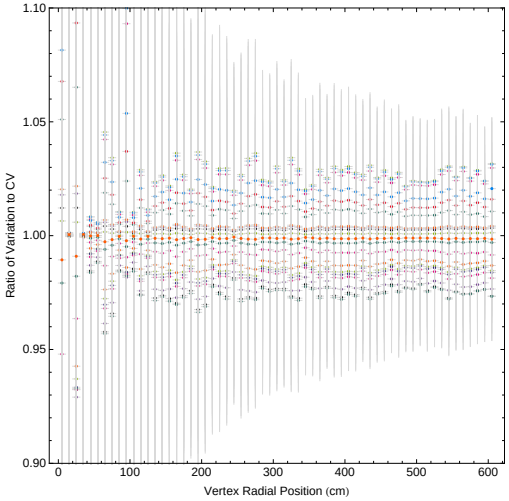
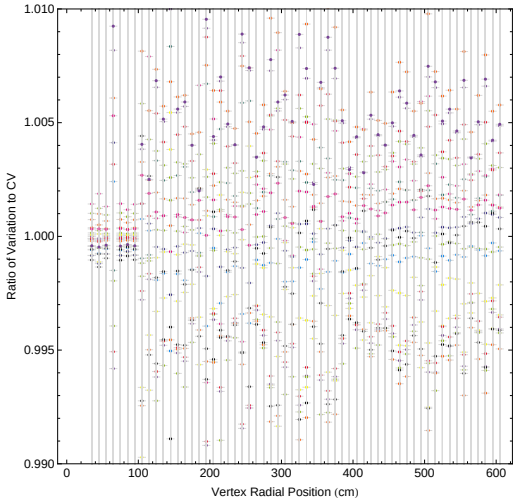
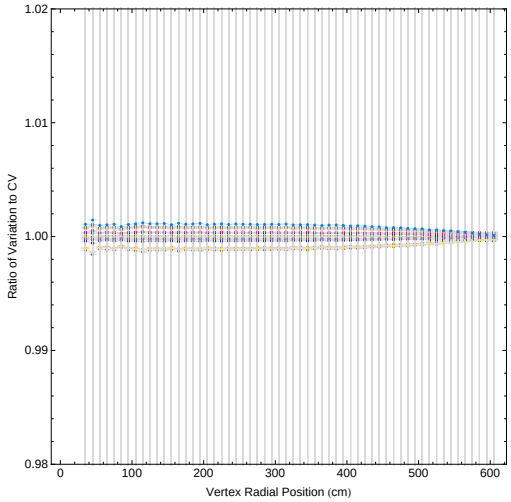


M_A Npi

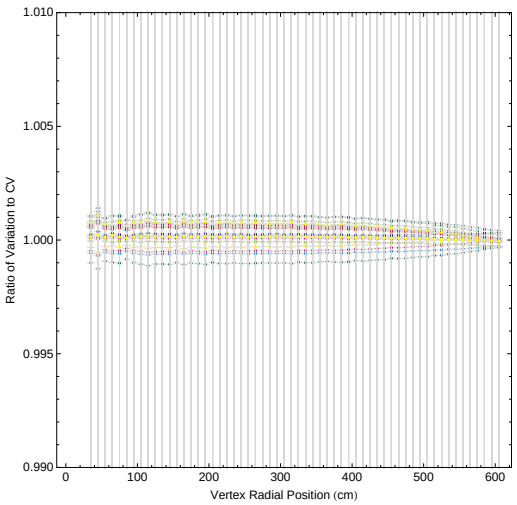
$\bar{\nu}$ Coherent Events



Pip Cex, Pip Abs



M_A QE, M_A QE H, EloSF



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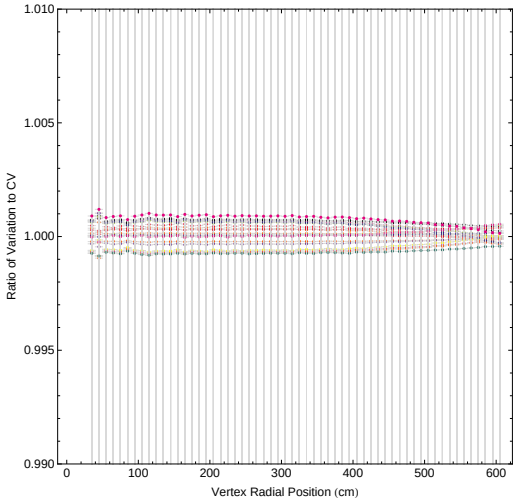

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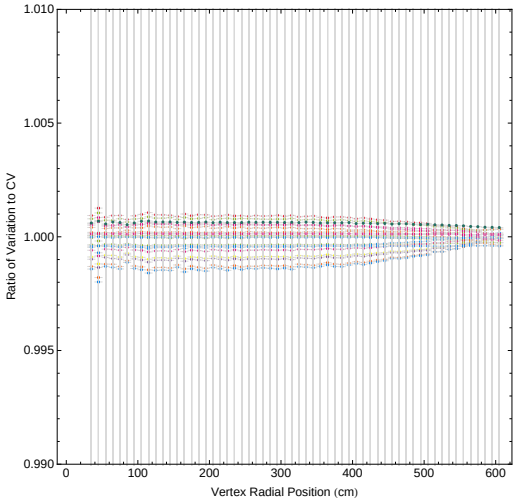
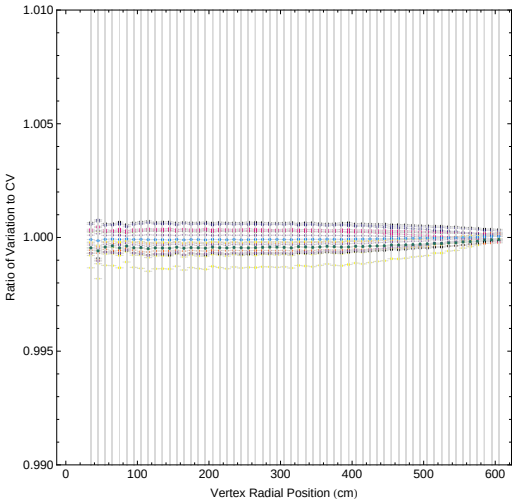


E_B, p_F



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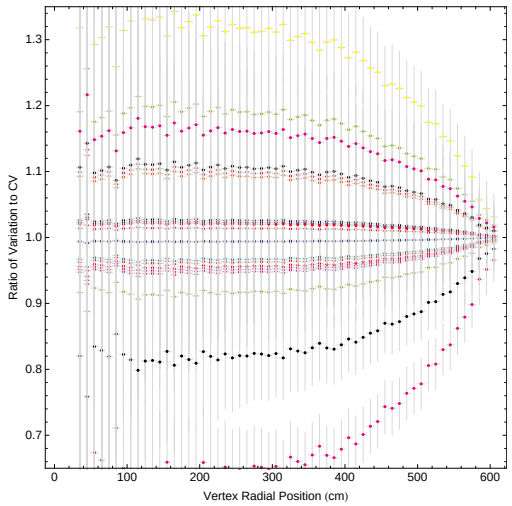
$\bar{\nu}$ Coherent Events



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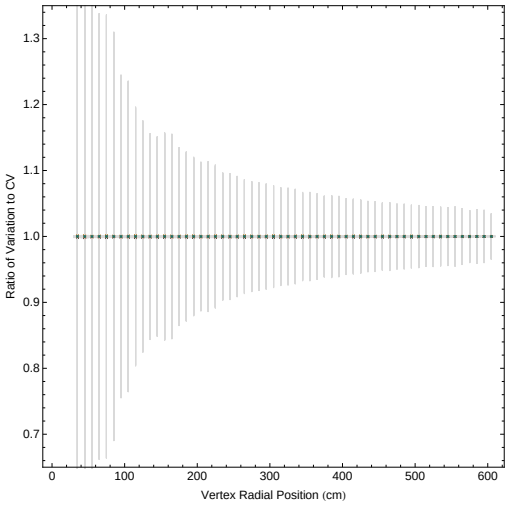
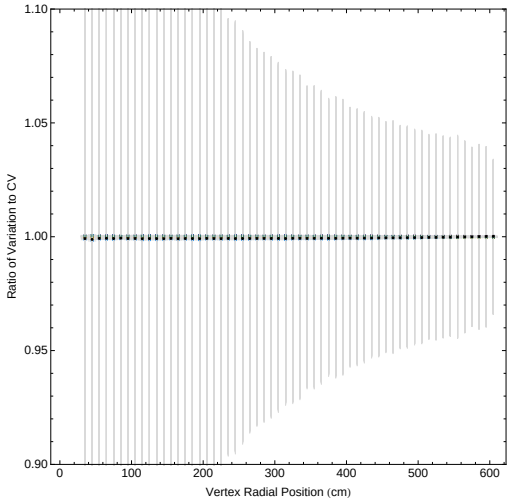


M_A 1pi



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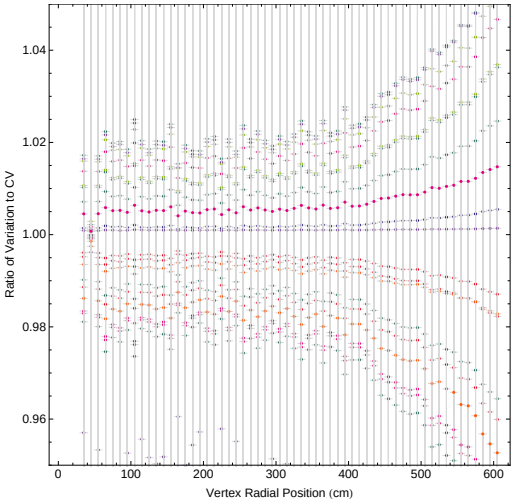

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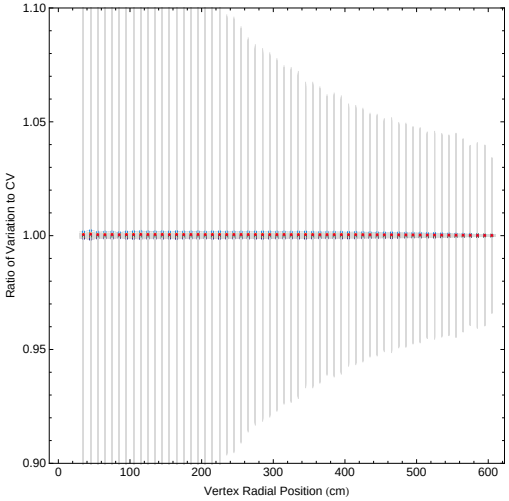
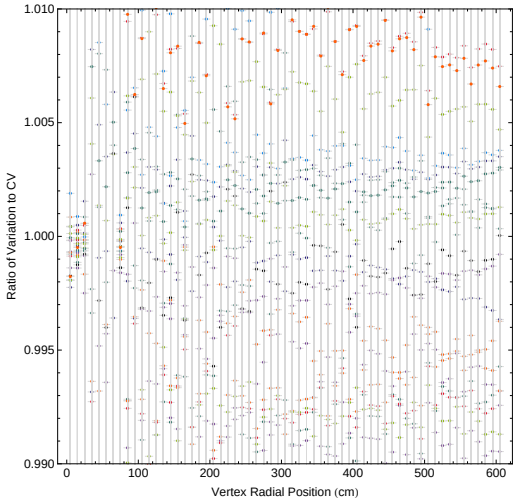
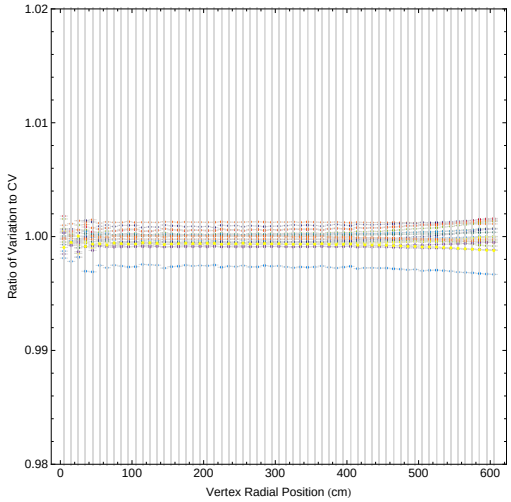


M_A Npi

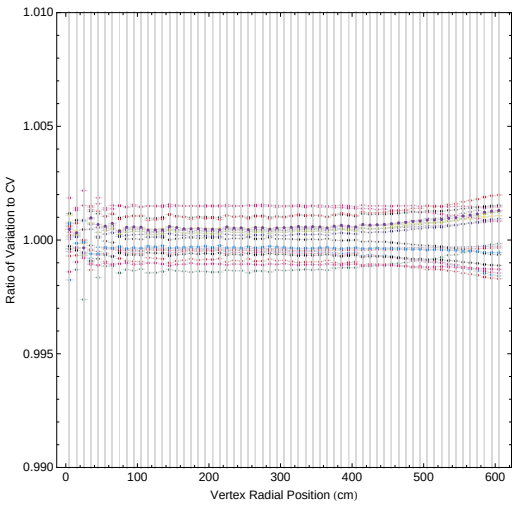
$\bar{\nu}$ Resonant Events



Pip Cex, Pip Abs



M_A QE, M_A QE H, EloSF



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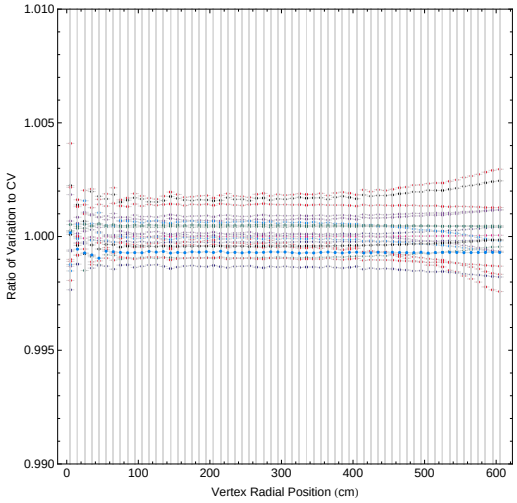

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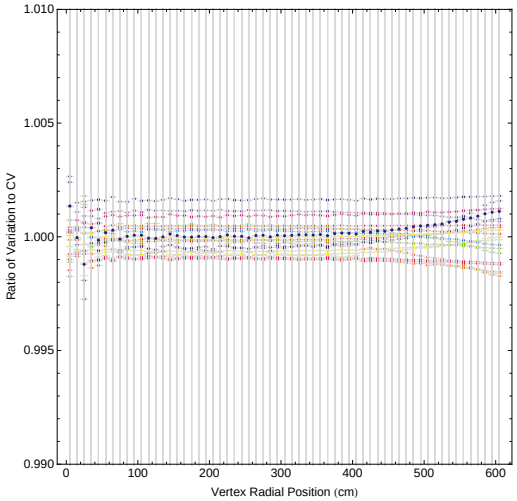
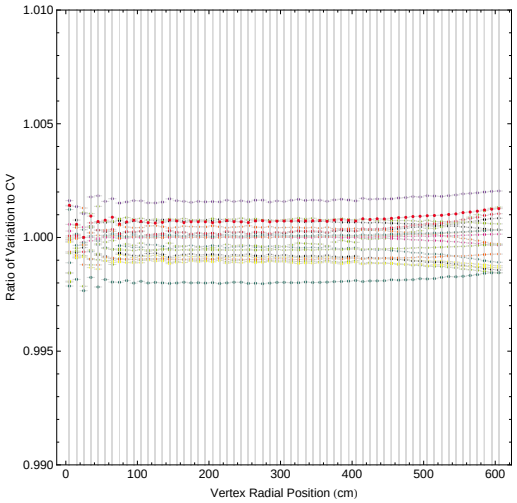
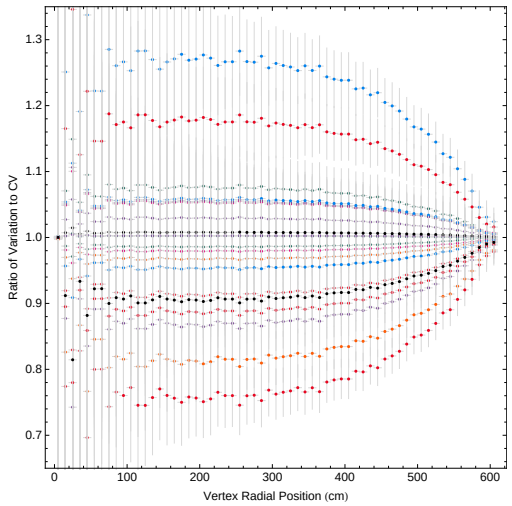


E_B, p_F

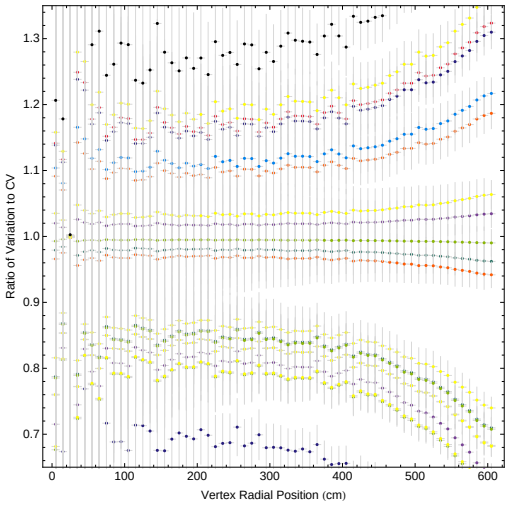


dels

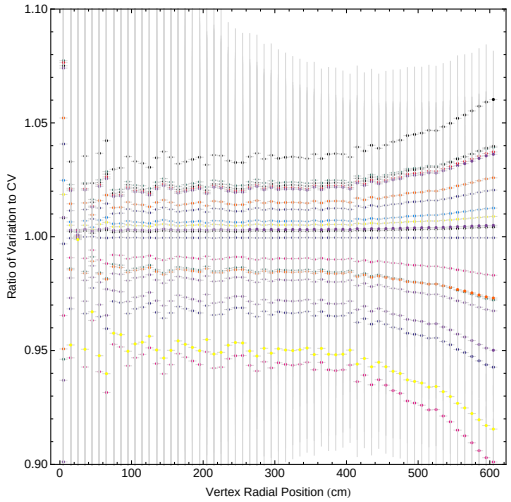
$\bar{\nu}$ Resonant Events



coh, Res Pi0



M_A 1pi



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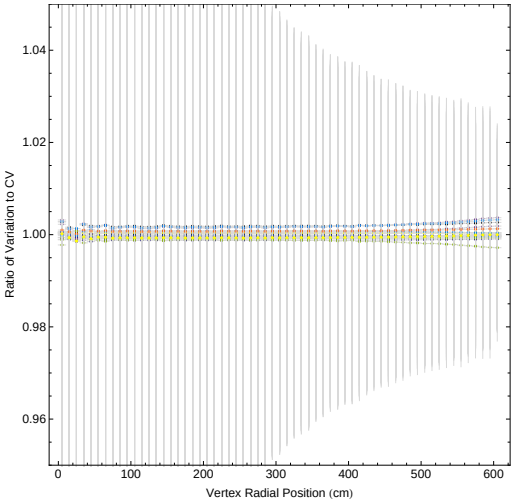
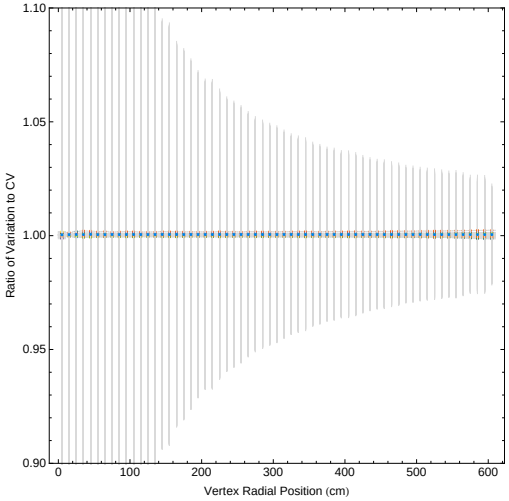


M_A Coh



M_A Npi

FSI Errors for Resonant Cross Section

- FSI variations are incorporated in the OM multisims
- The correction used to correct the distribution of resonants with π^0s exiting the target nucleus to to the total resonant distribution does not vary

$$\epsilon_{\text{OM Variation}} = \frac{\text{Resonant Events w/ Exiting } \pi^0\text{s After Cuts Variation}}{\text{Resonant Events w/ Exiting } \pi^0\text{s Variation} \times \text{NUANCE Correction}}$$

- FSI variations will cancel out since the NUANCE correction does not vary
- Two ways to compensate
  - The Hard Way: Recalculate correction for the FSI variation in each OM multisim
  - The Easy Way: Just use the mean total resonant distribution in the denominator instead of variations. No variations in the OM multisims should affect the true distributions for total resonant events