



Test Beam PSF Analysis News

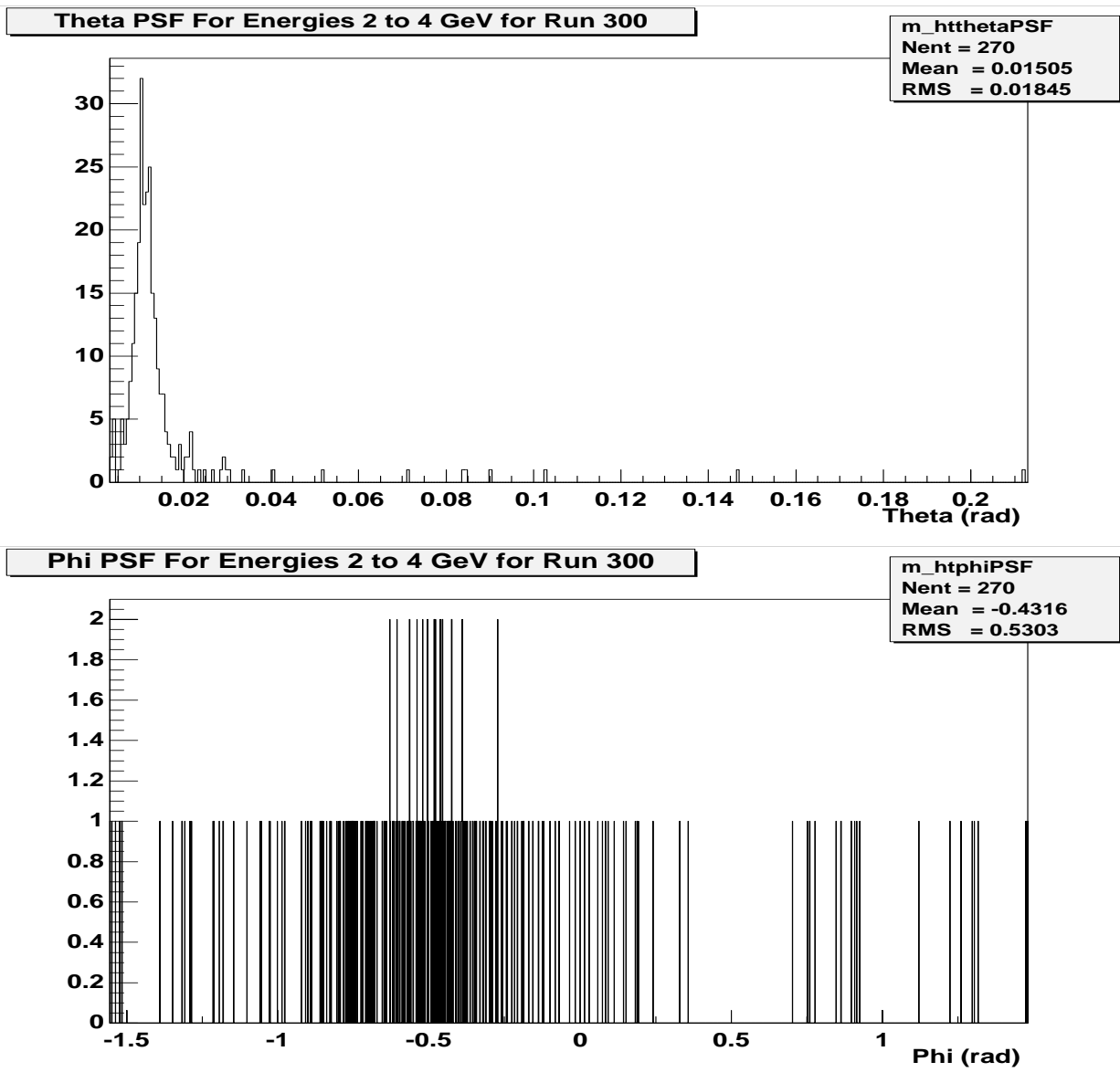
PSF Analysis Update

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Test Beam PSF Analysis News

Calculation of an accurate PSF requires that we remove any misalignment of the tracker from the assumed orientation. This was done by taking the x_{tan} and y_{tan} variables, computing their averages, then from these values computing what Theta and Phi to which they correspond. This was used at the true direction of the incoming beam. We then took the dot product of this vector with that of each event in the run and found the angle between the two which was the PSF. Below is an example of the theta and phi distributions, we see that theta is not precisely zero nor is phi entirely uniform as one would expect for a 0 deg incident beam.





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•Cuts Made in analysis:

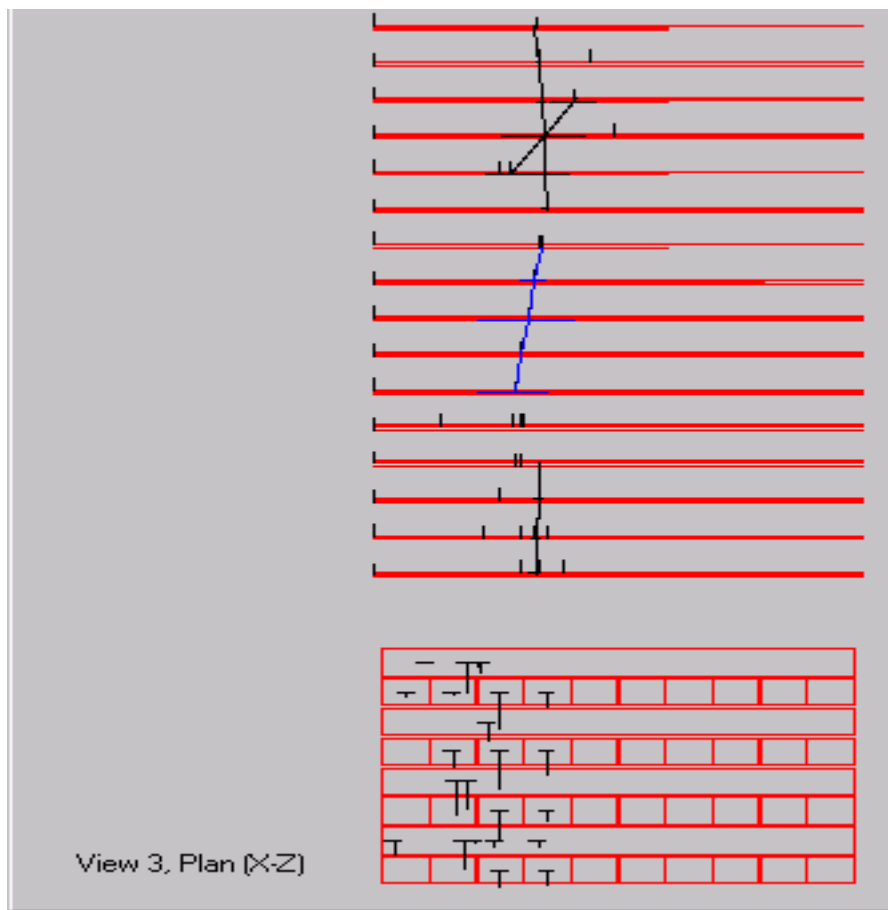
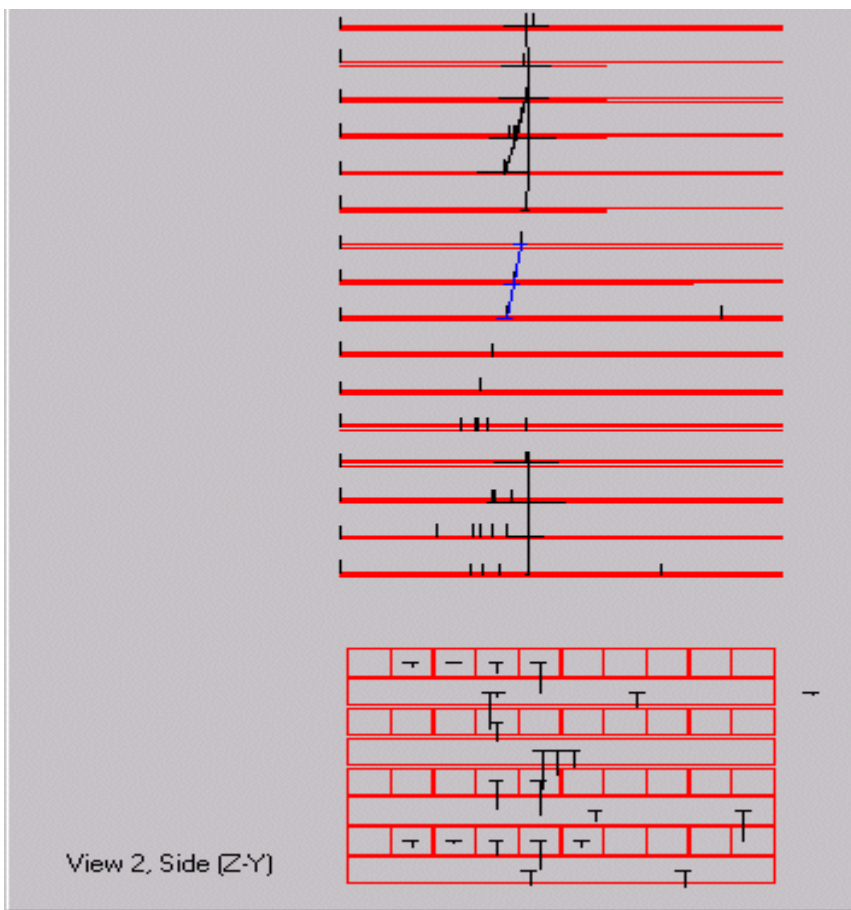
- vertex != first plane
- vertex != dead zone
- $10 \text{ MeV} < \text{eneCal} < \text{Beam Energy}$
- no tracks starting above the reconstructed gamma
- Energy Agreement $\text{abs}[(\text{eneTag} - \text{eneSum}) / \text{eneTag}] < 0.25$

The Energy Agreement cut uses eneSum instead of eneFit since there appears to be some problems in the fit procedures for the energies of interested .



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The cut to remove any event where there are tracks reconstructed above the starting point of the reconstructed gamma was implemented recently to remove events similar to that shown below which do not seem to make up a large percentage of total events but are more likely to have inaccurate or false PSF's.





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Below we see the preliminary PSF plots for two radiator lengths 0.9% on the right and 2.9% on the left. Although only two runs are show we see the expected trend of increasing 68% with converter.

