

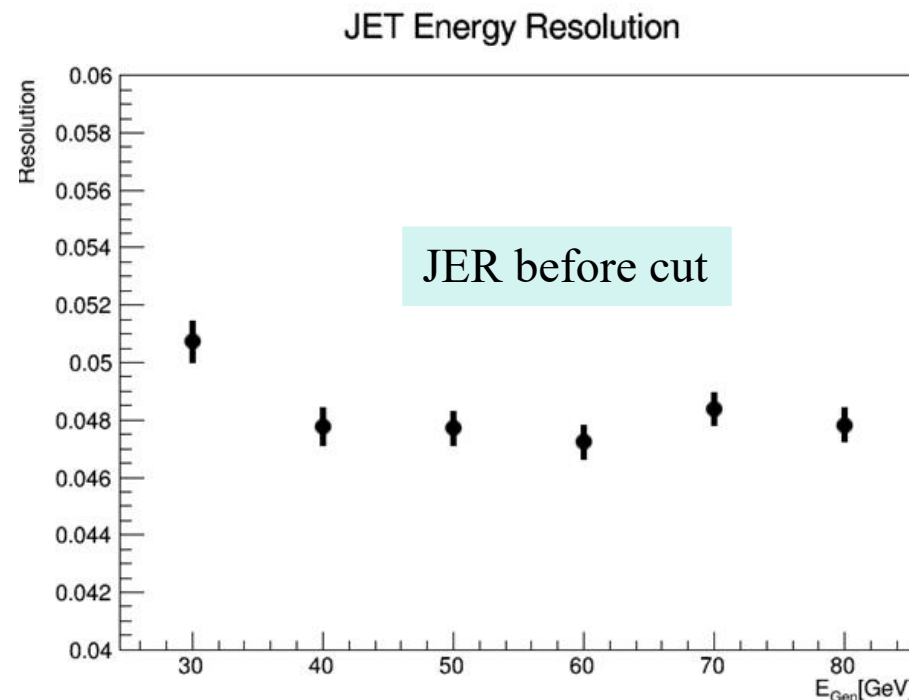
Jet Energy Resolution Validation

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1 IHEP

Validation

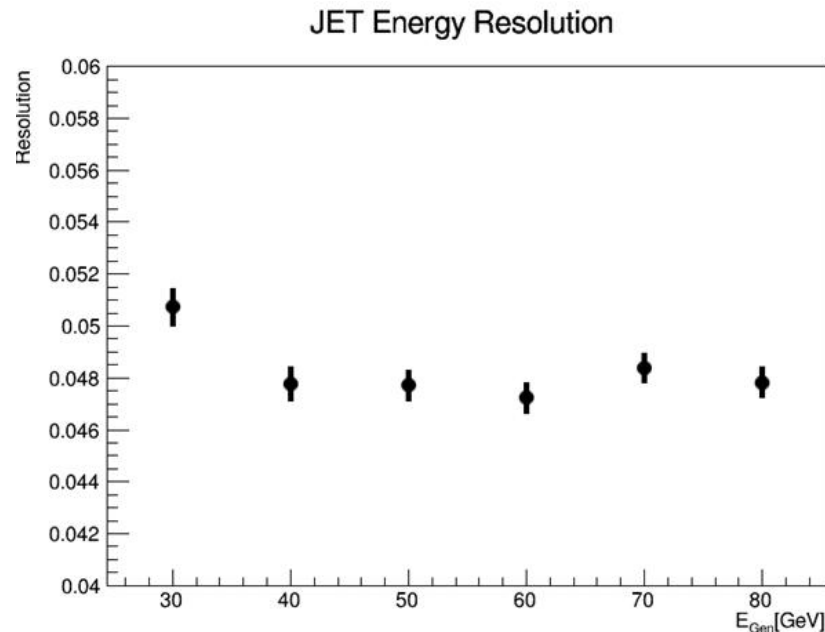
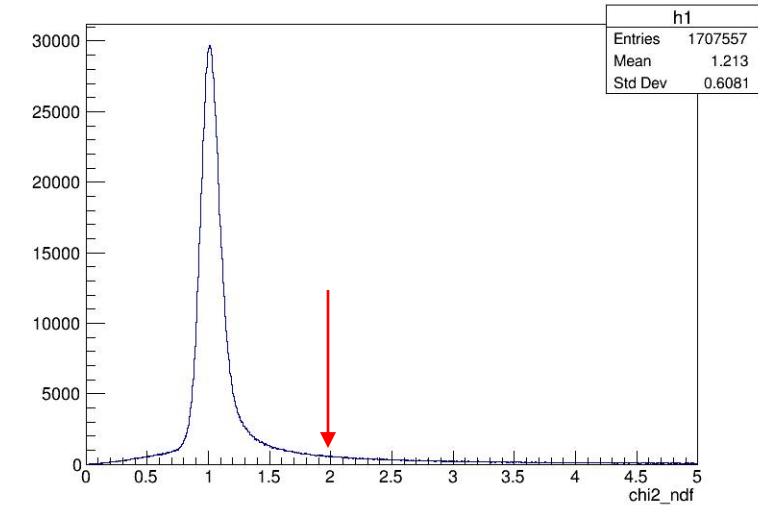
- Dataset: $ee \rightarrow uu$ events given by Kaili.
 - Six data points: E60_eeuu, E80_eeuu, E100_eeuu, E120_eeuu, E140_eeuu, E160_eeuu.
 - Reconstructed by CEPCSW25.3.7.
 - Jet Reconstruction by eekt.
 - Jet truth match with ΔR .
- Cut
 - $|\cos\theta| < 0.85$.
- Calculation
 - $\Delta E = E(\text{RecoJet}) - E(\text{GenJet})$.
 - $\text{Resolution} = \Delta E/E$ (Use TwoSidedCB to fit the $\Delta E/E$).



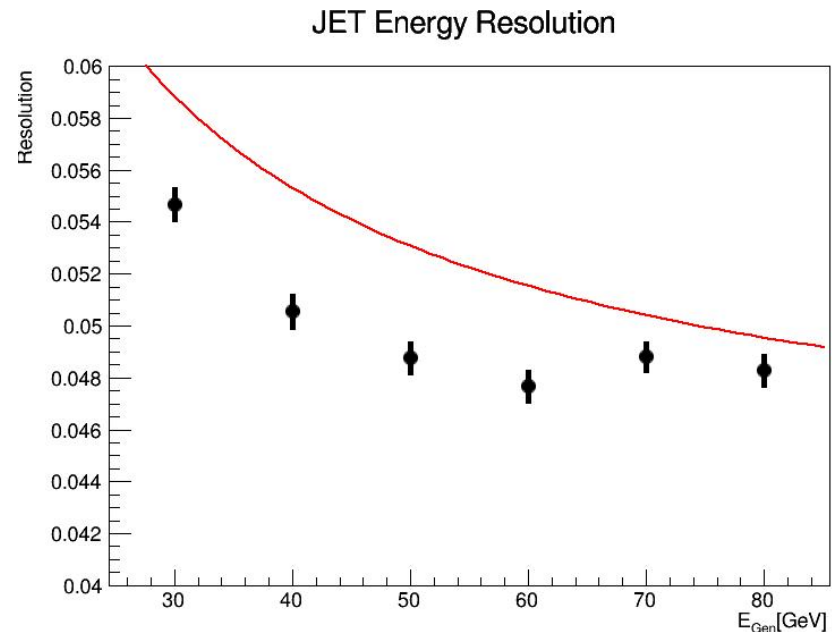
- Add cut on χ^2/ndf
 - $\chi^2/\text{ndf} < 2.0$
 - Cutting Efficiency:

data	E60	E80	E100	E120	E140	E160
efficiency	87.47%	88.17%	88.69%	89.06%	89.37%	89.59%

- Result
 - Cut on χ^2/ndf doesn't have much impact on JER.



JER before cut



JER after cut

Validation

- Additional Validation: adding D0 and Z0 cut in PFO reconstruction
 - $D0 < 0.2$ and $|Z0| < 0.2$
- Result
 - JER is 4 times higher than before.
 - Distribution of dE deviate from 0.

