

Angle and Energy Conditioning

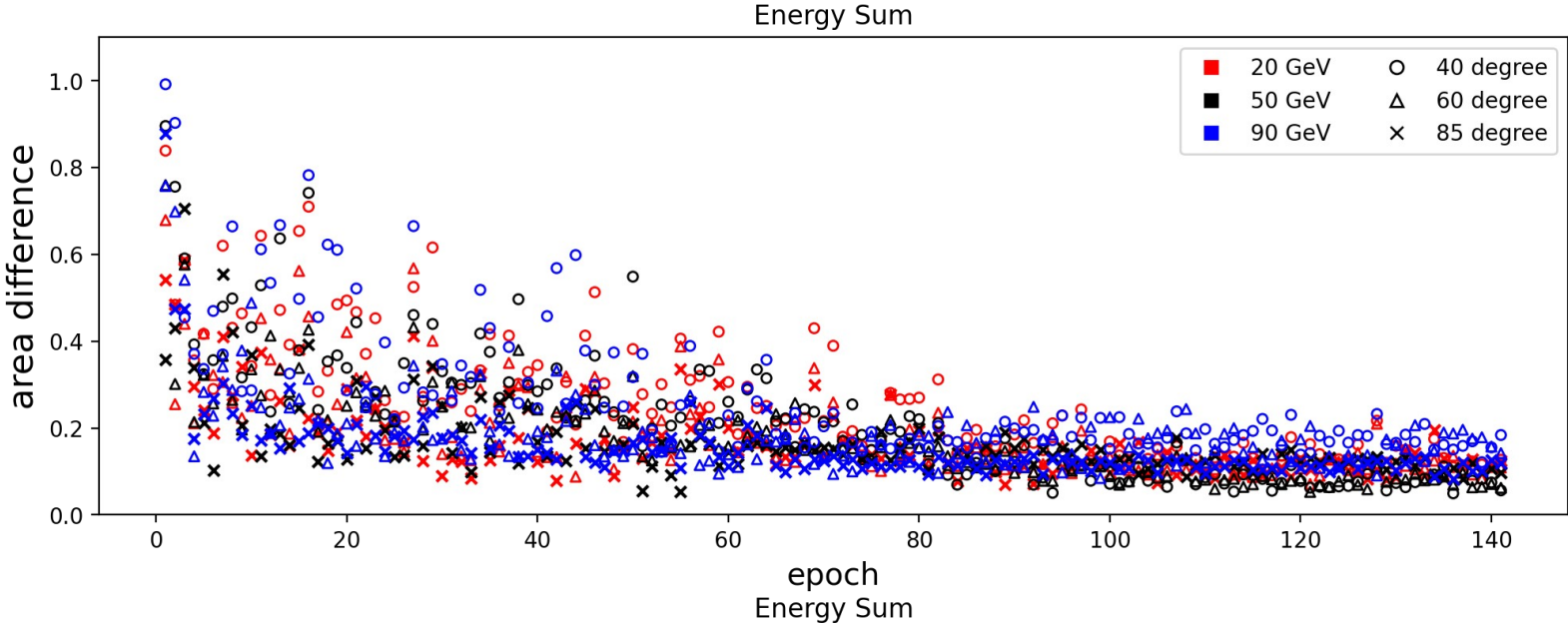
12.05.2022

BIBAE E and A cond.: Returning to unscaled labels

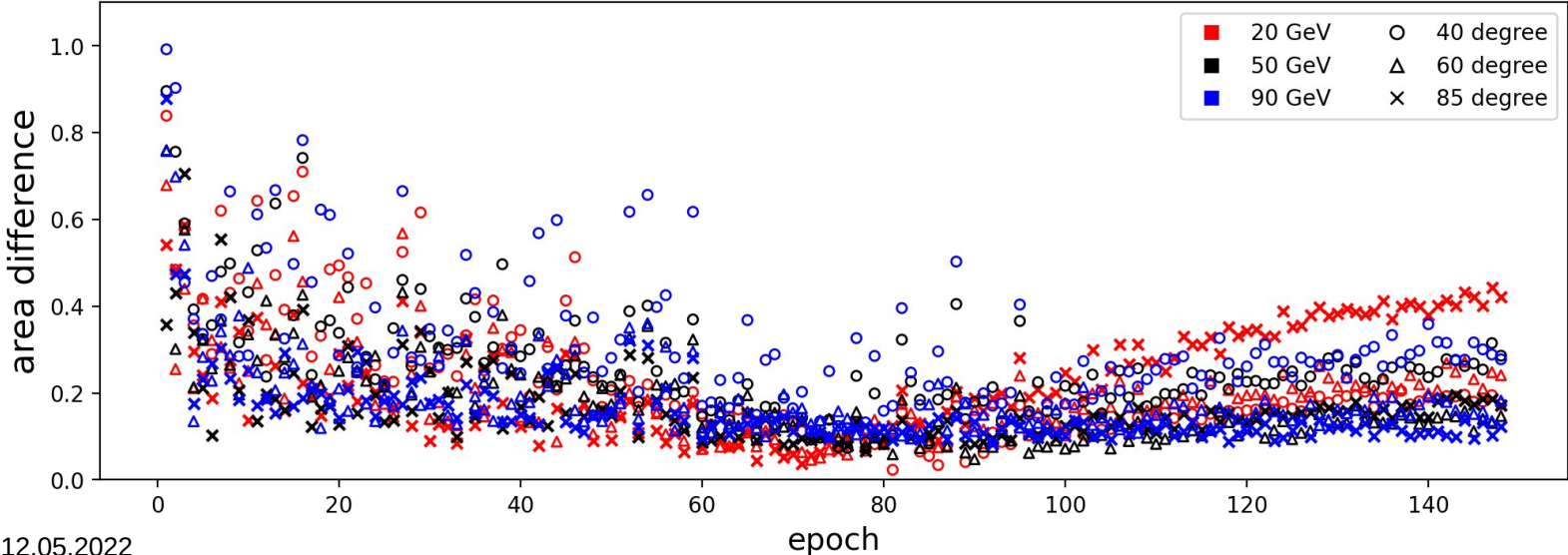
- Post Processing from ep.49 of training with no label scaling applied
- Two PP tries:
 - With Layer Norm
 - Without Layer Norm
- Different advantages vs disadvantages

E+A Fidelity sweep: Energy Sum

With LNorm:

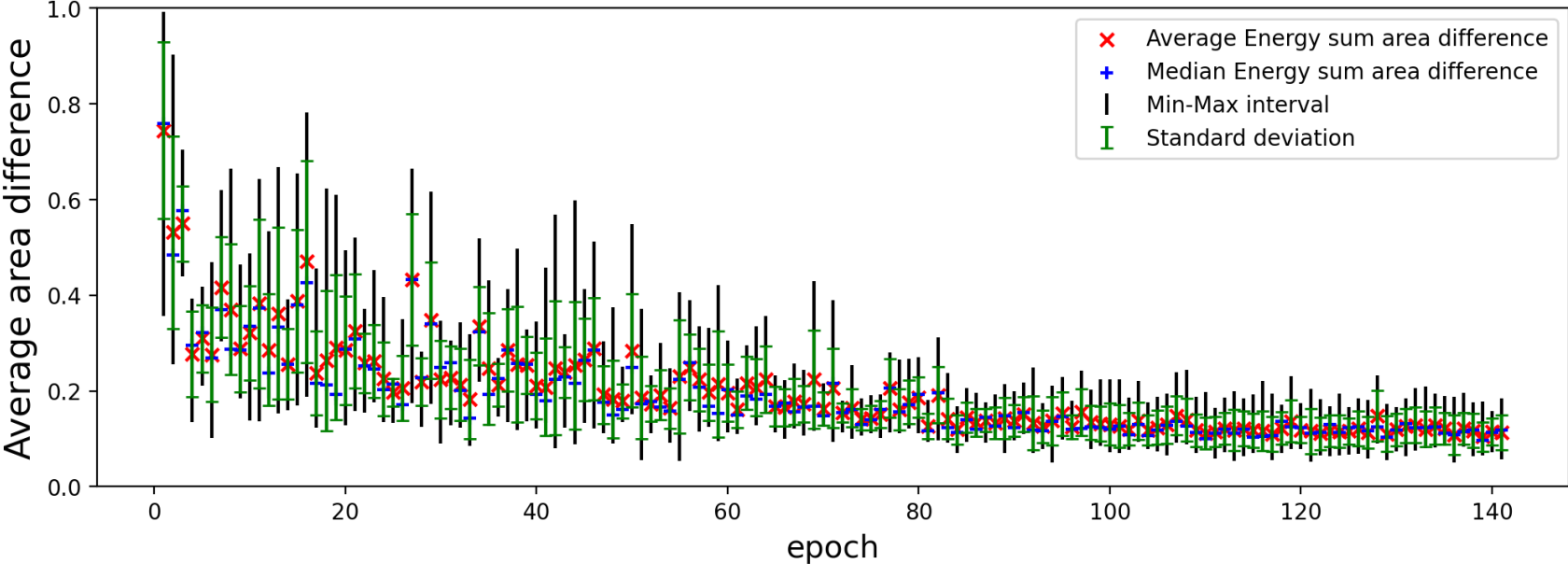


No LNorm:

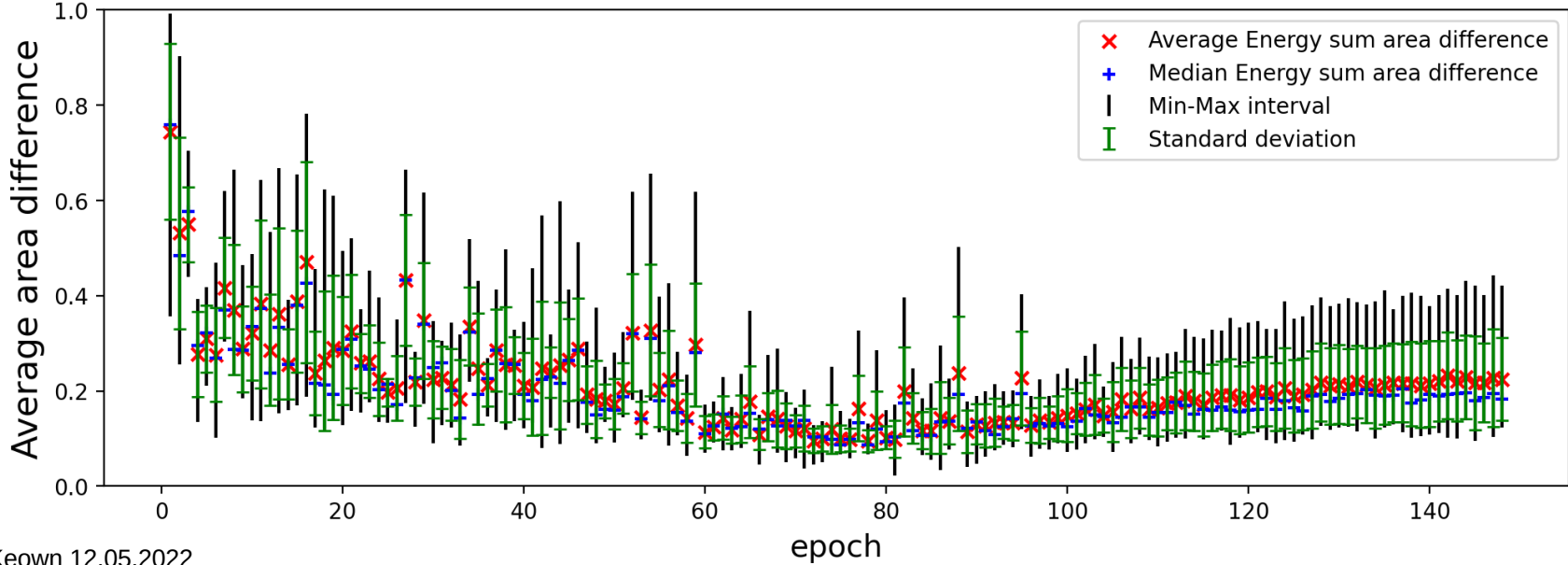


E+A Fidelity sweep: Energy Sum

With LNorm:

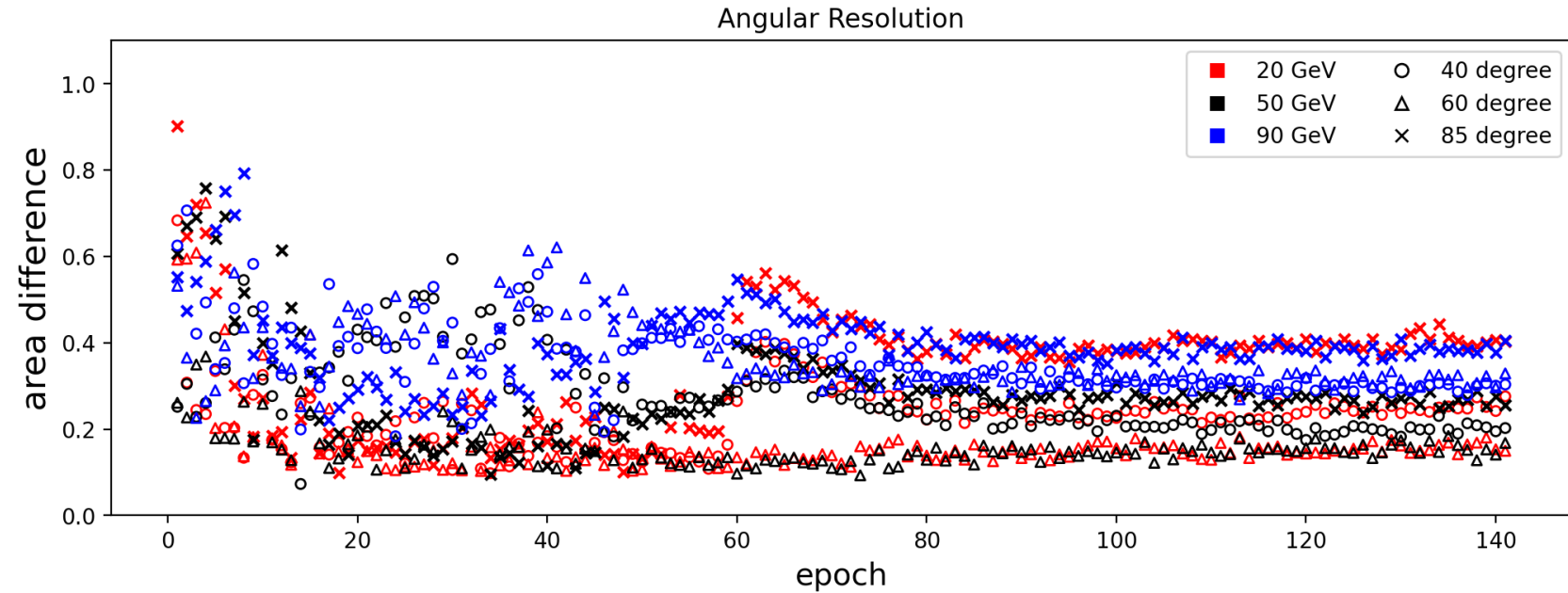


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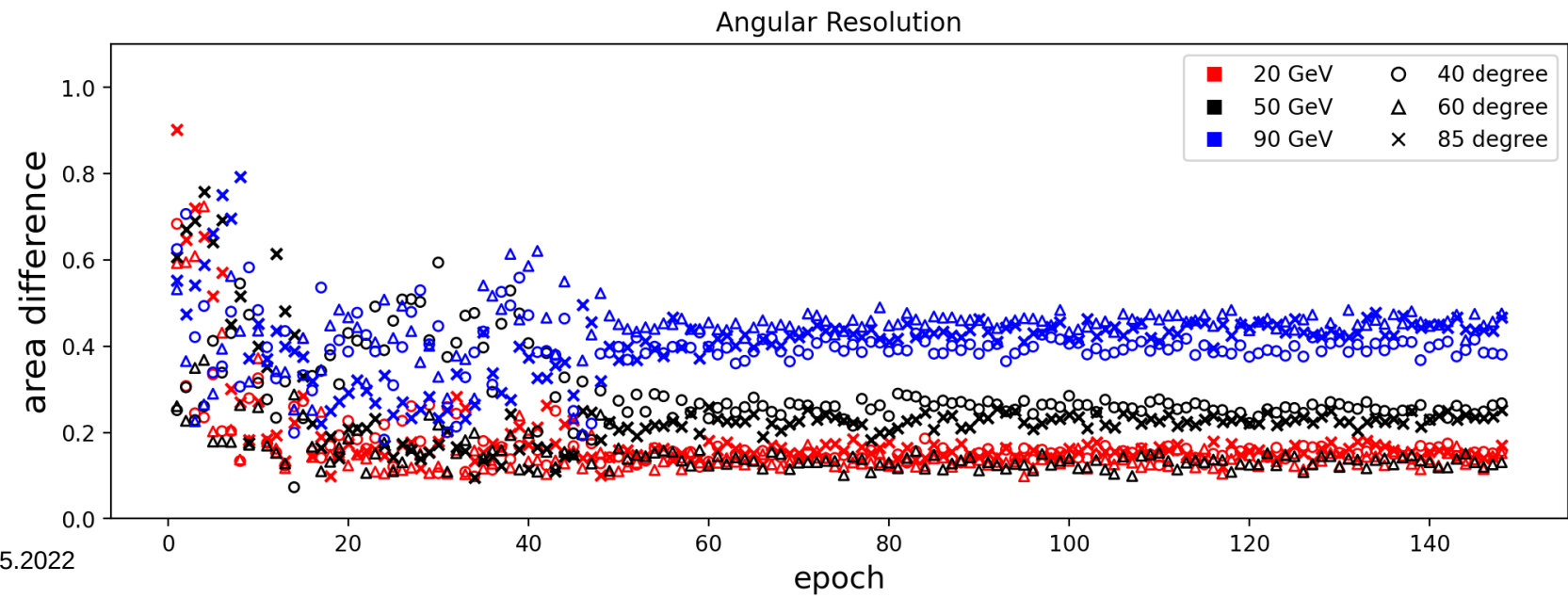


E+A Fidelity sweep: Angular distributions

With LNorm:

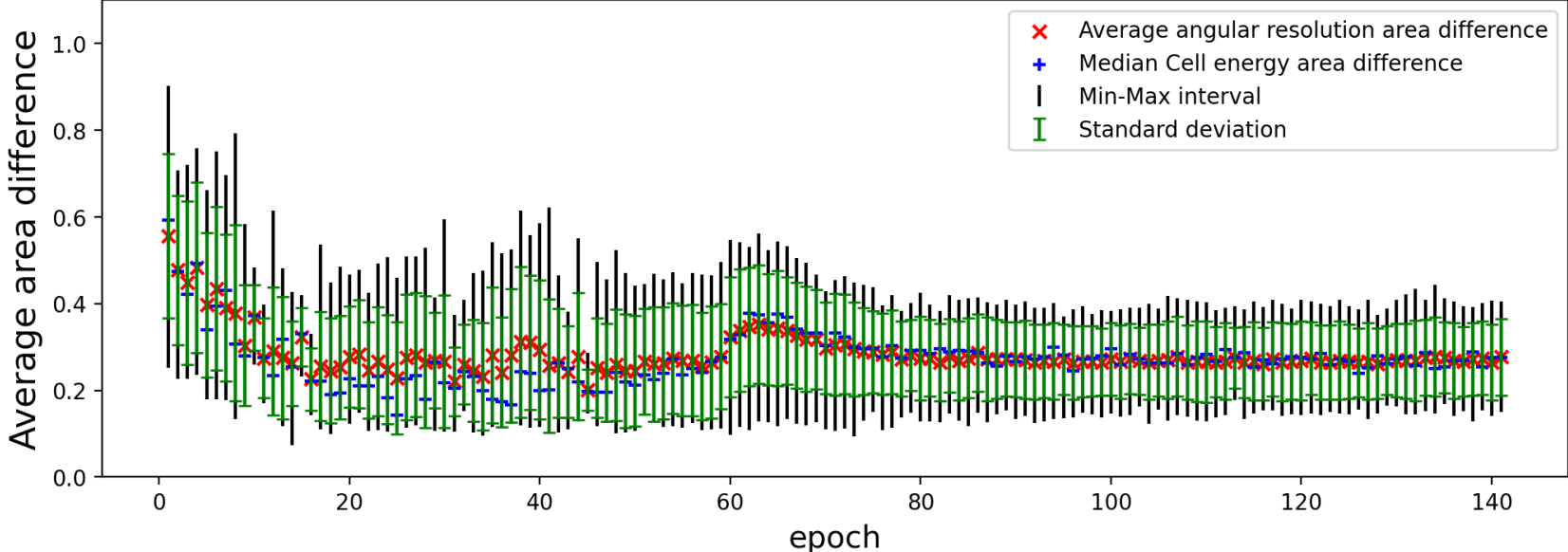


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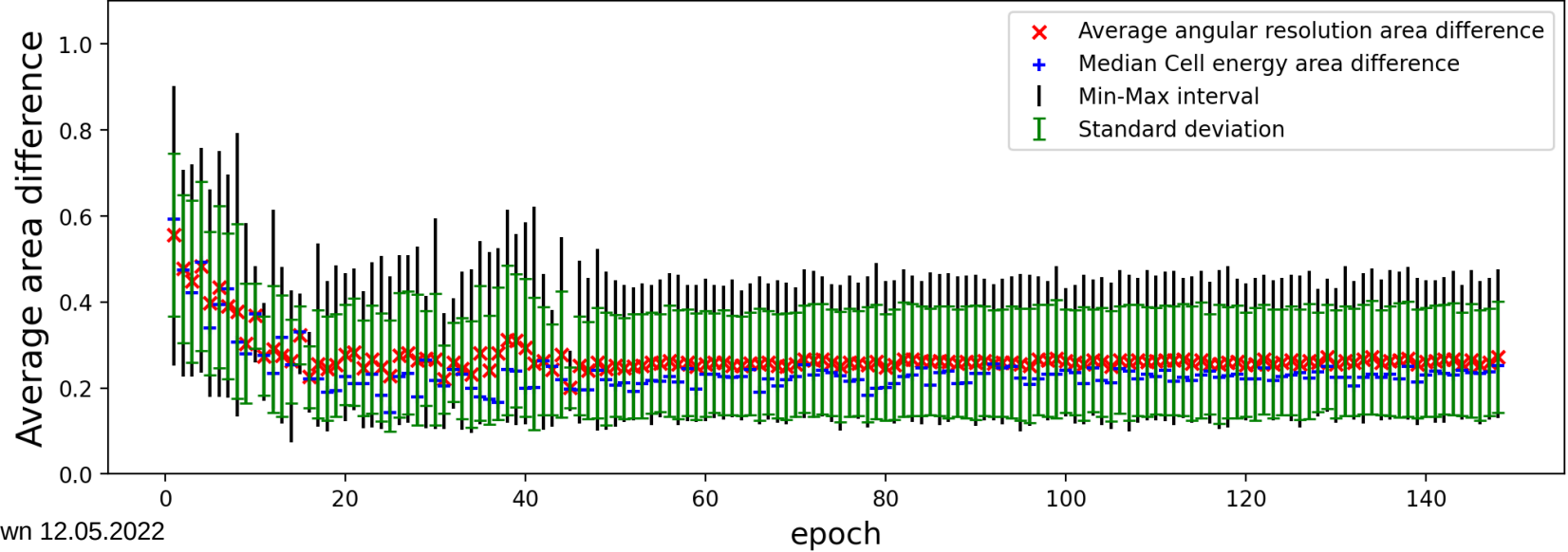


E+A Fidelity sweep: Angular distributions

With LNorm:

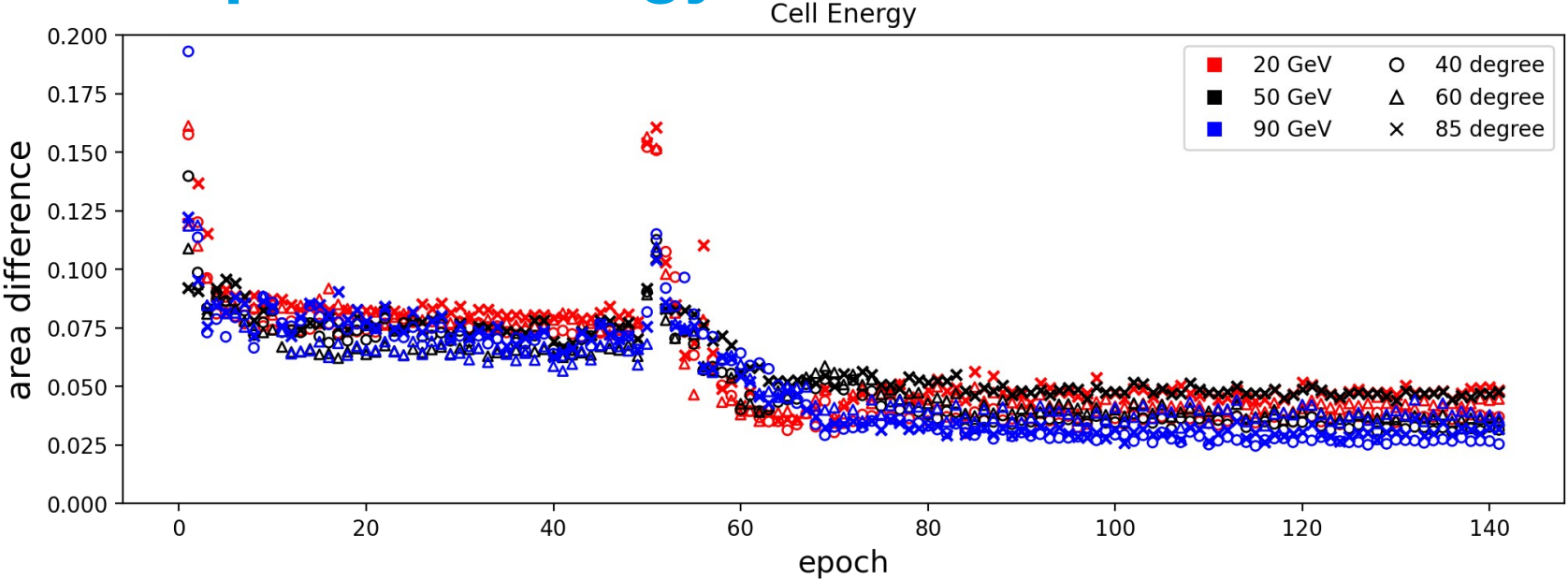


No LNorm:

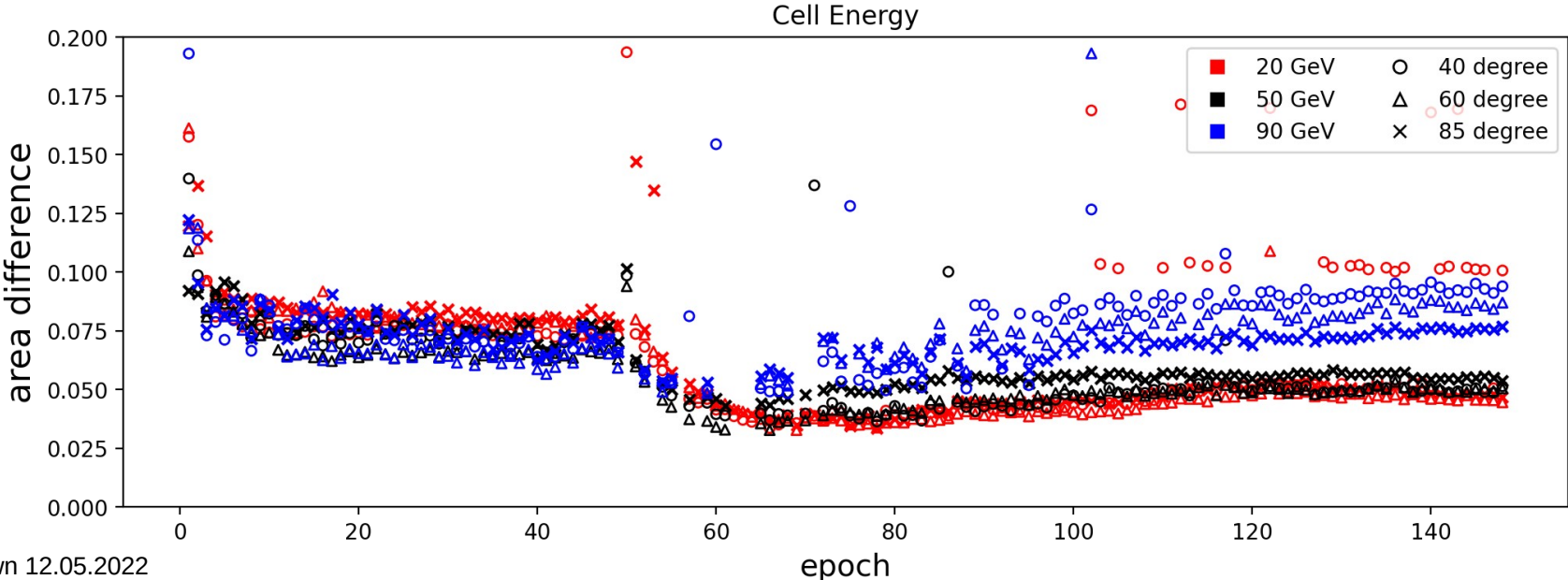


E+A Fidelity sweep: Cell Energy

With LNorm:

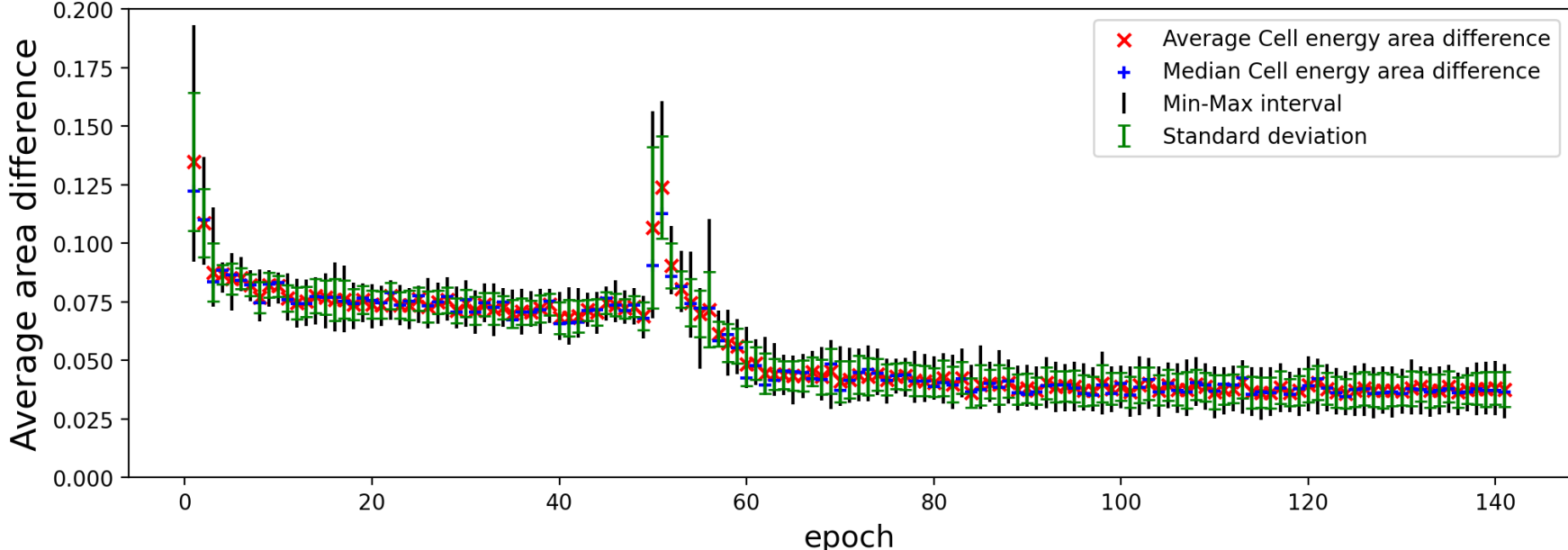


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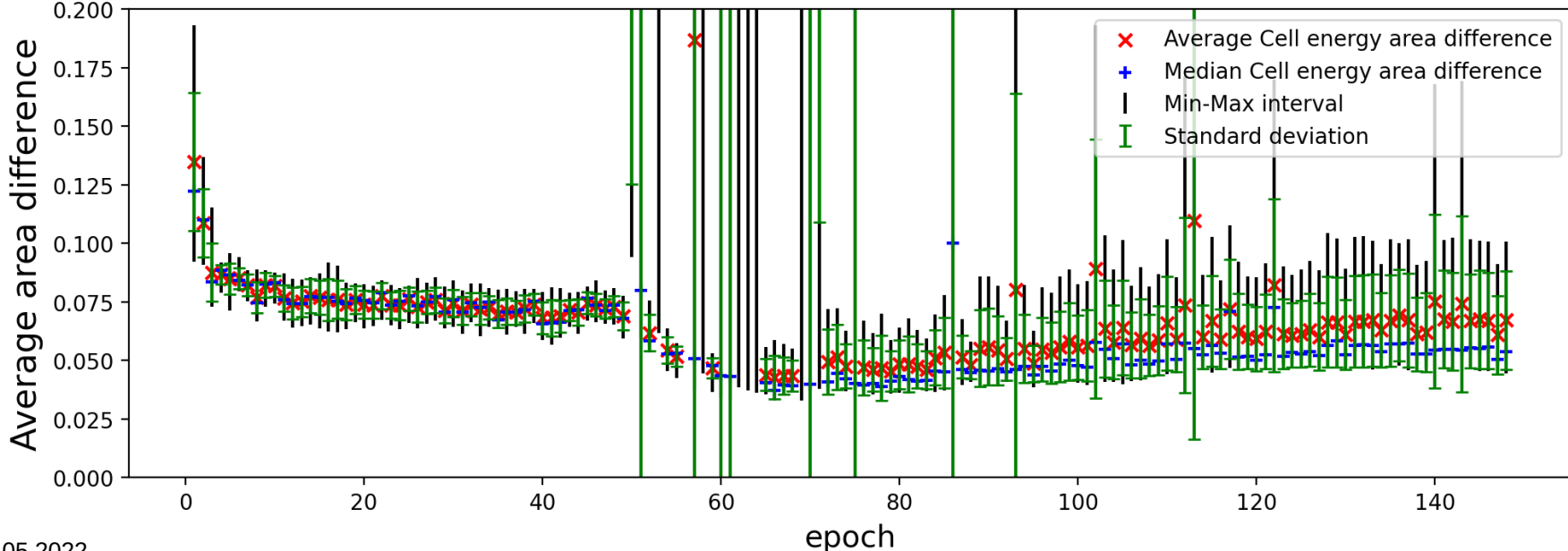


E+A Fidelity sweep: Cell Energy

With LNorm:

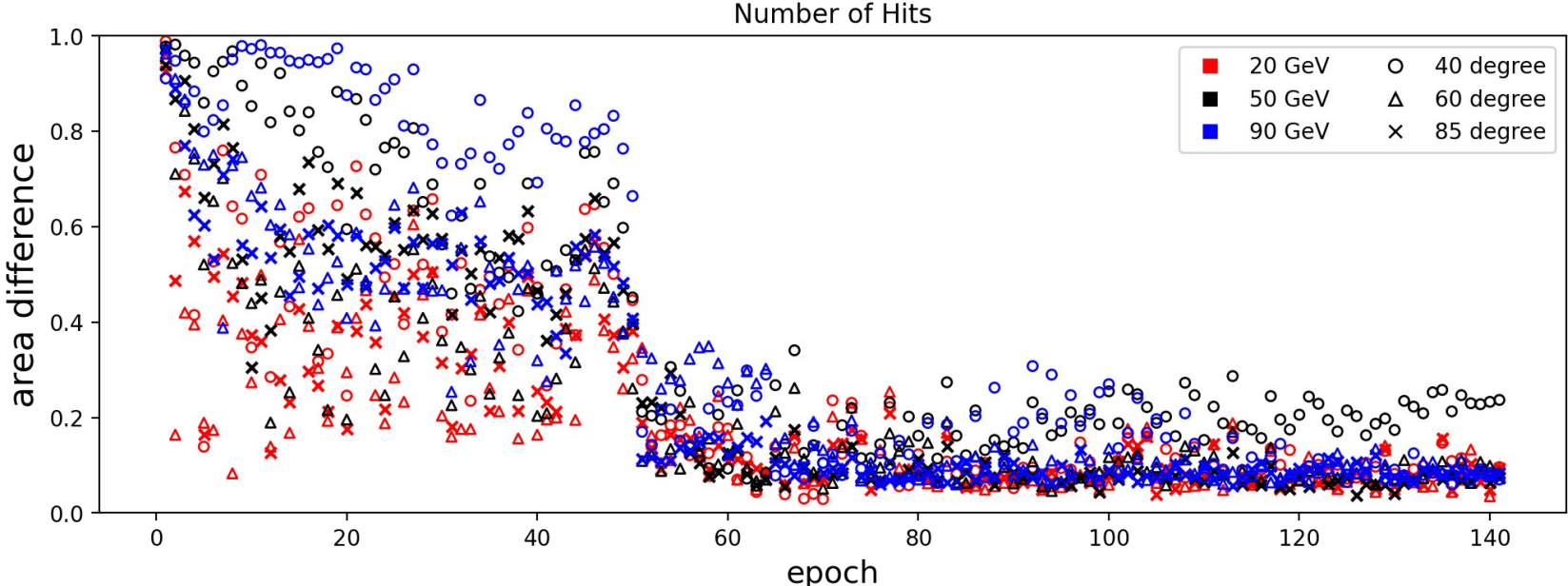


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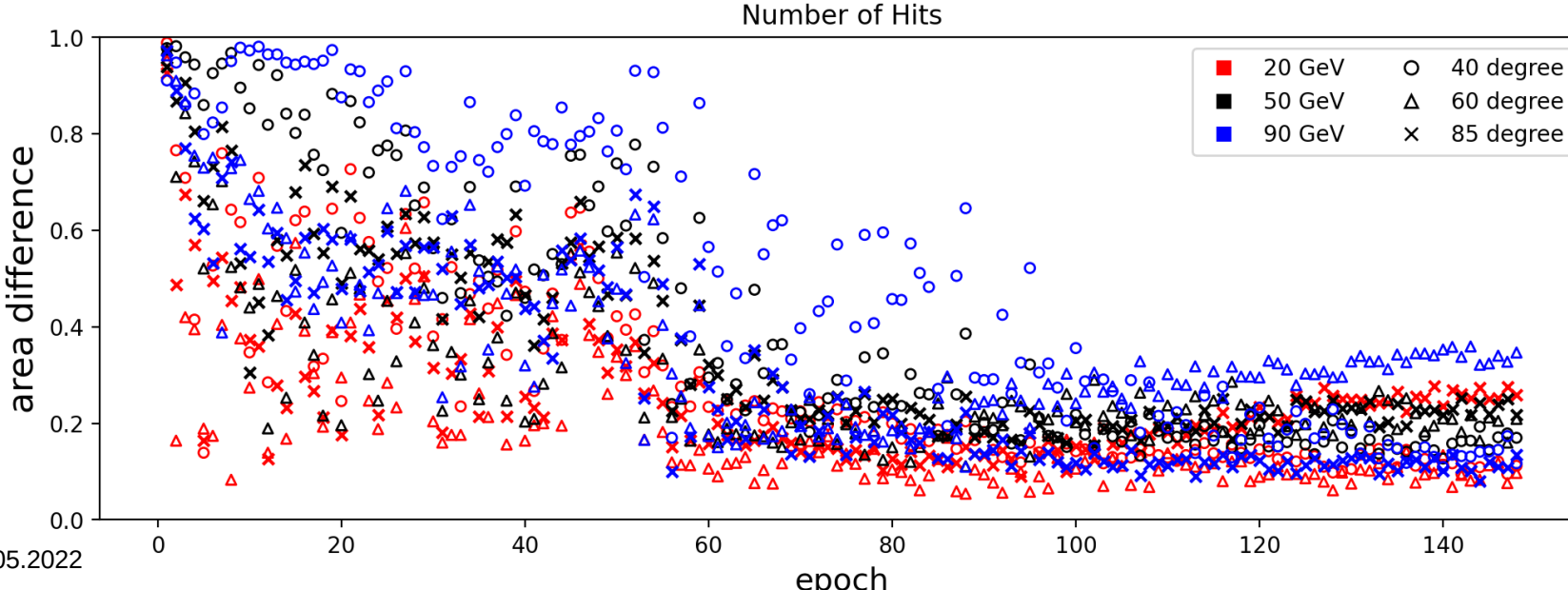


E+A Fidelity sweep: Number of Hits

With LNorm:

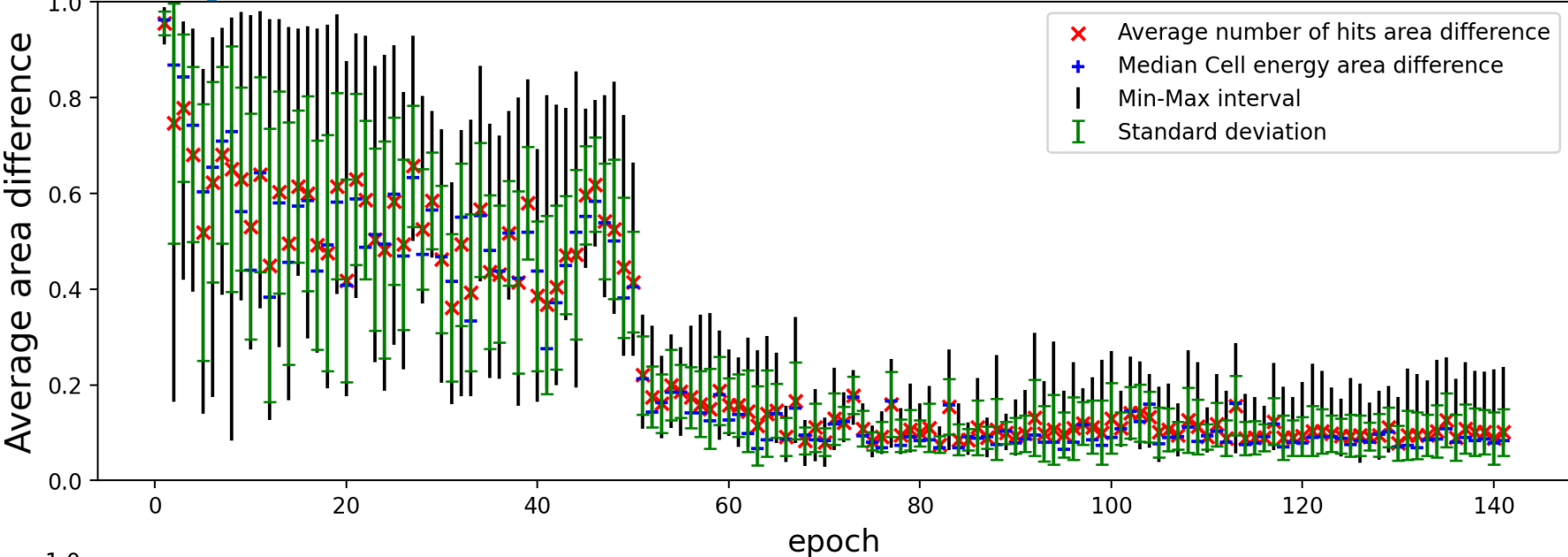


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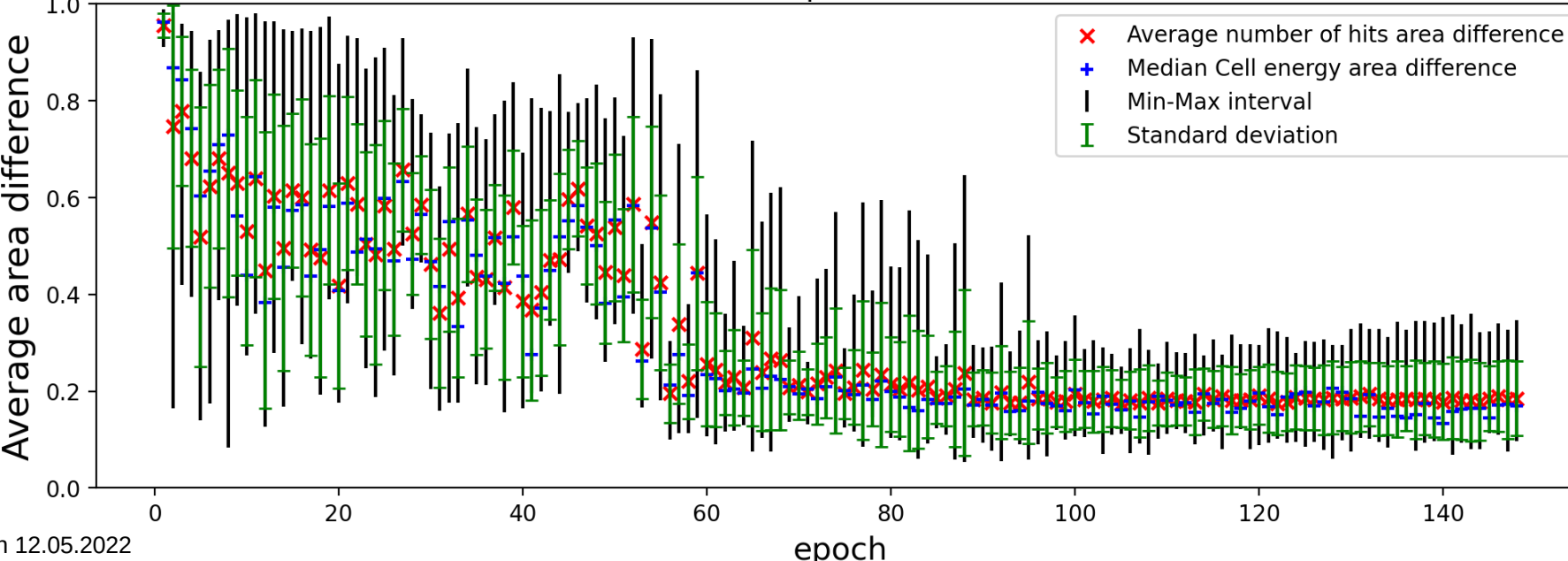


E+A Fidelity sweep: Number of Hits

With LNorm:

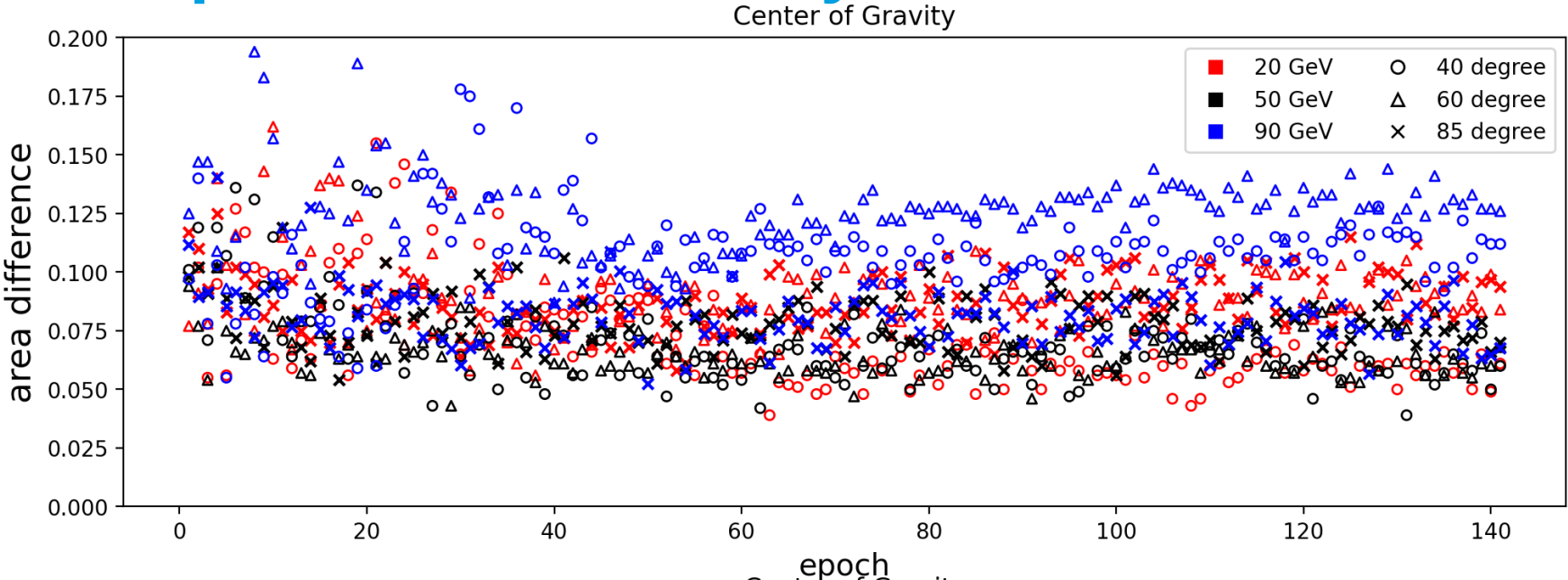


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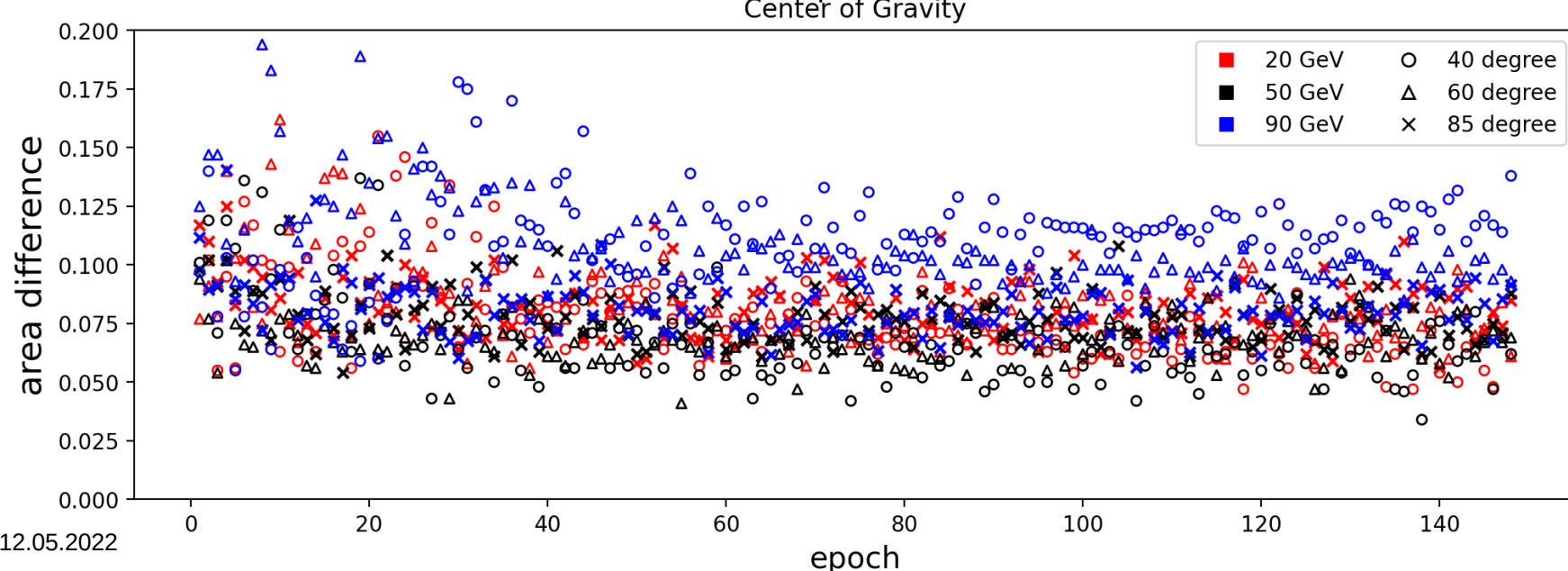


E+A Fidelity sweep: Center of Gravity

With LNorm:

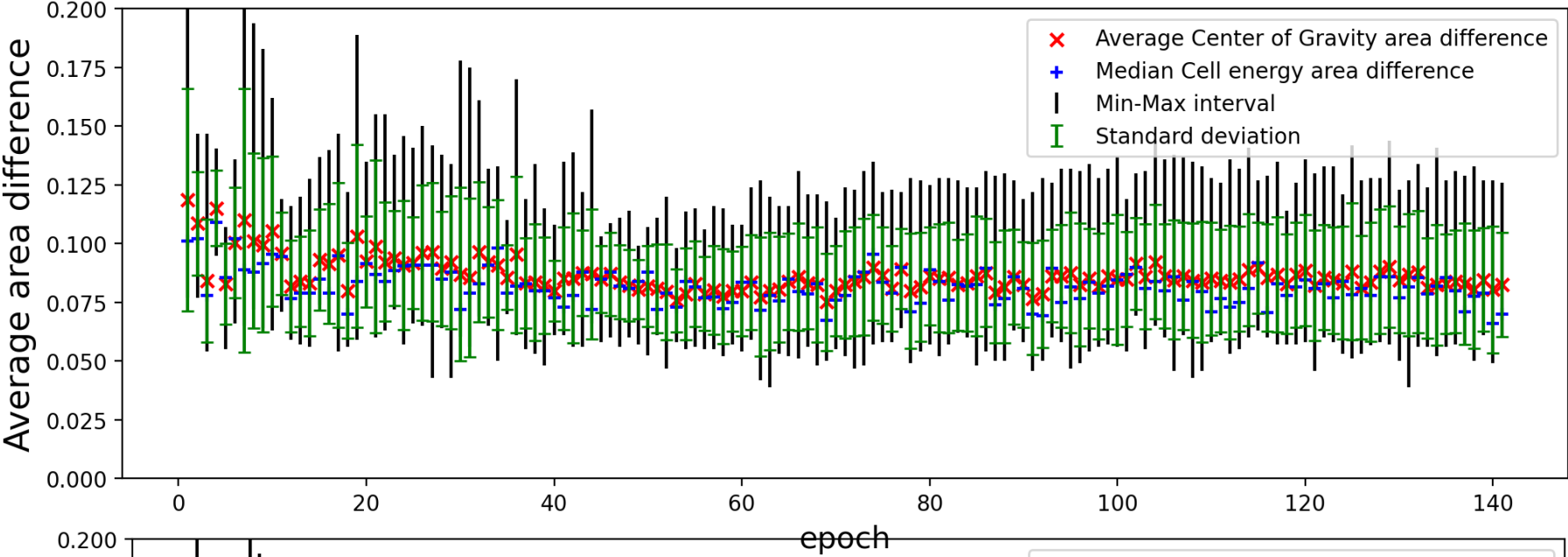


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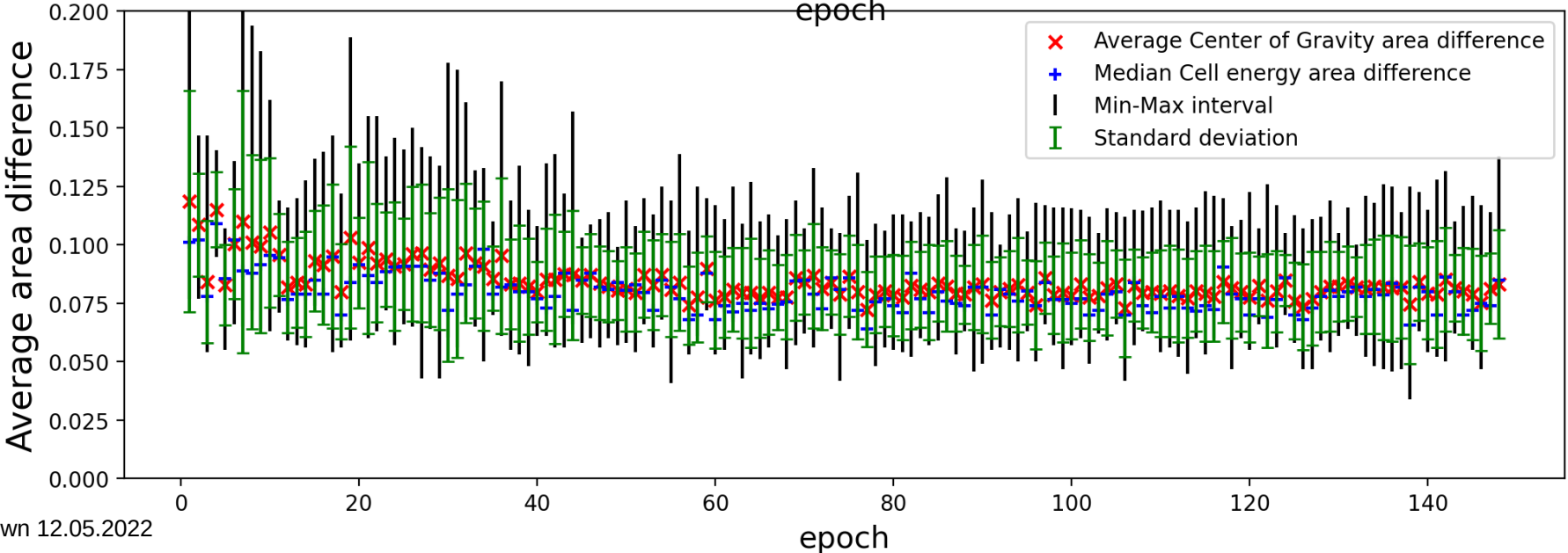


E+A Fidelity sweep: Center of Gravity

With LNorm:

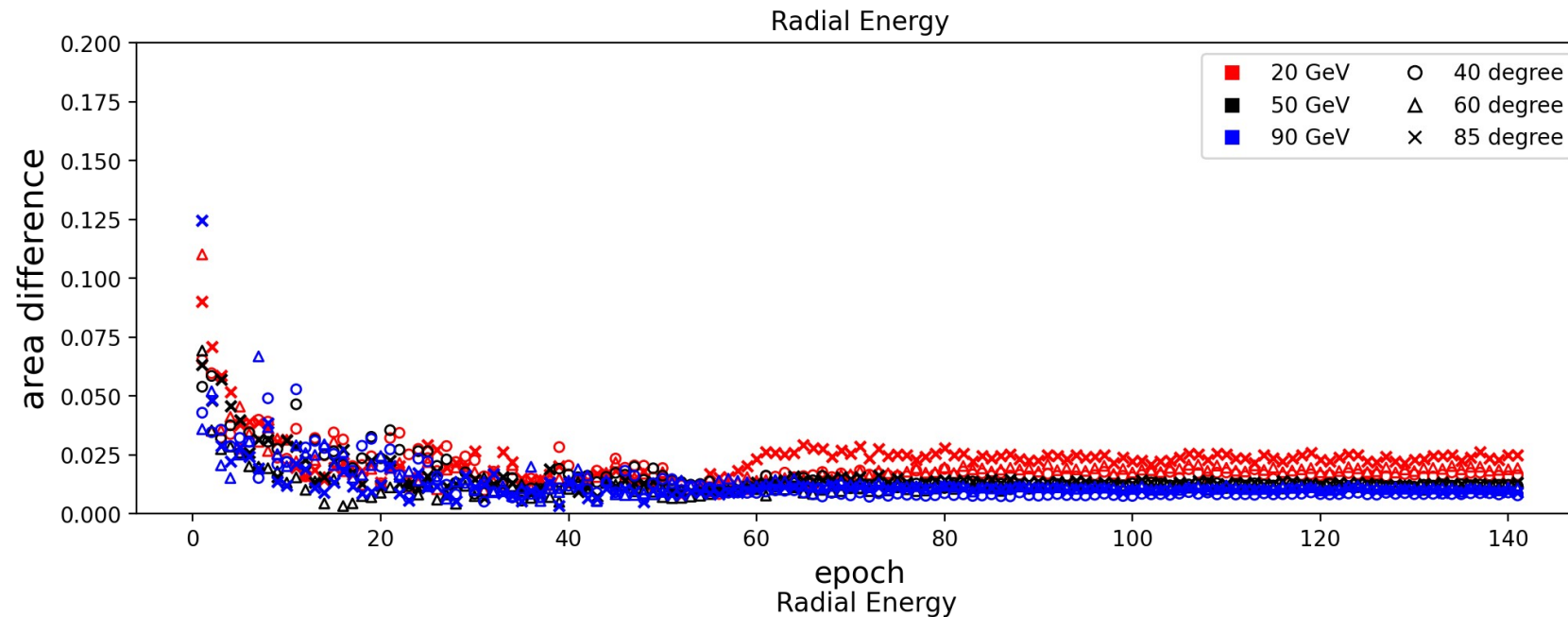


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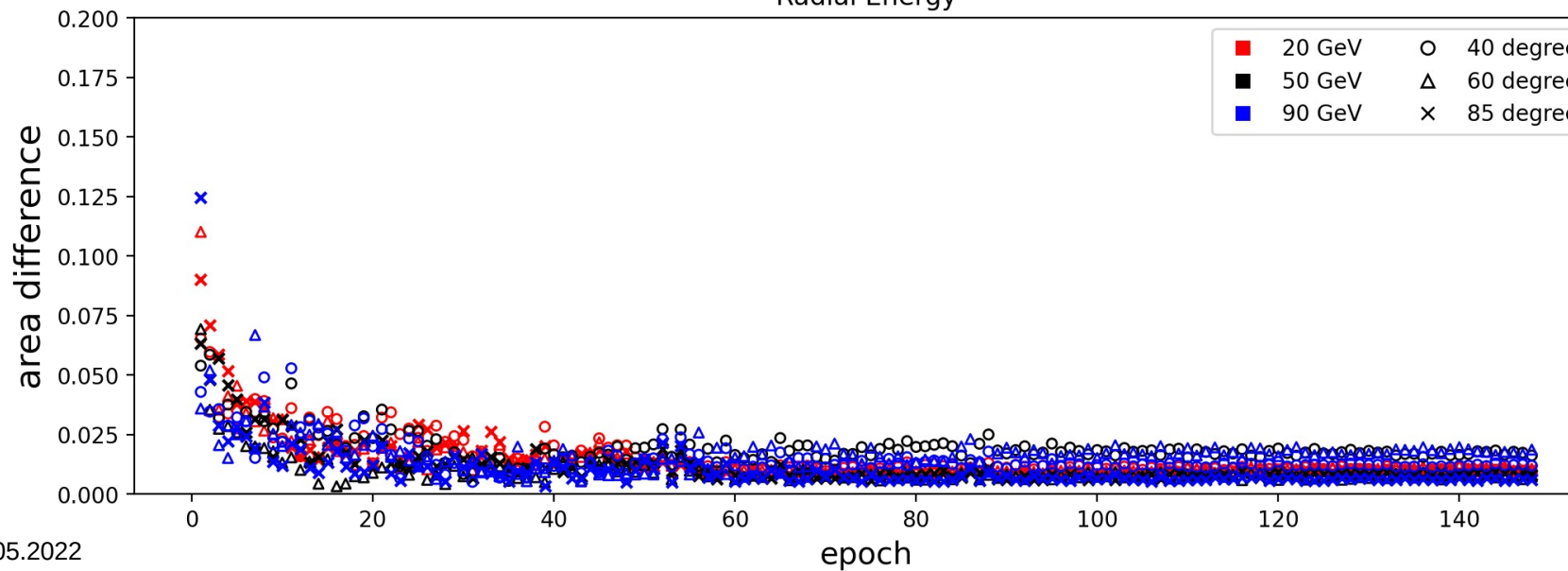


E+A Fidelity sweep: Radial Energy

With LNorm:

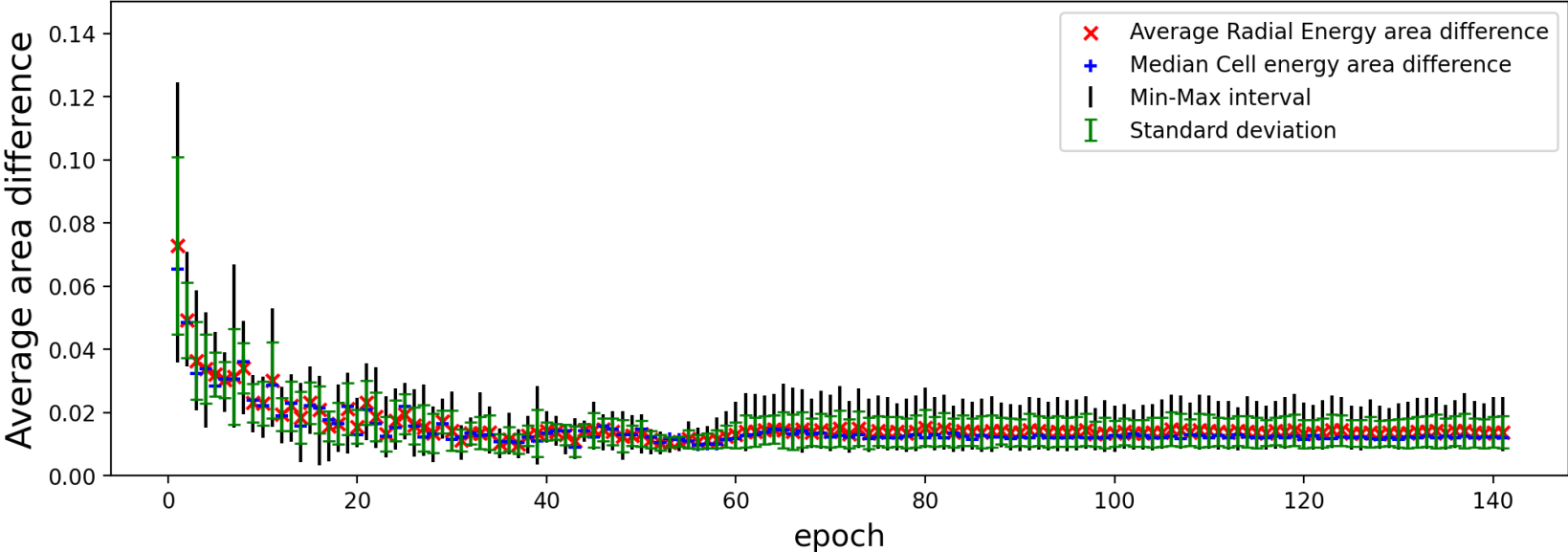


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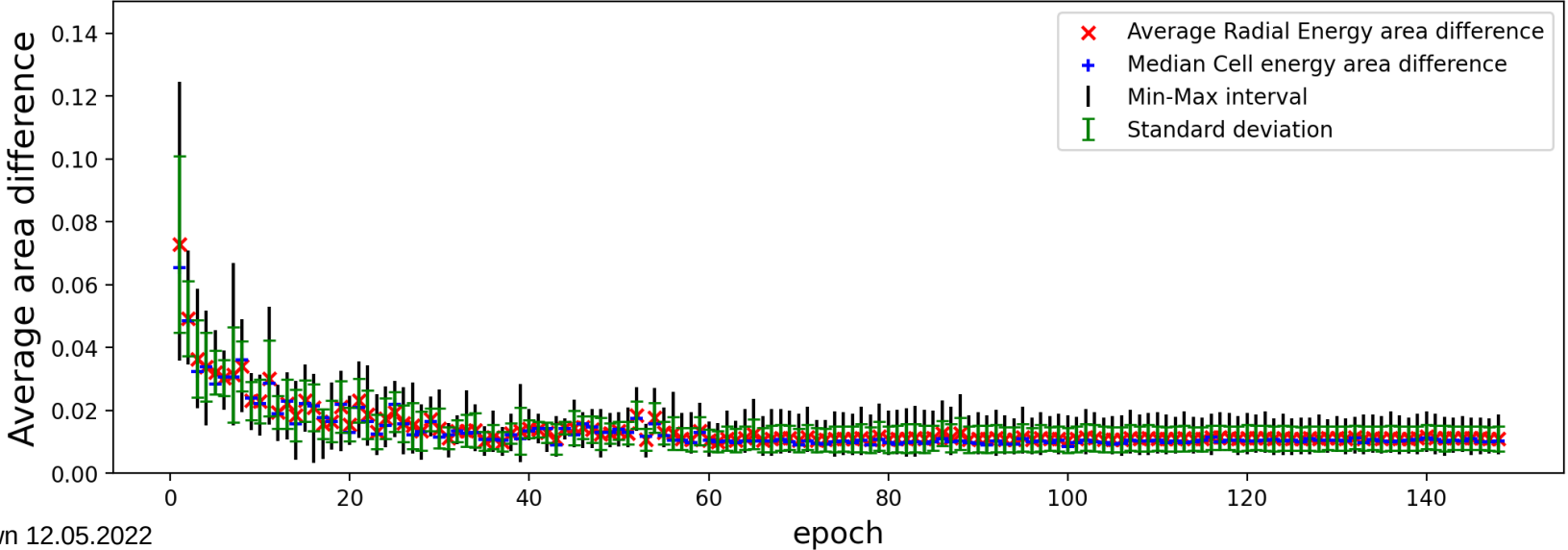


E+A Fidelity sweep: Radial Energy

With LNorm:

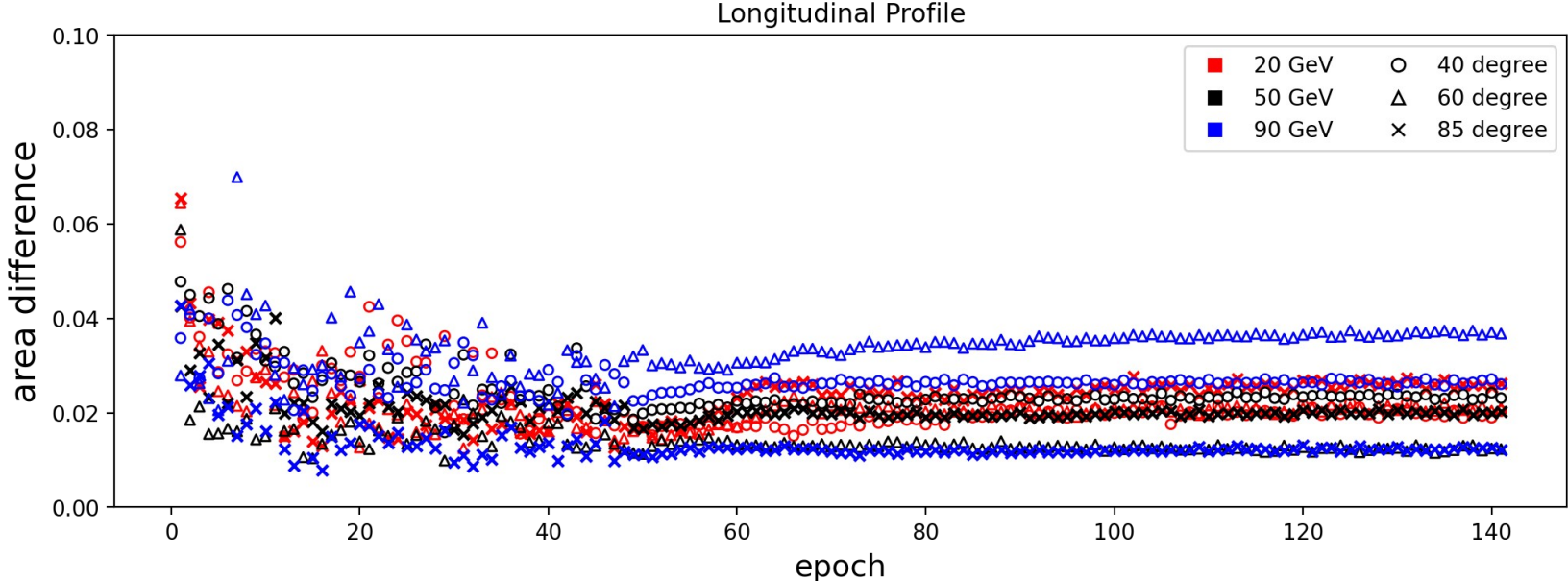


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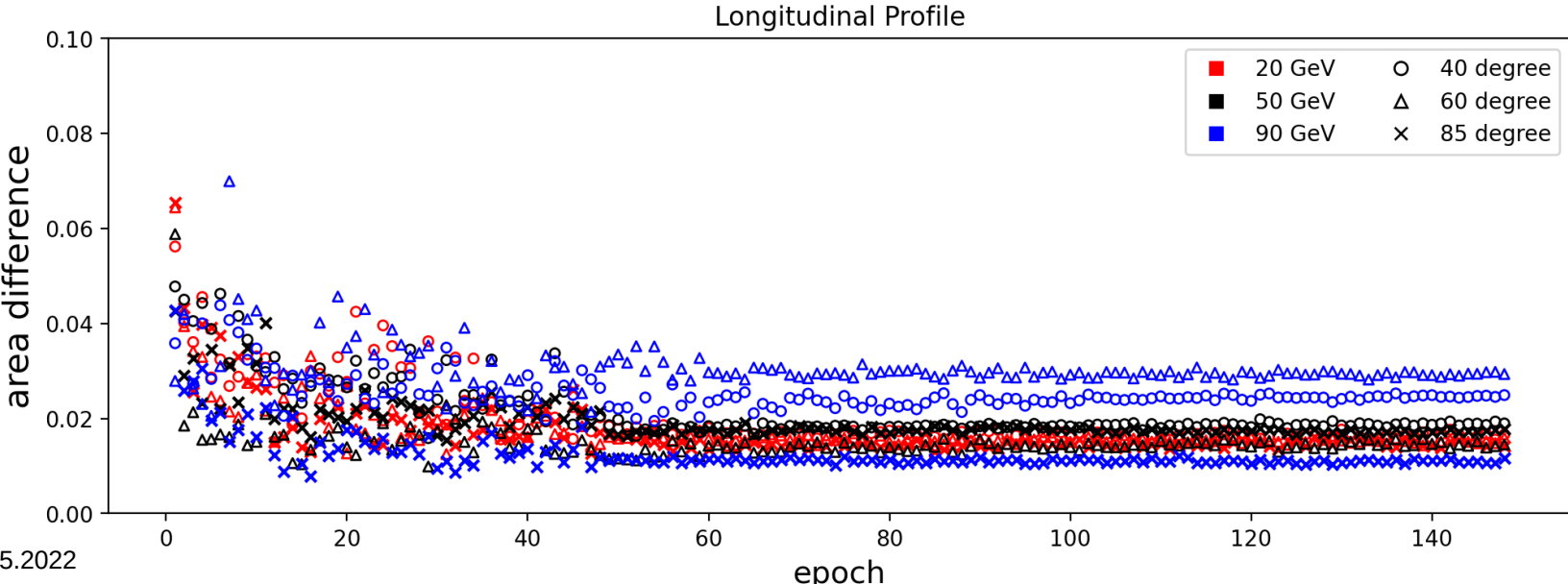


E+A Fidelity sweep: Longitudinal Profile

With LNorm:

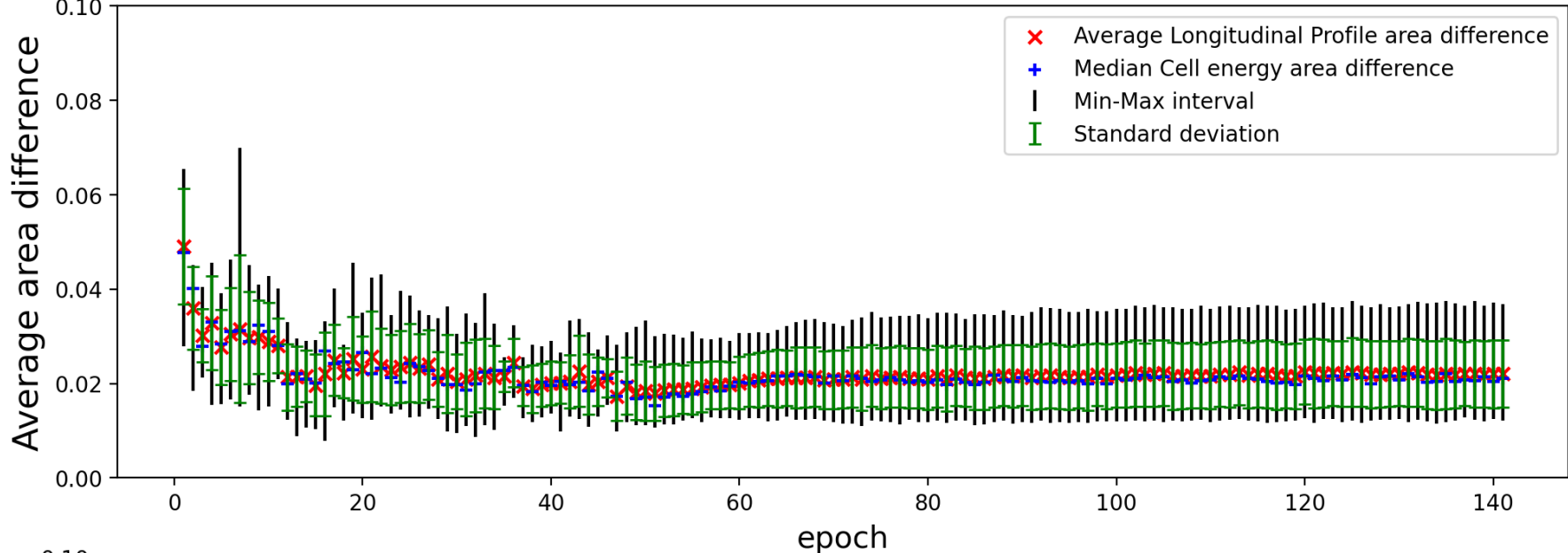


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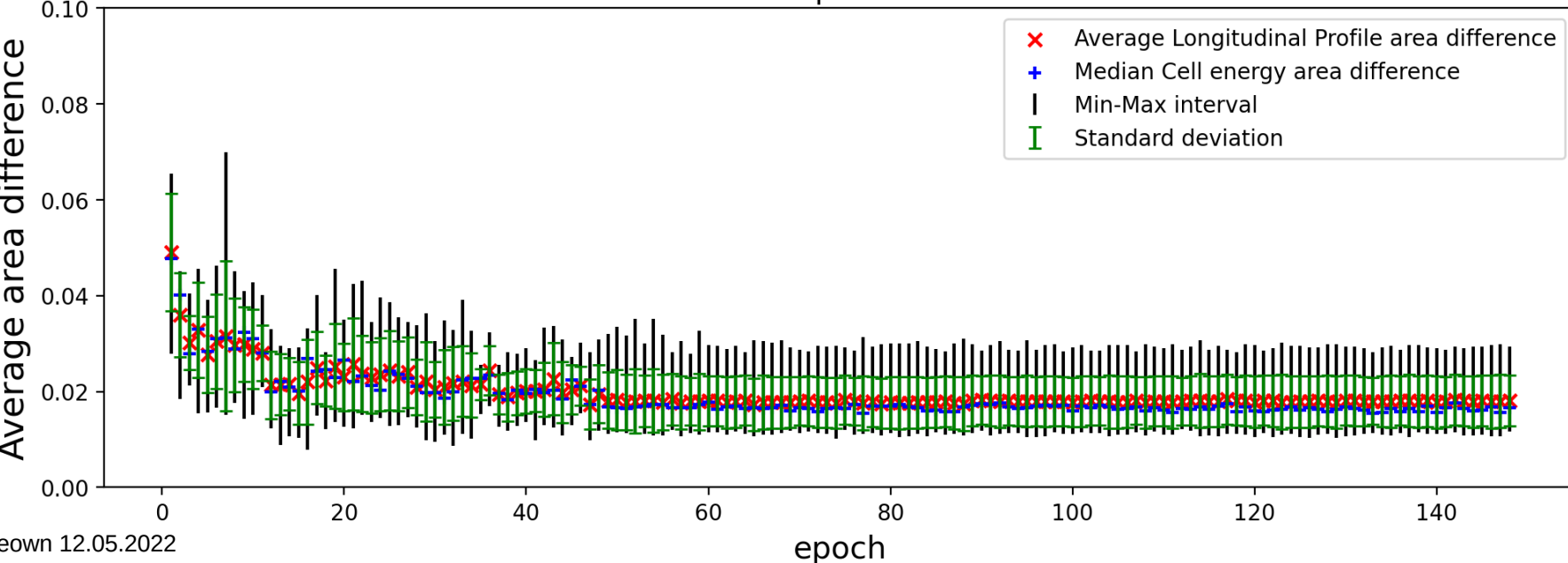


E+A Fidelity sweep: Longitudinal Profile

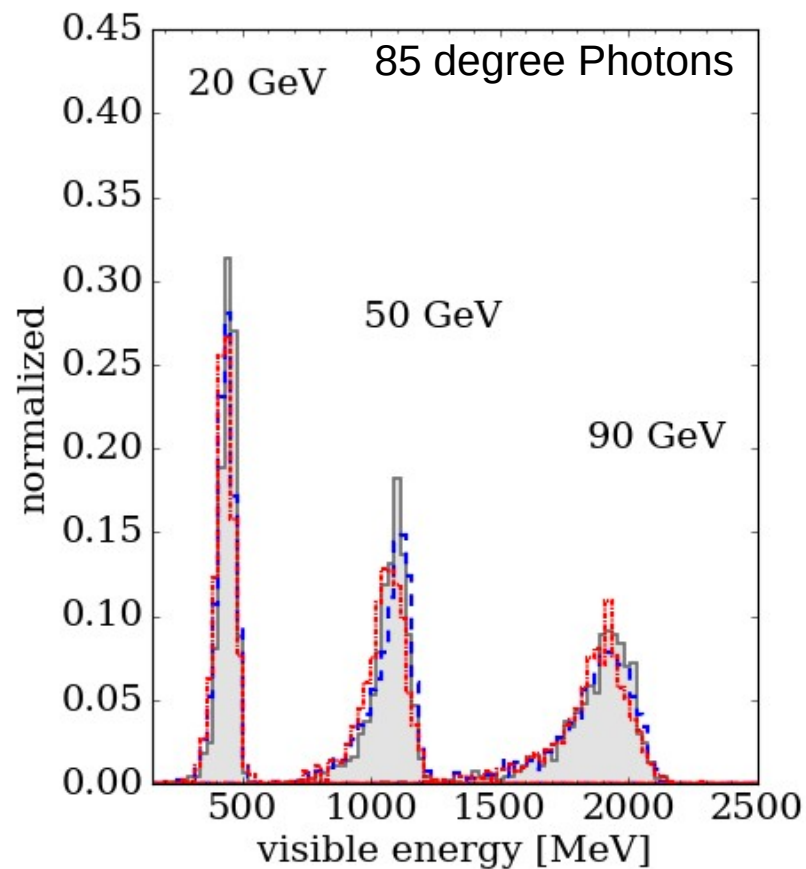
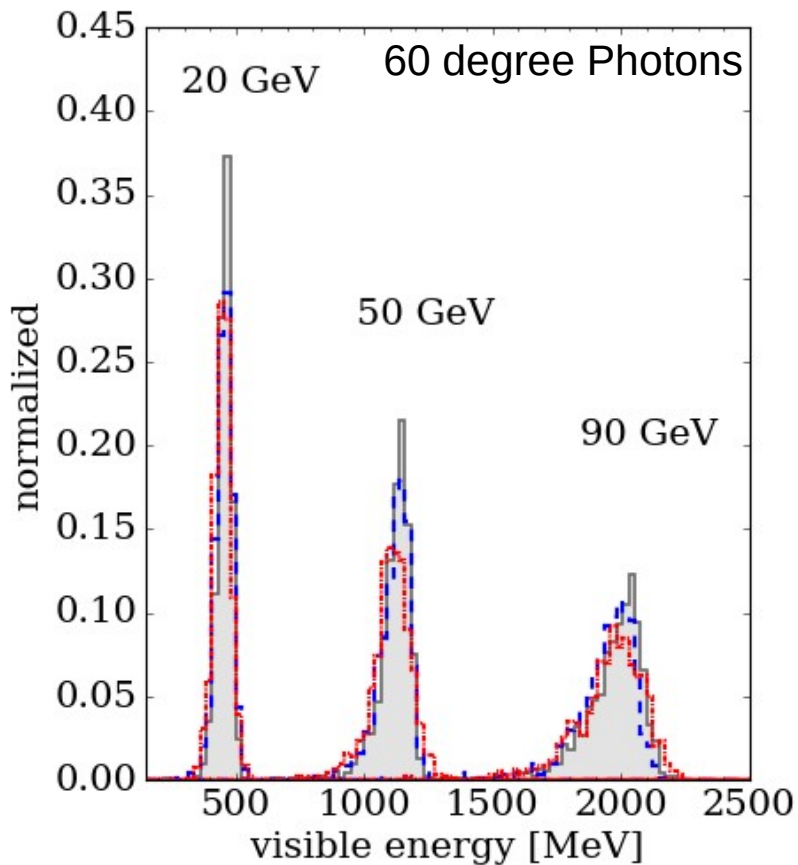
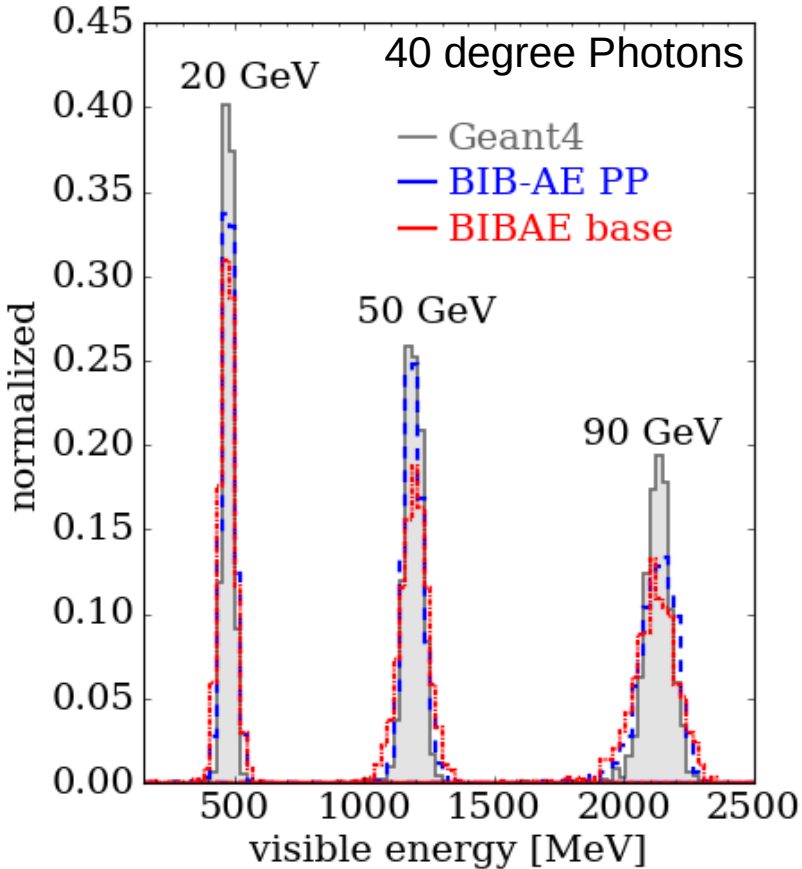
With LNorm:



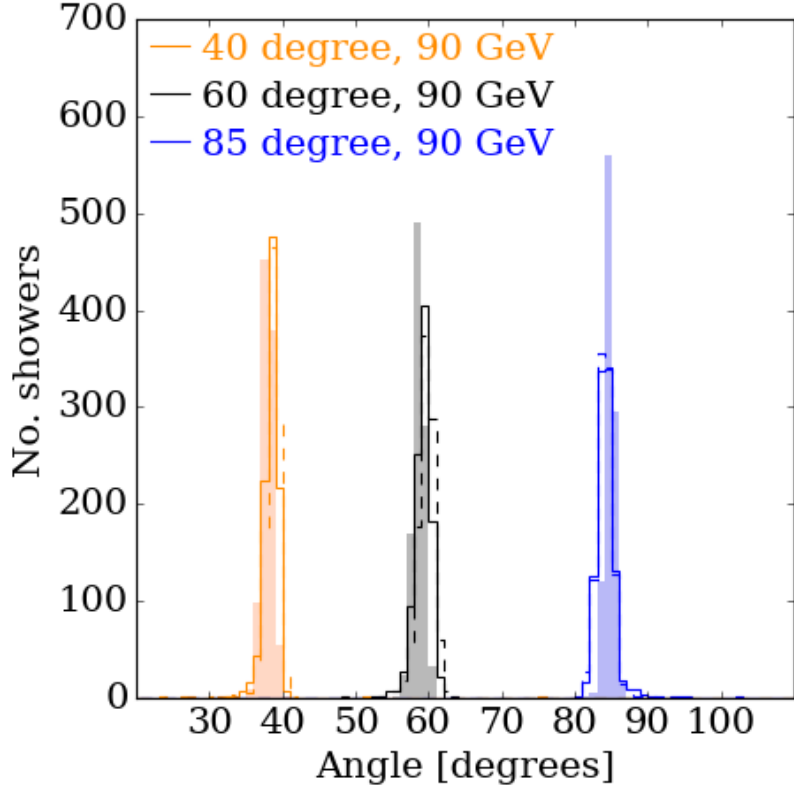
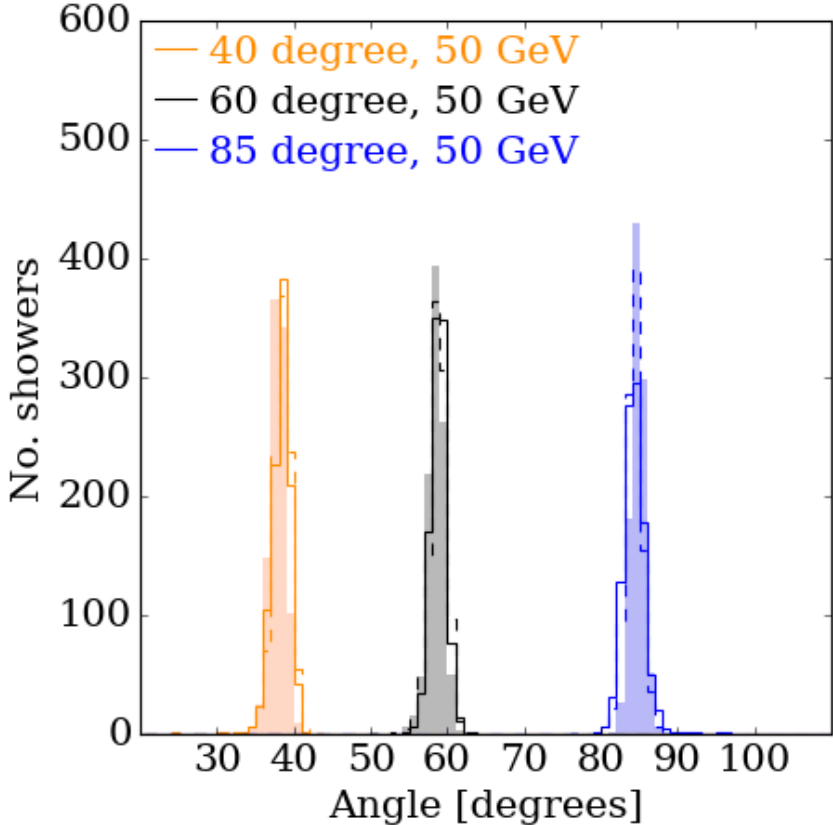
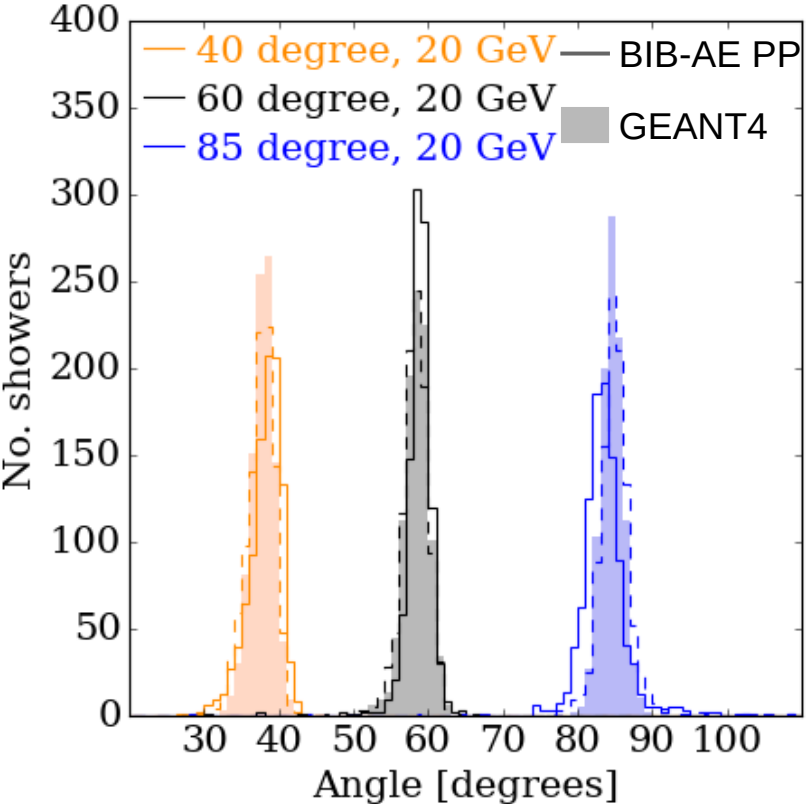
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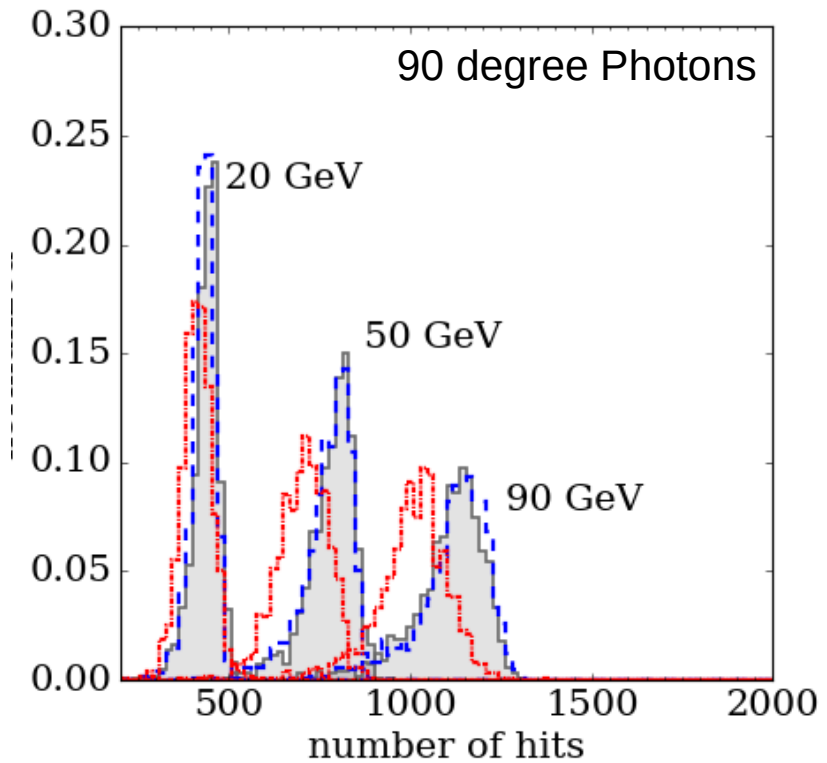
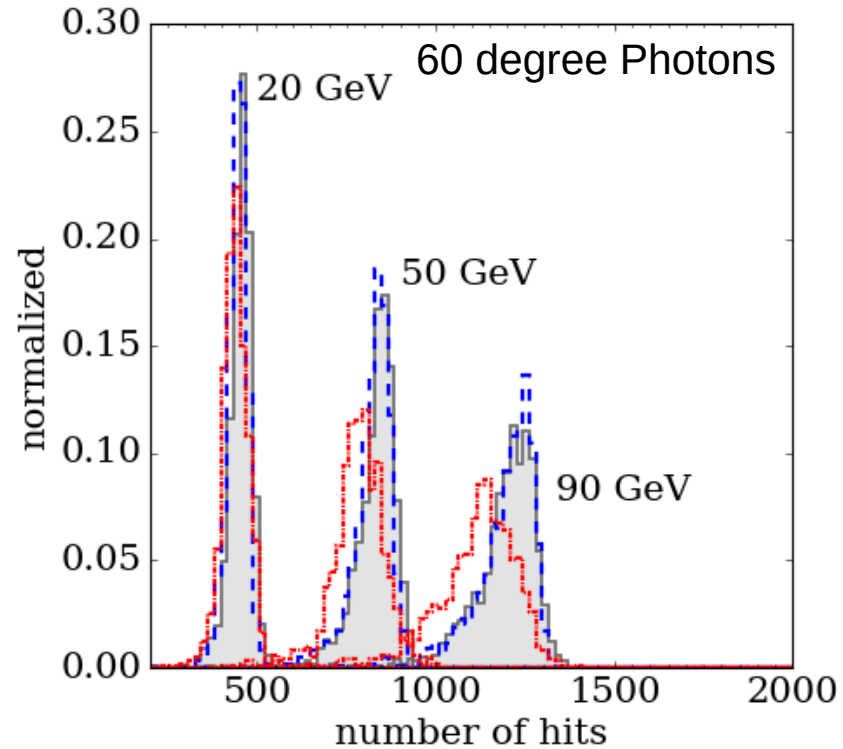
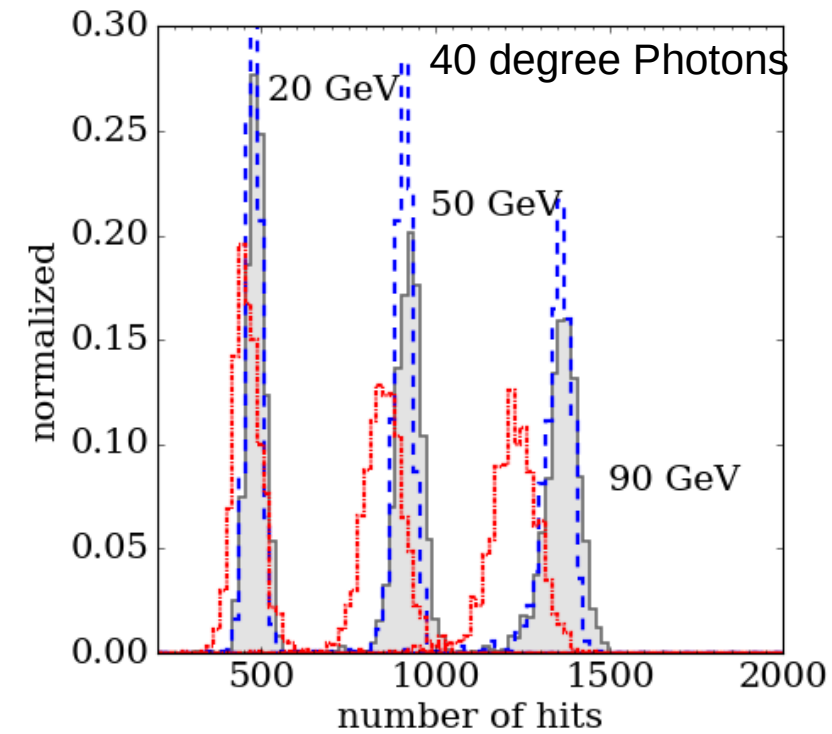
Results PP WITH LNorm, ep.81: Visible Energy Sum



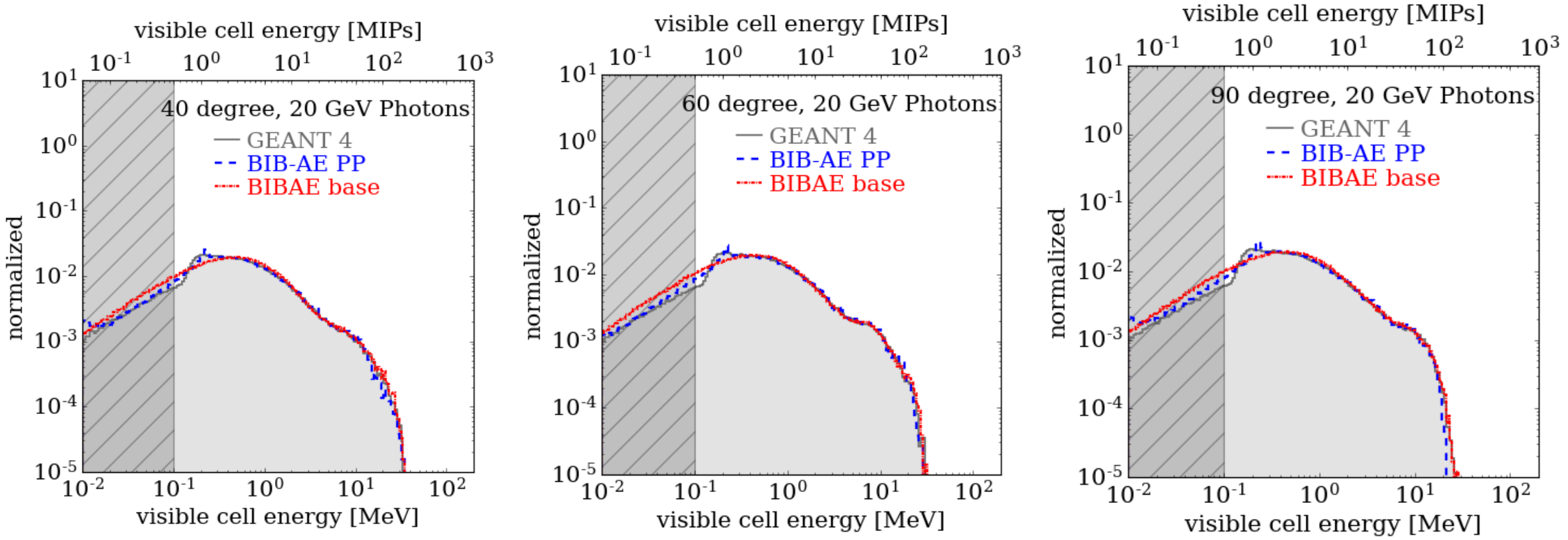
Results: Angular Reconstruction Distributions



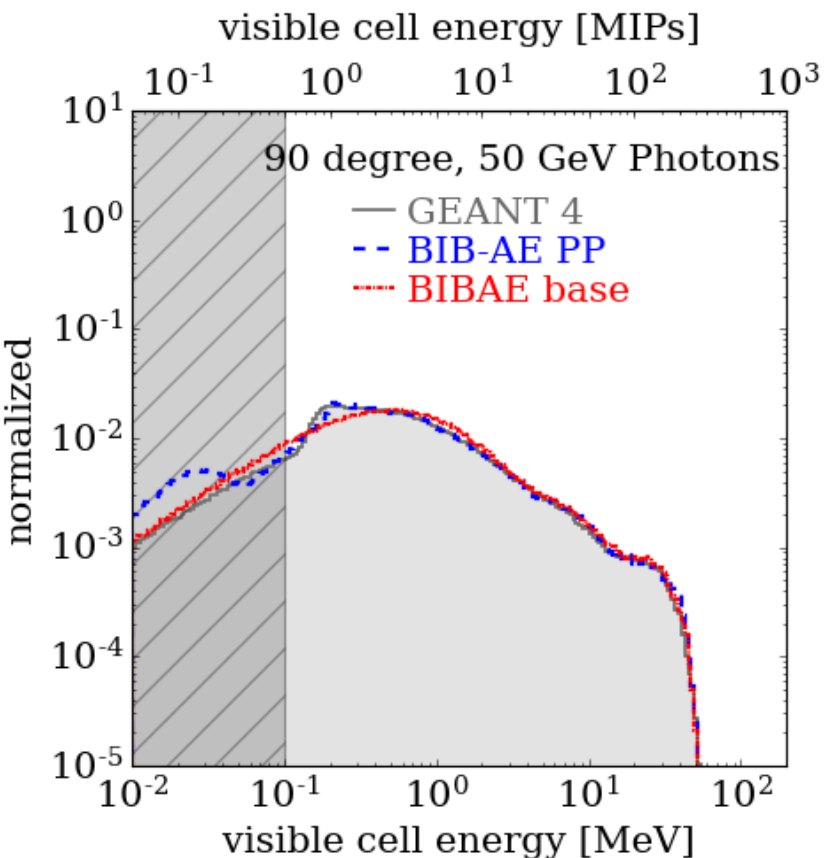
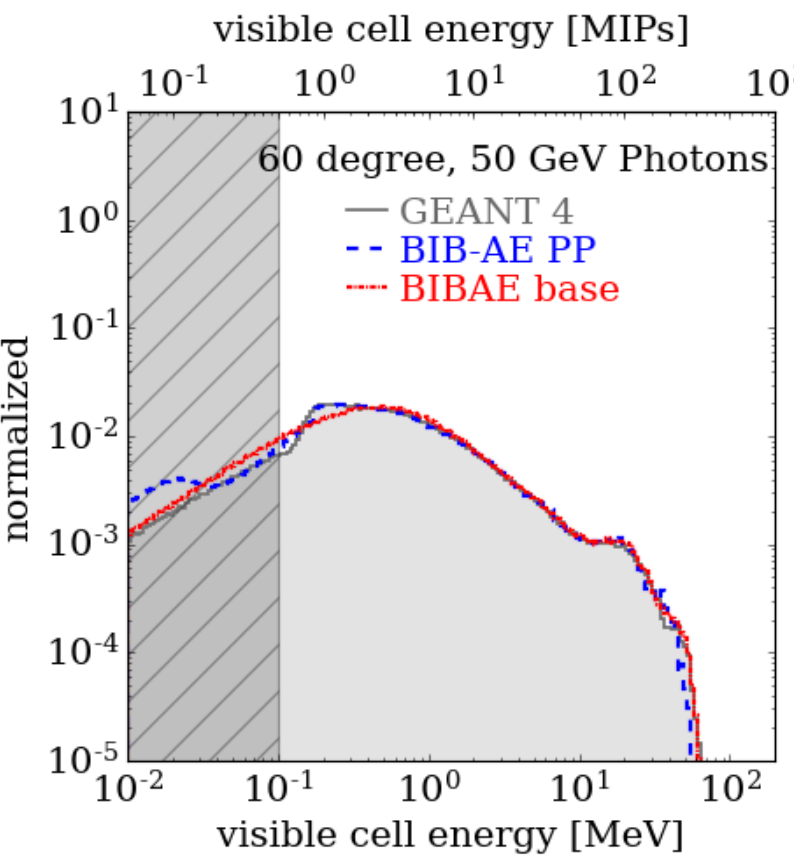
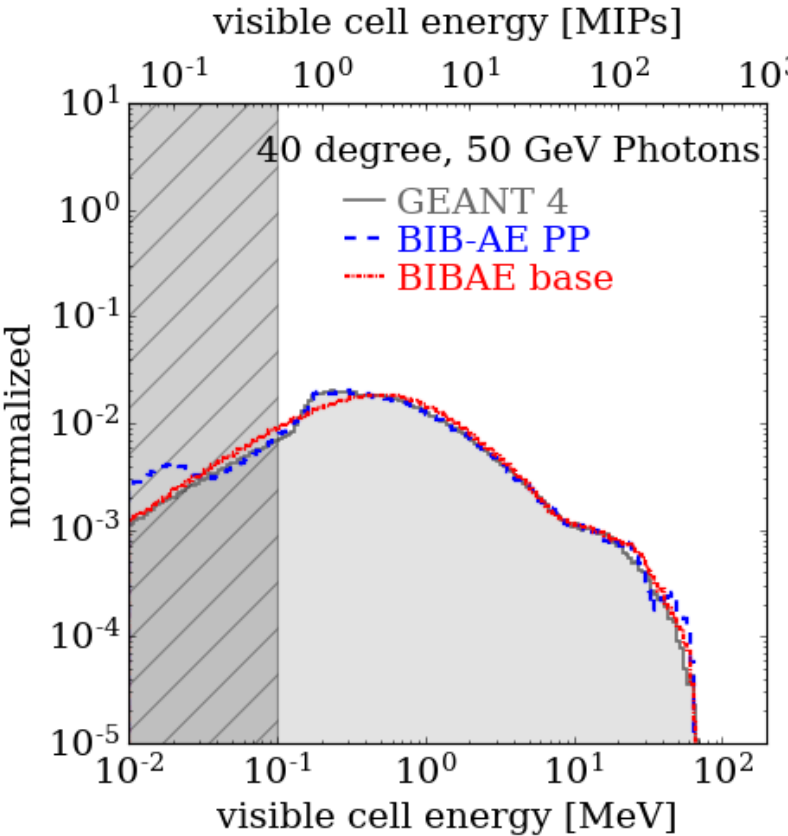
Results: Number of Hits



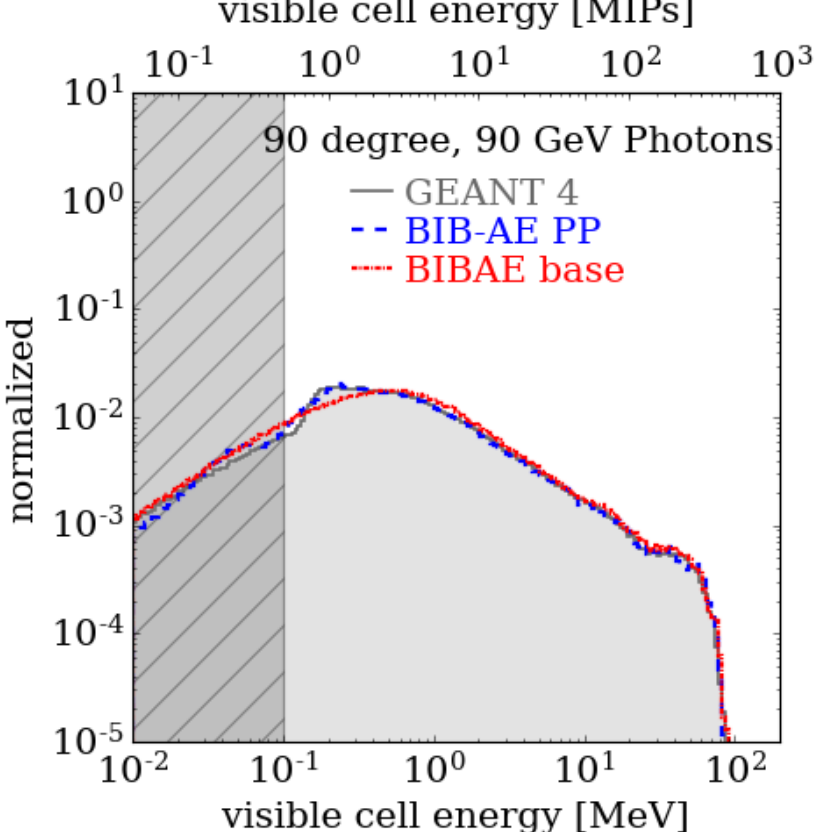
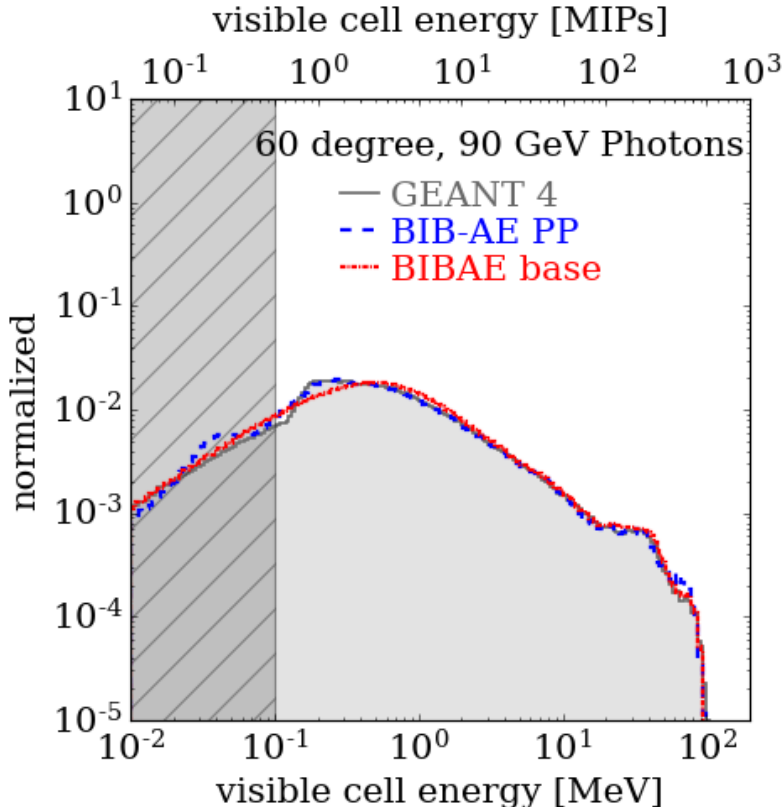
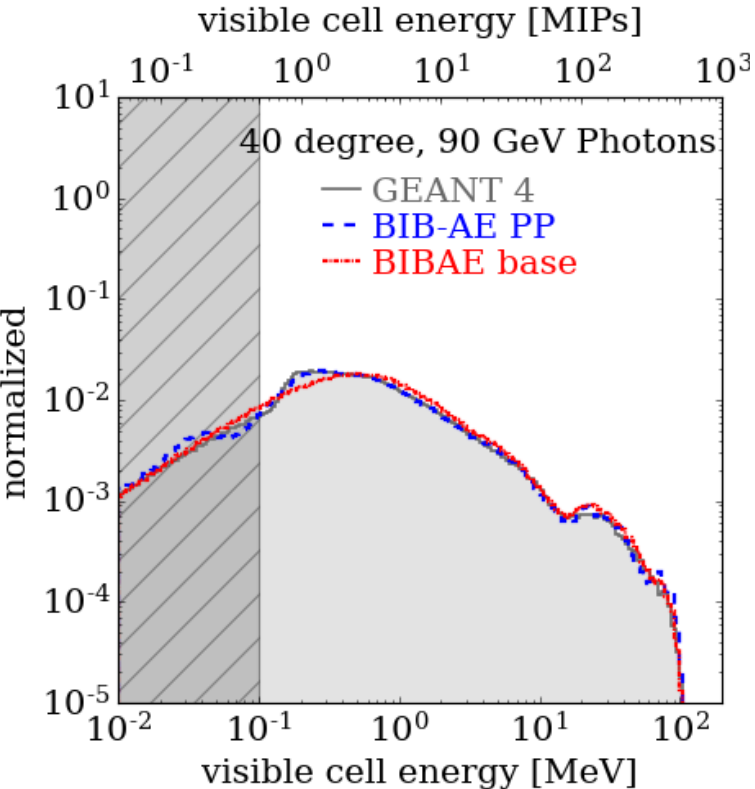
Results: Cell Energy



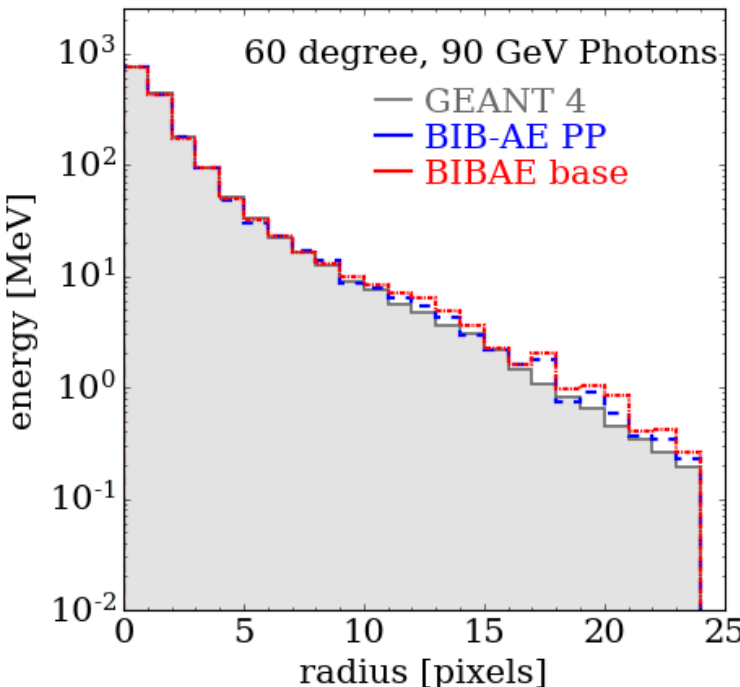
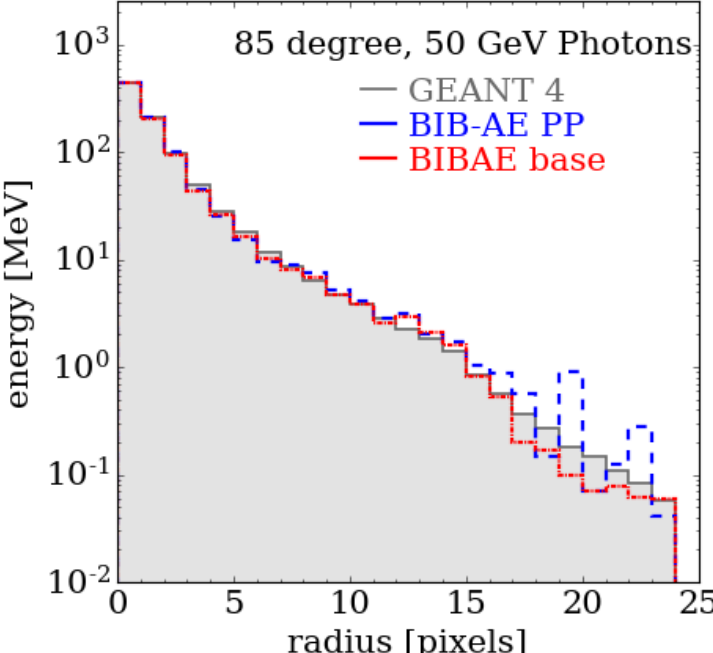
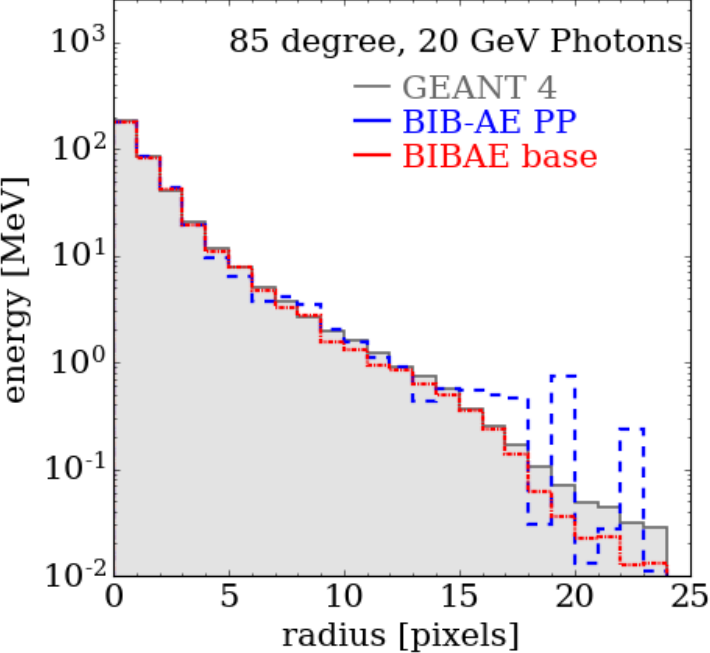
Results: Cell Energy



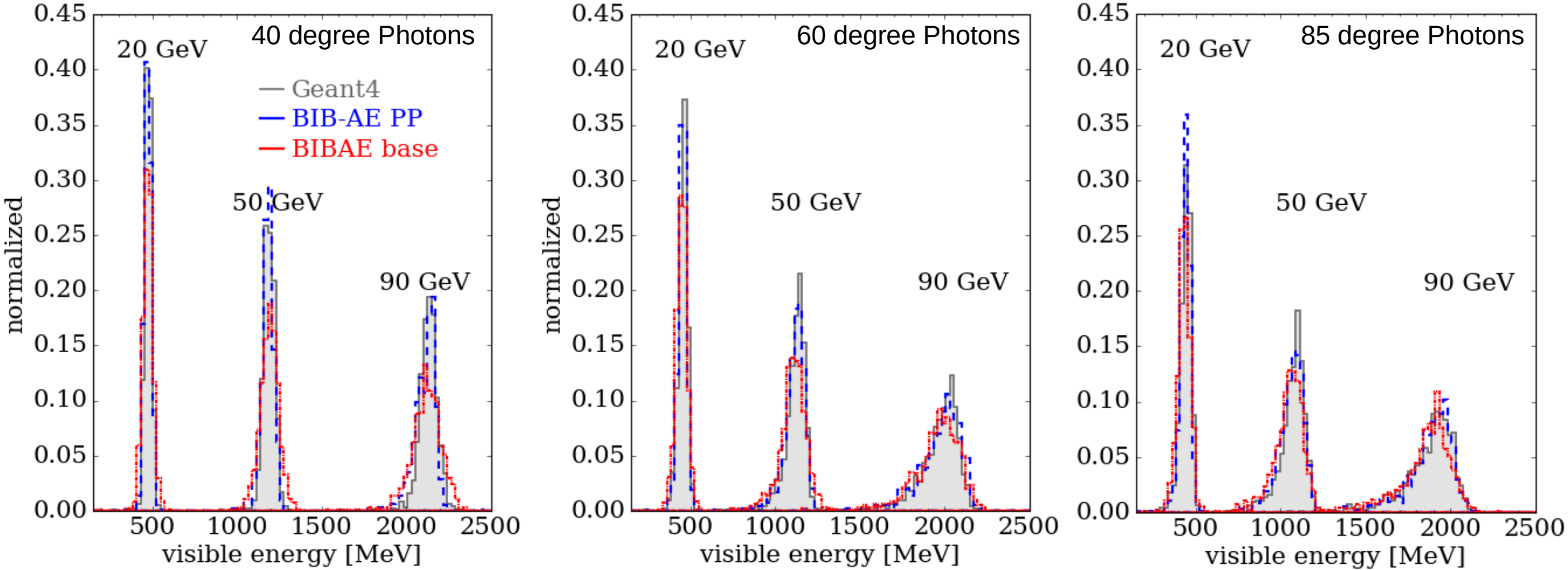
Results: Cell Energy



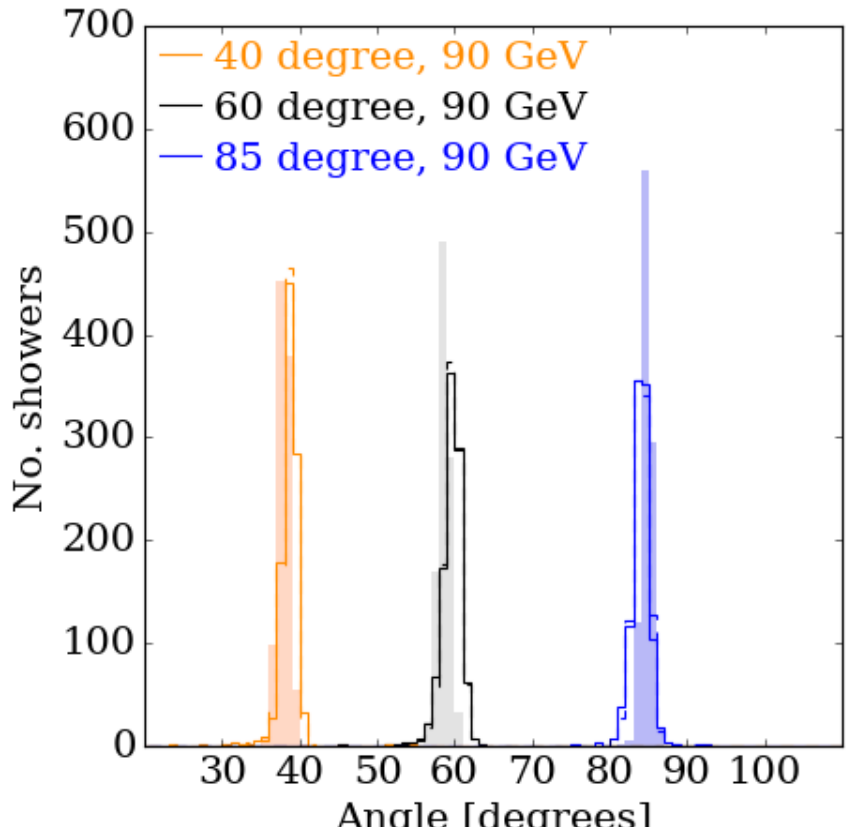
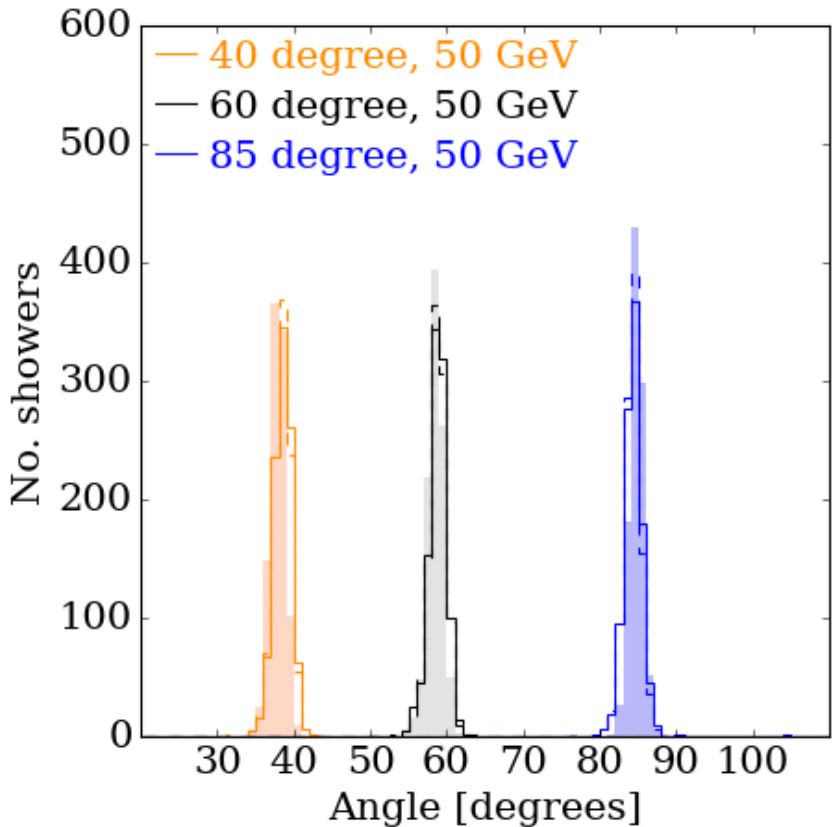
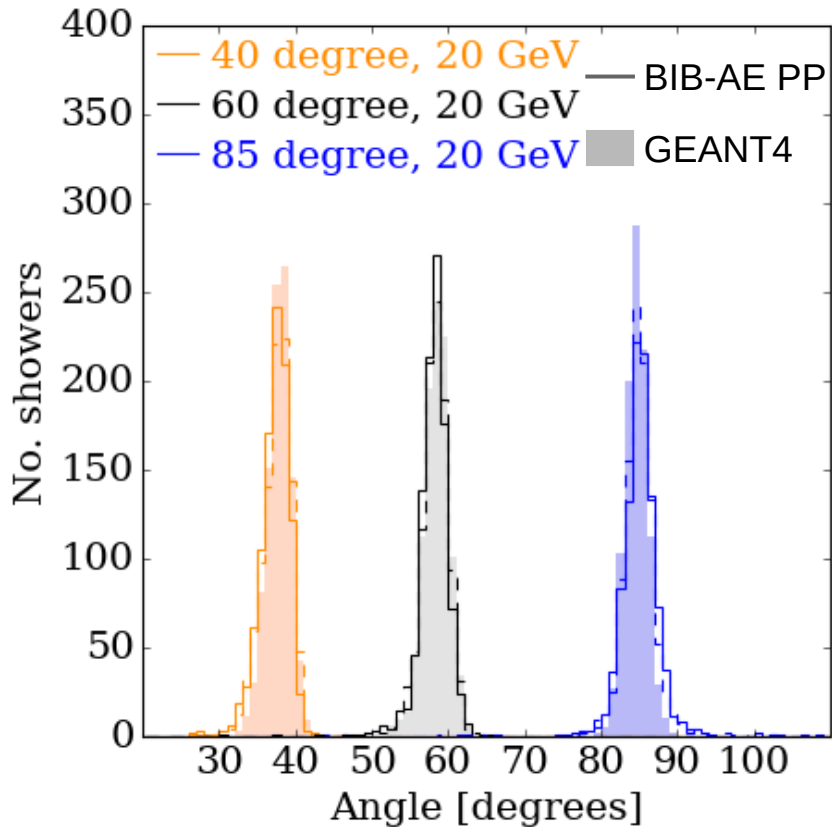
Results: Radial Profile



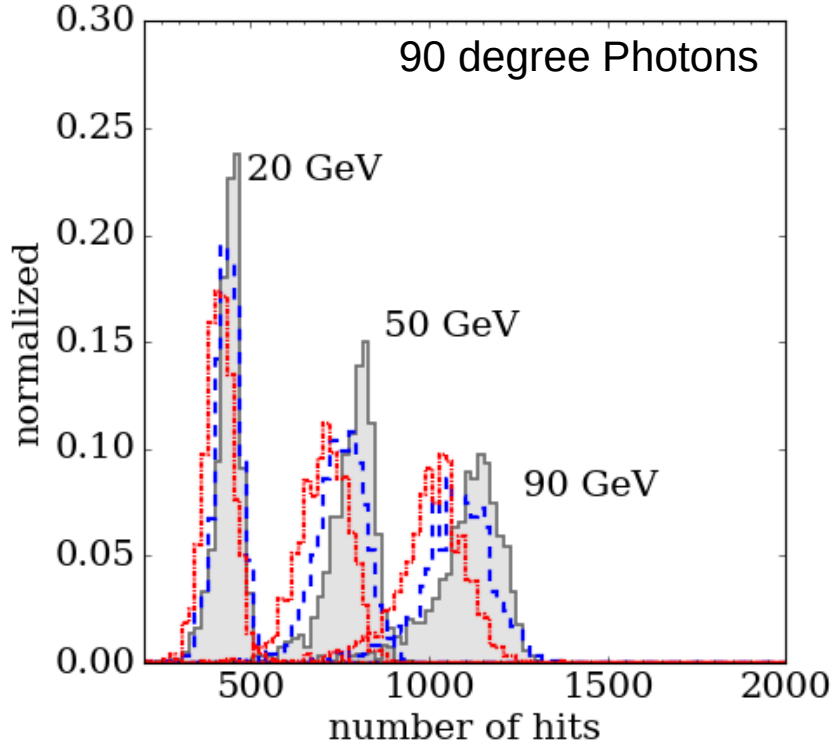
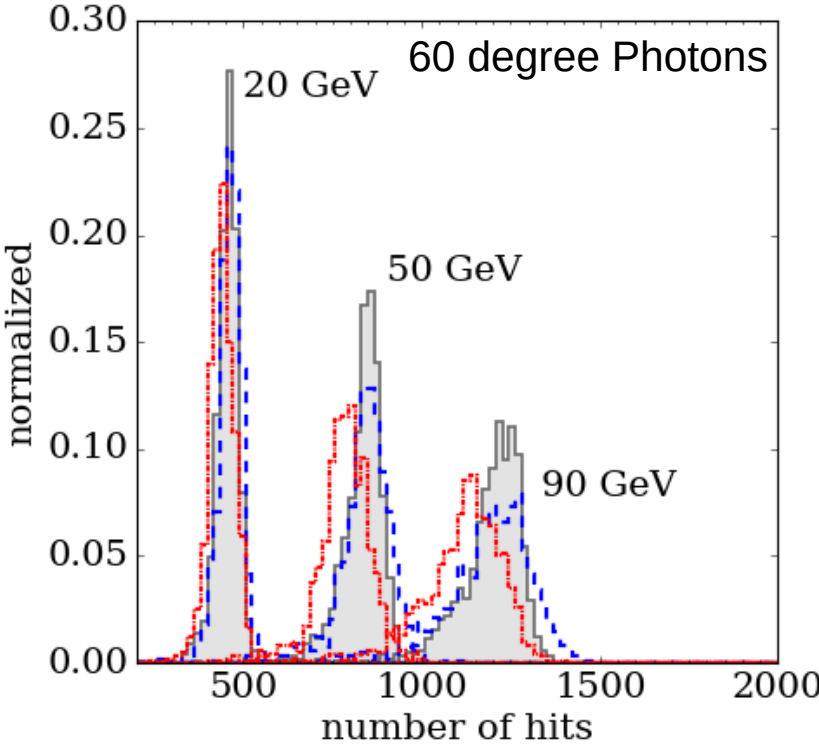
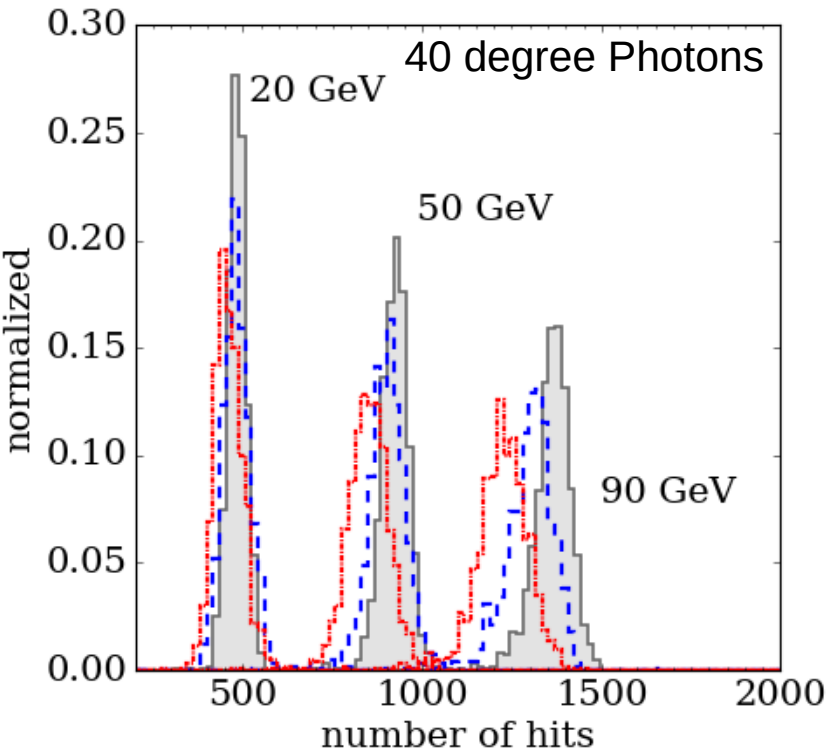
Results PP NO LNorm, ep.80: Visible Energy Sum



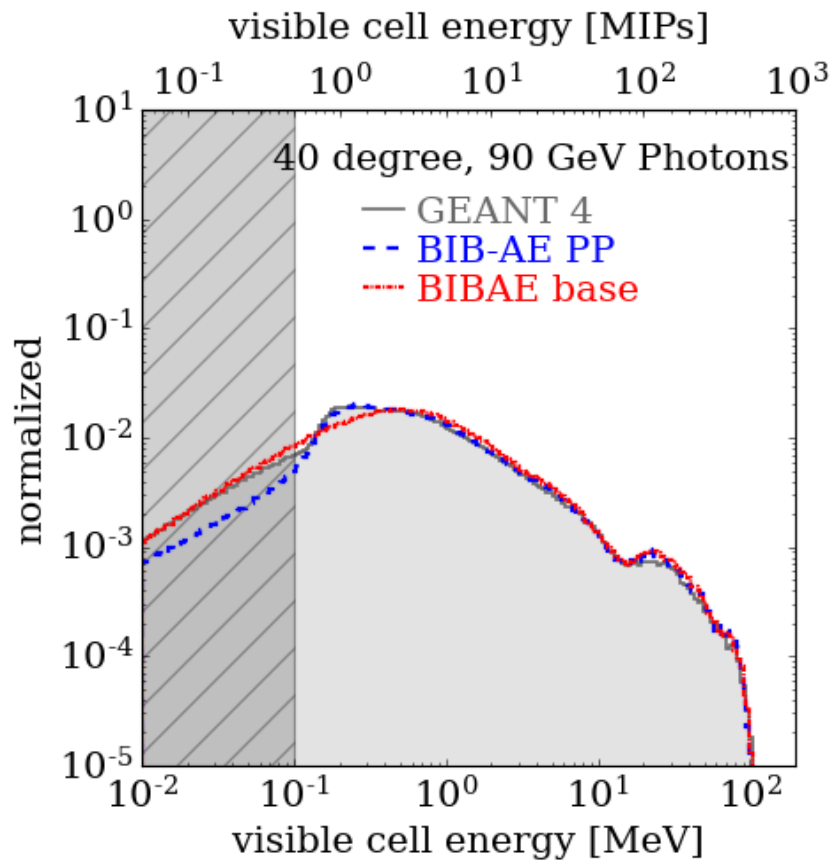
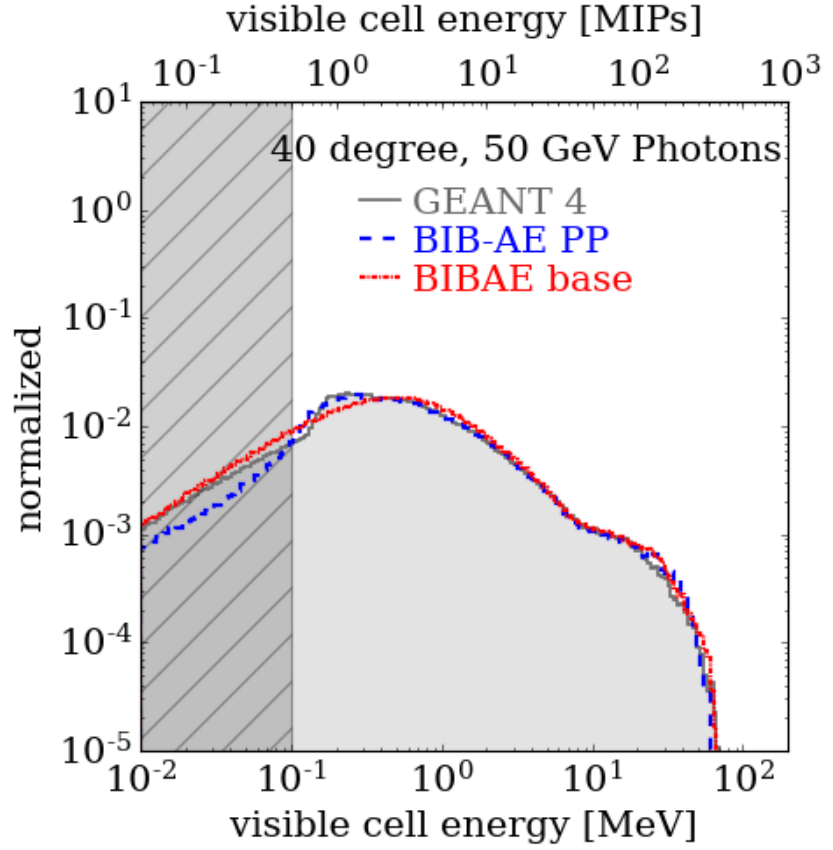
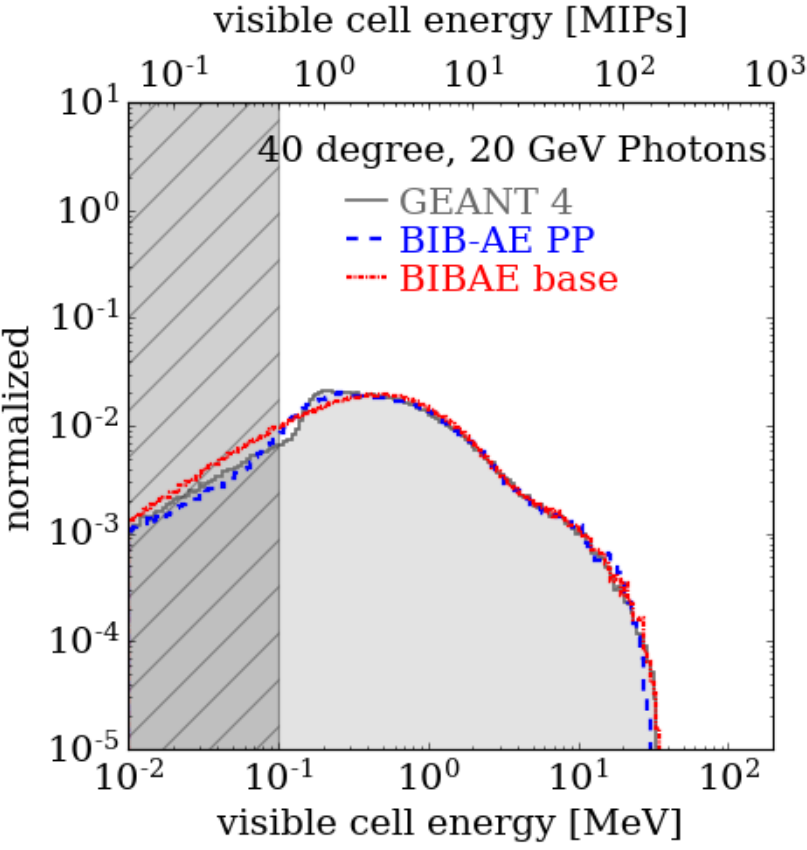
Results: Angular Reconstruction Distributions



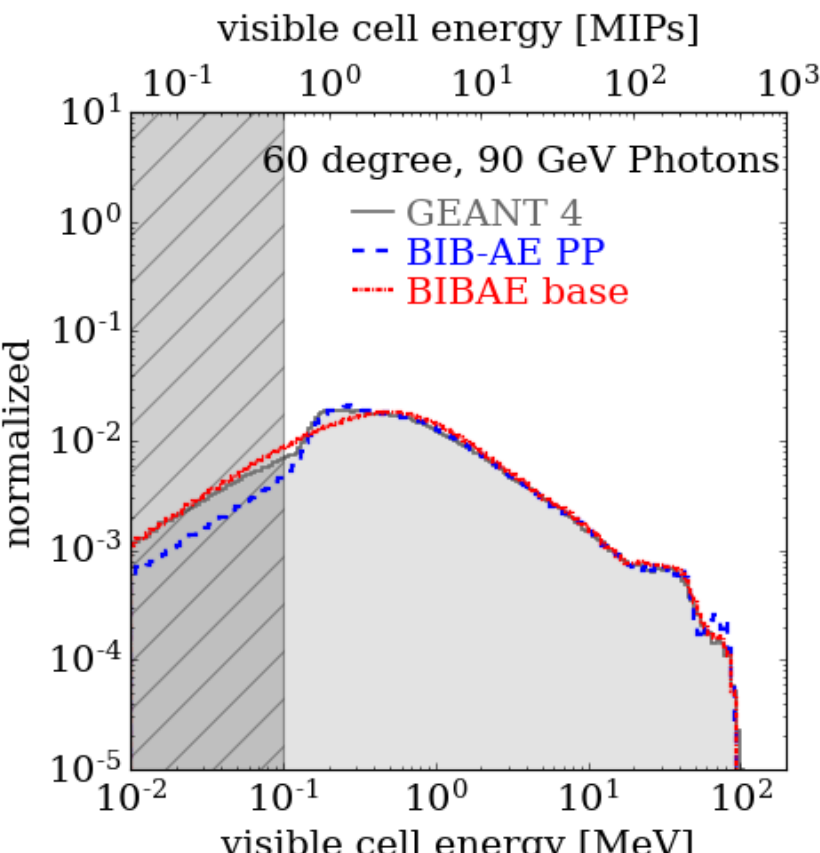
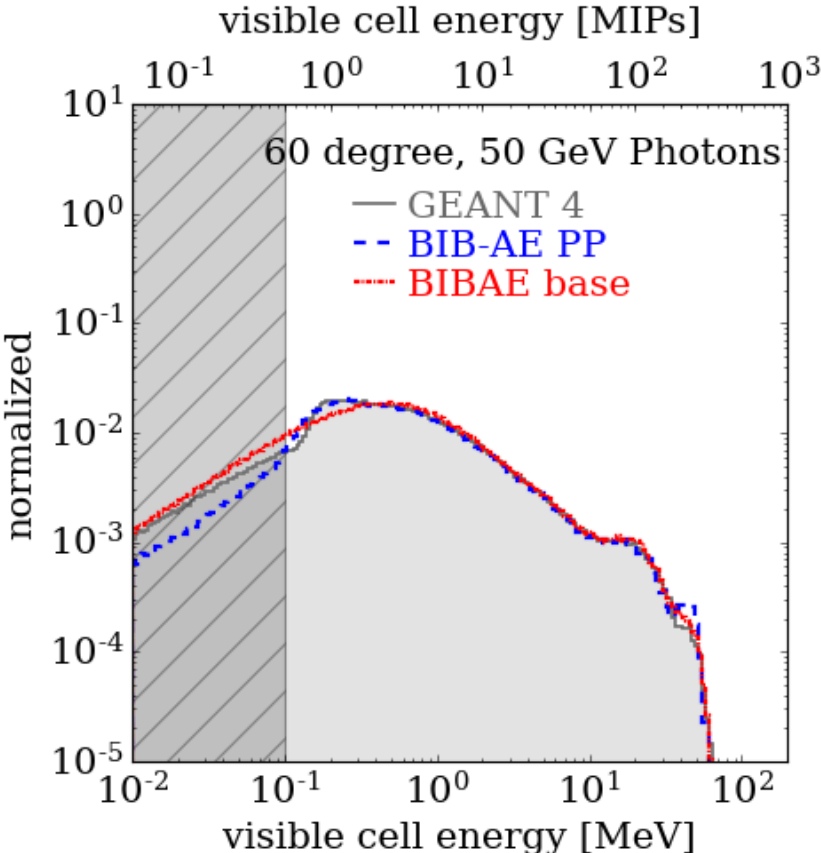
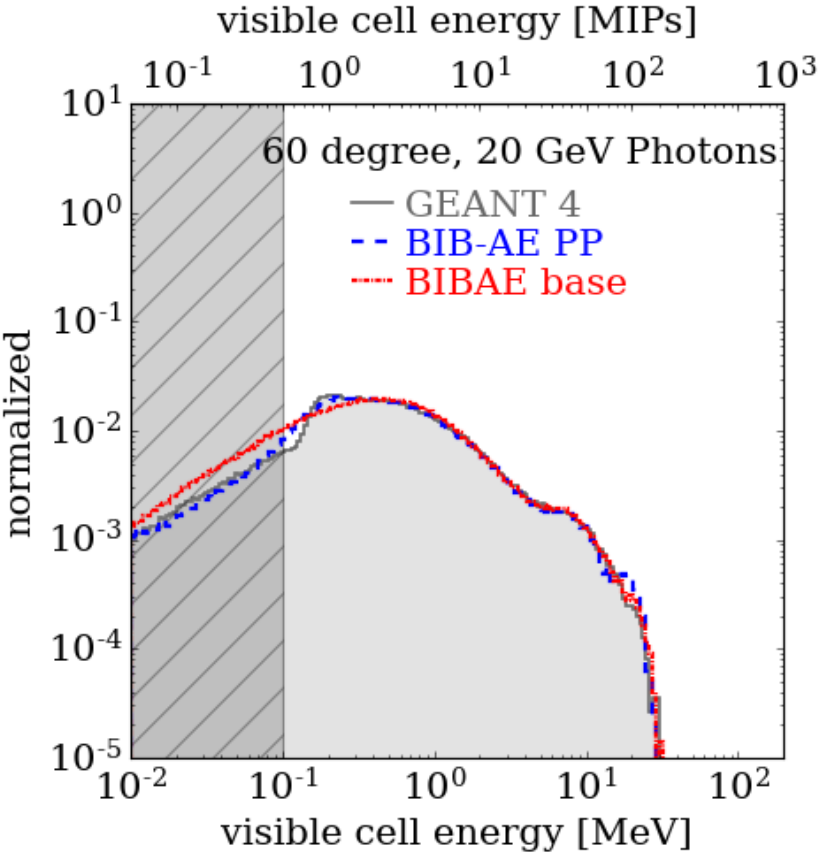
Results: Number of Hits



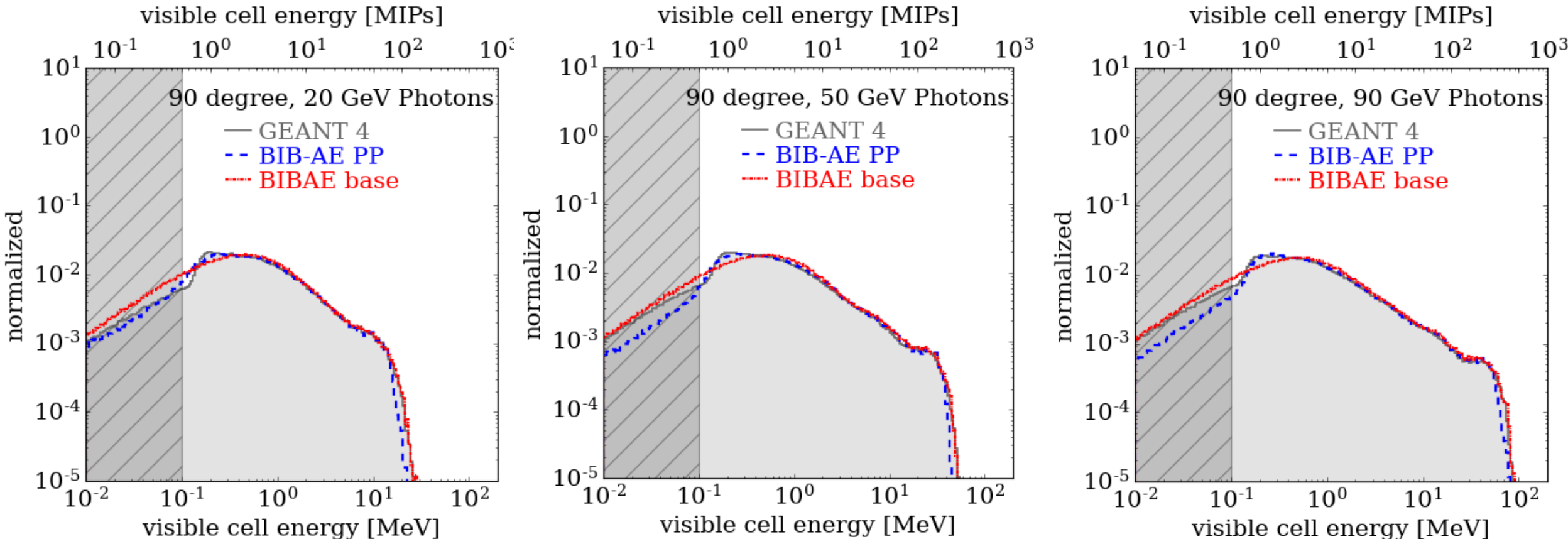
Results: Cell Energy



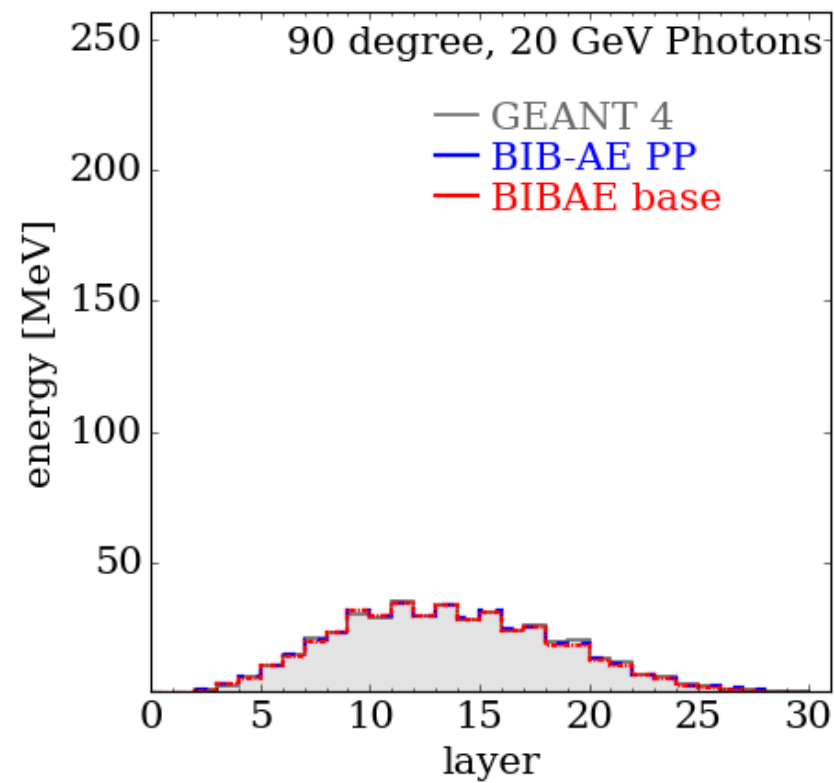
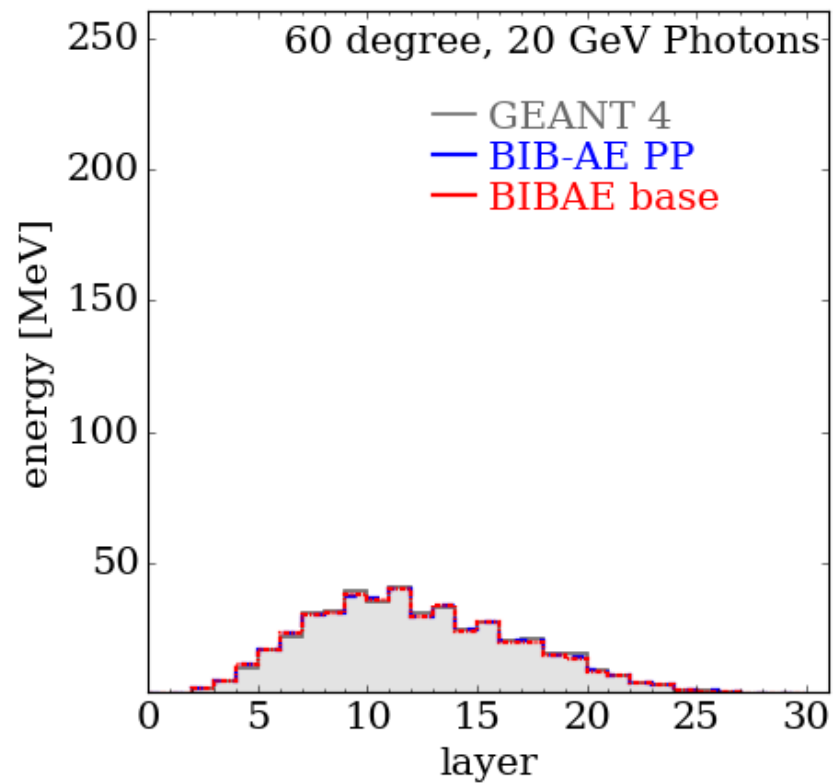
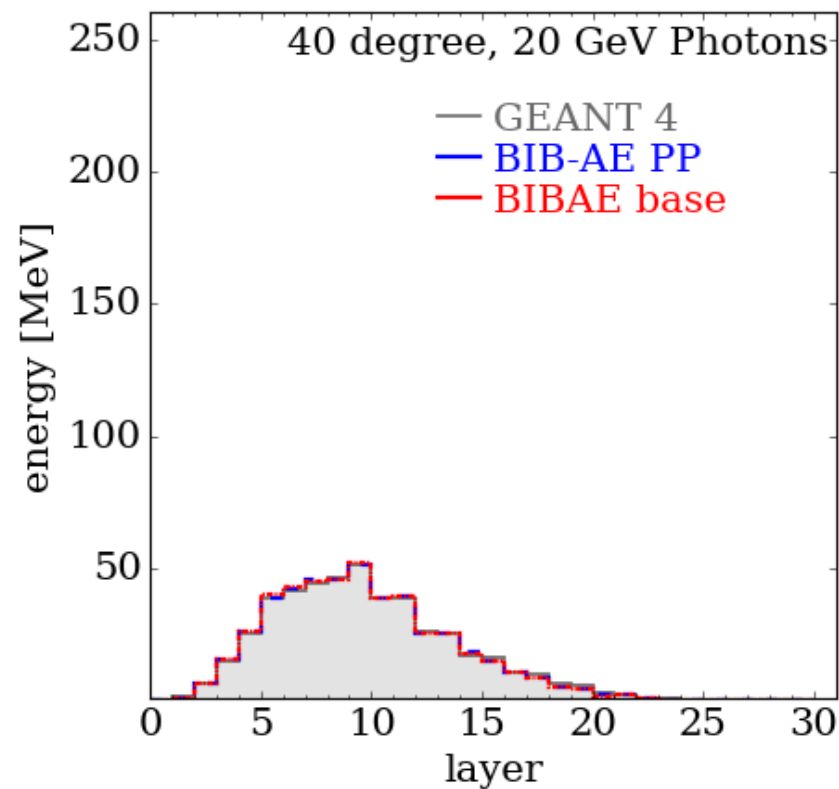
Results: Cell Energy



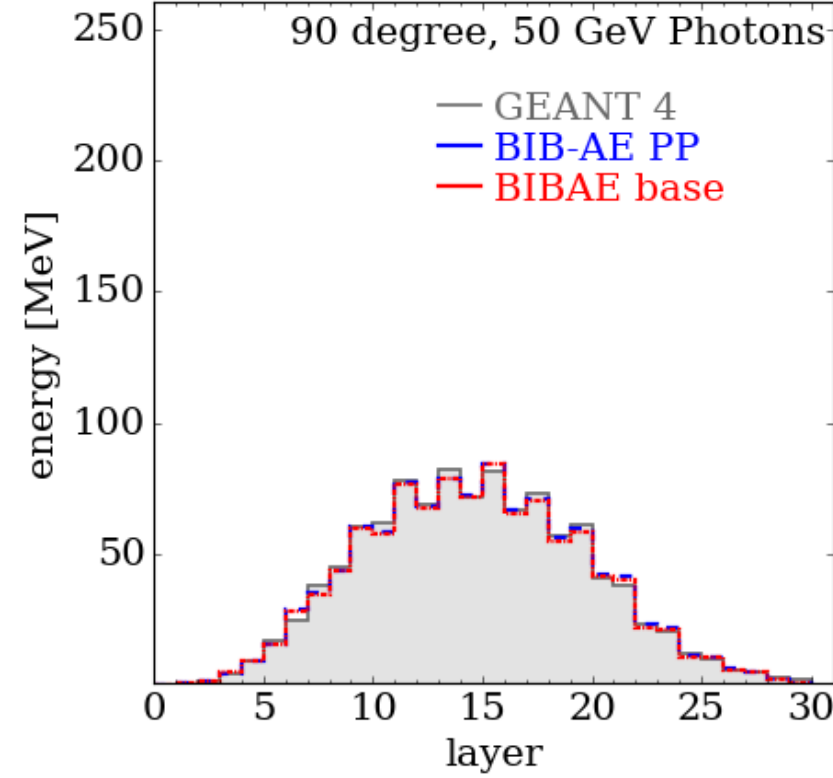
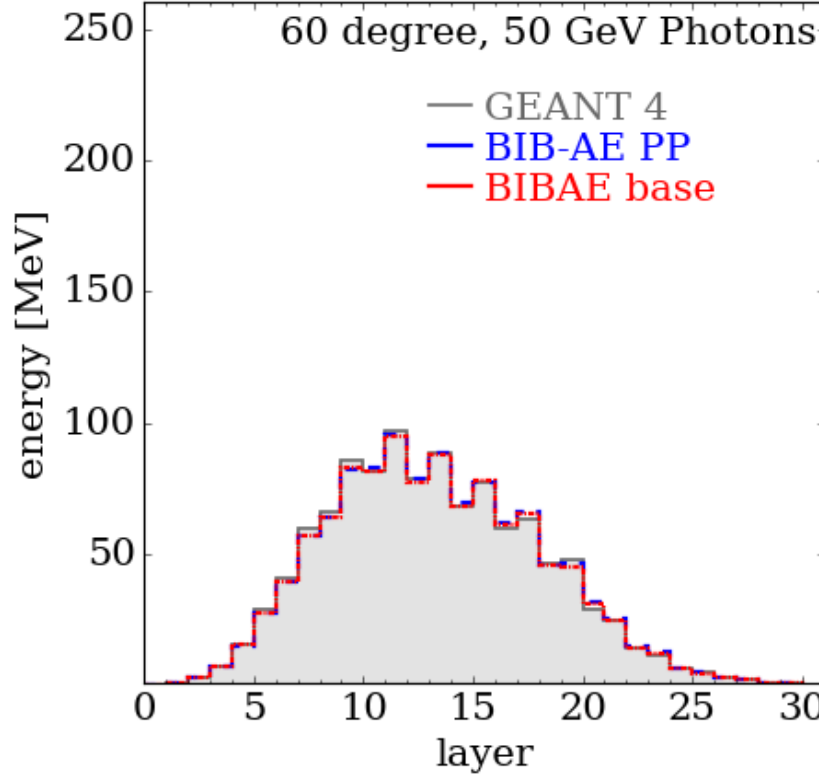
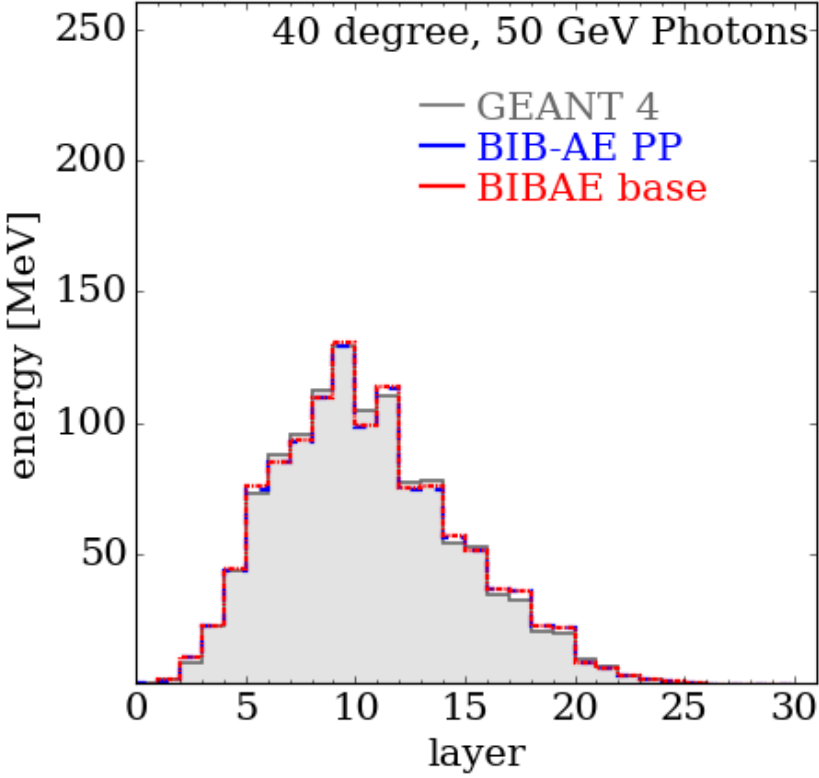
Results: Cell Energy



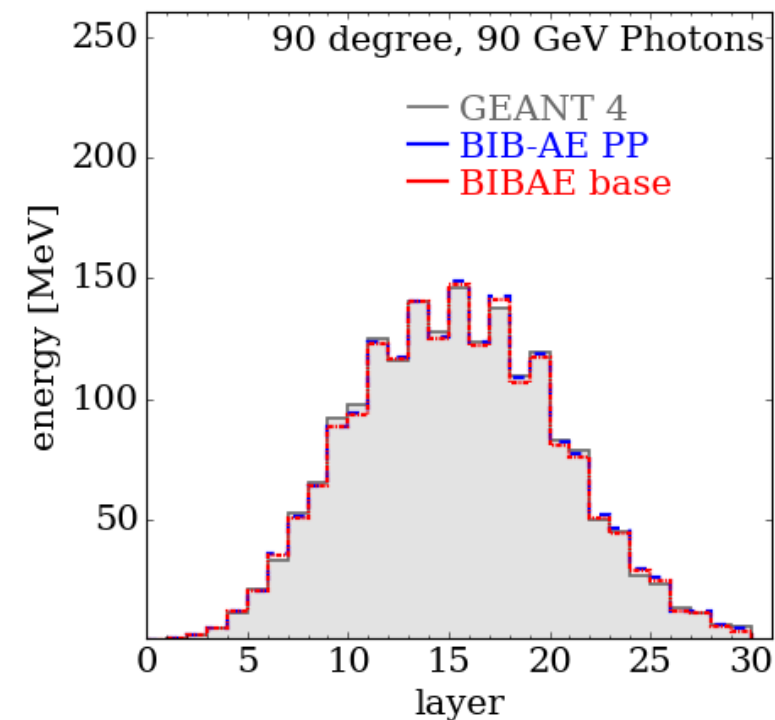
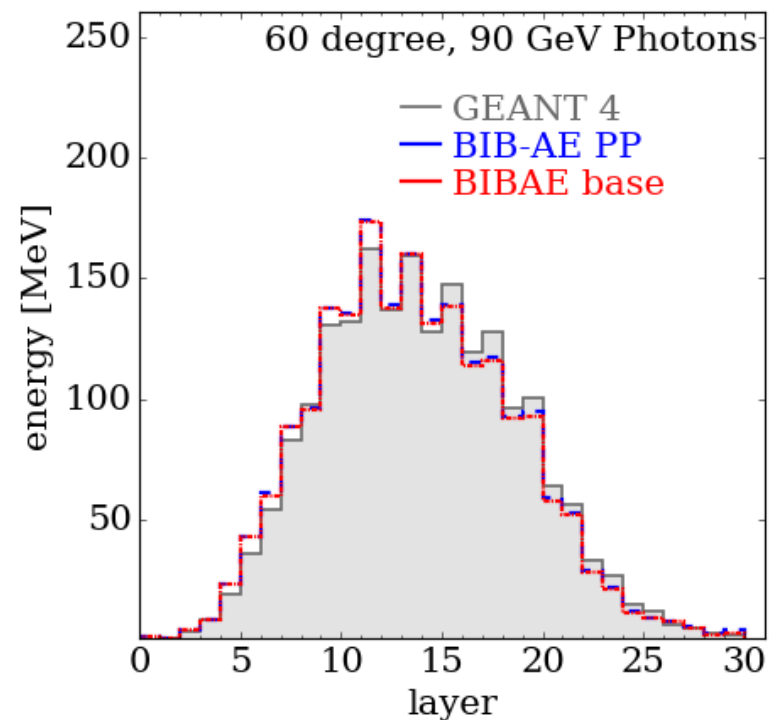
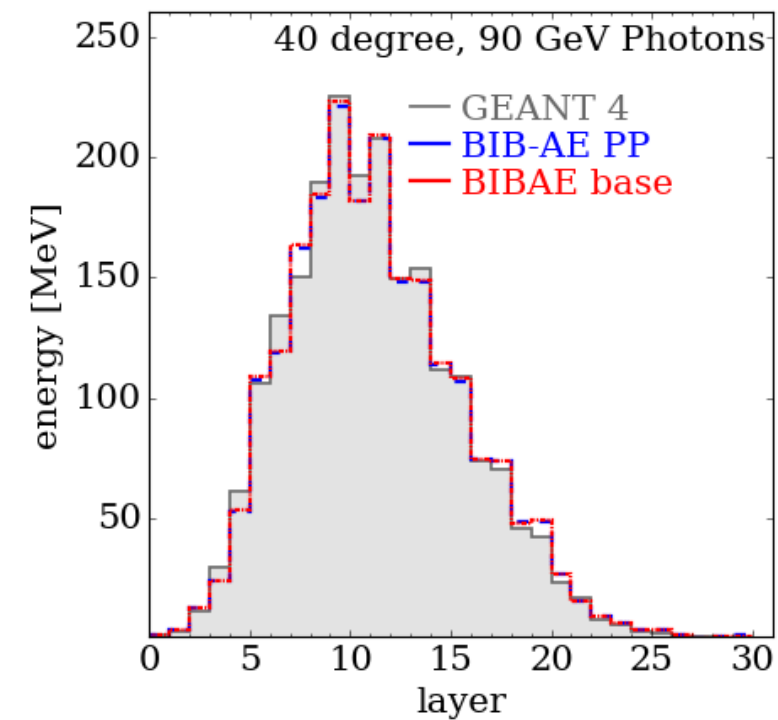
Results: Longitudinal Profile



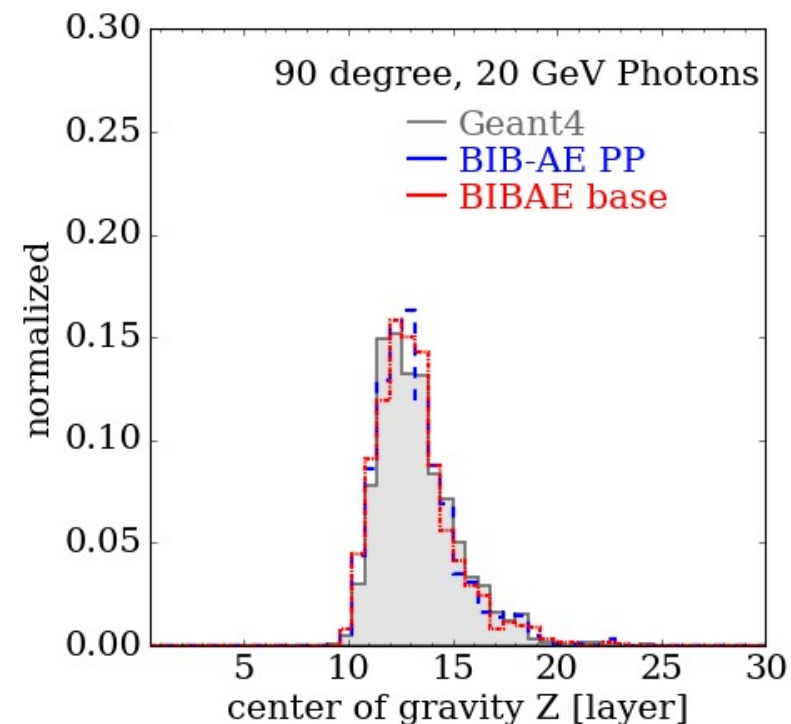
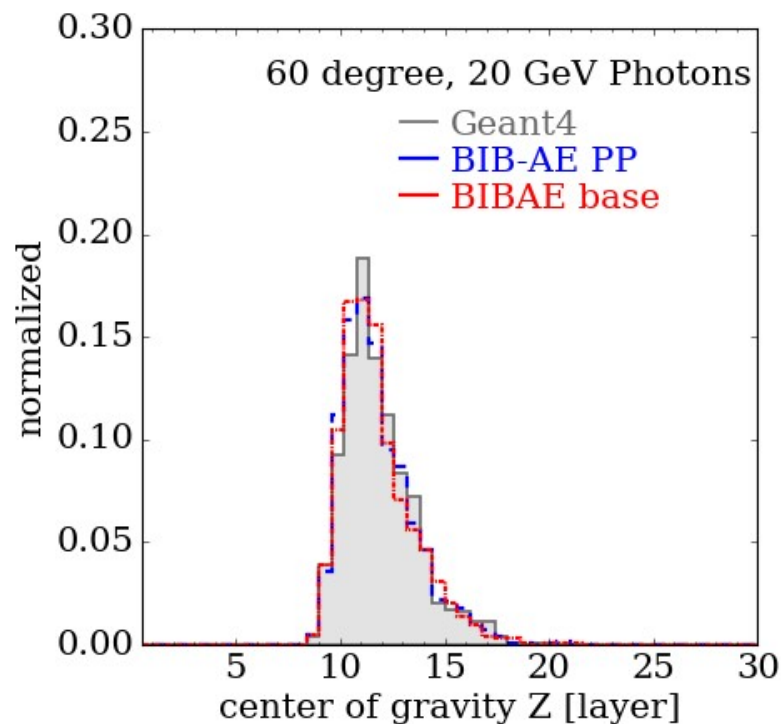
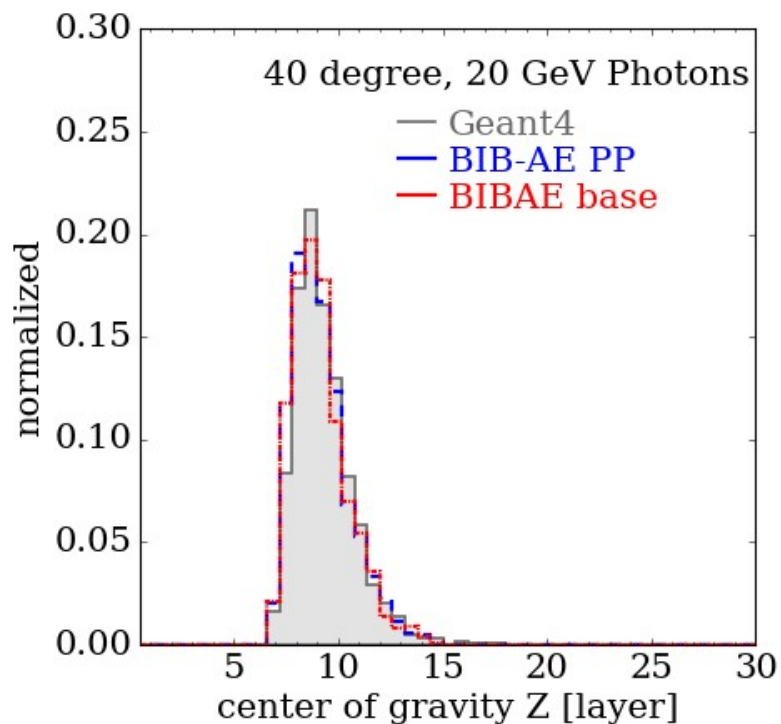
Results: Longitudinal Profile



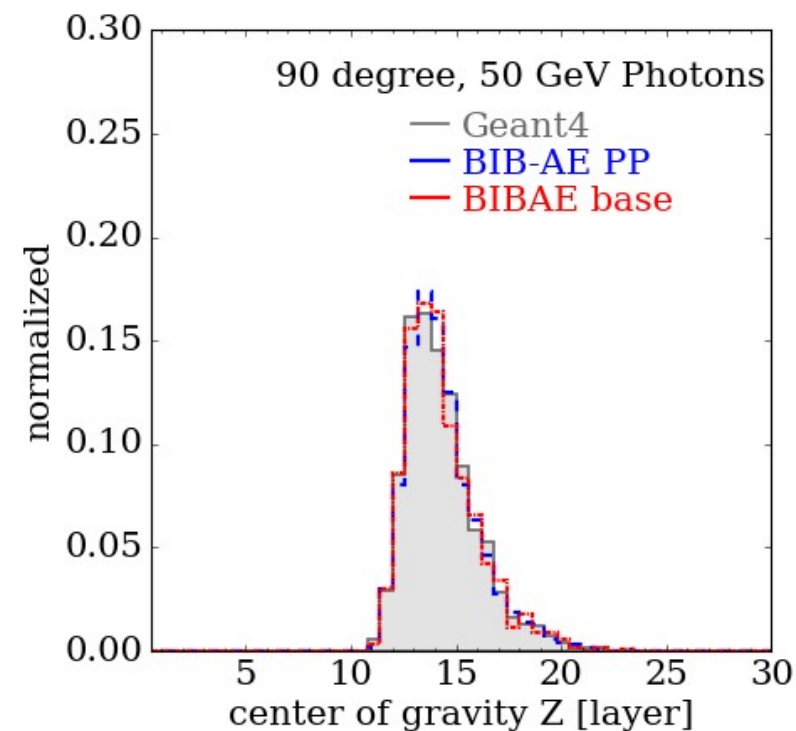
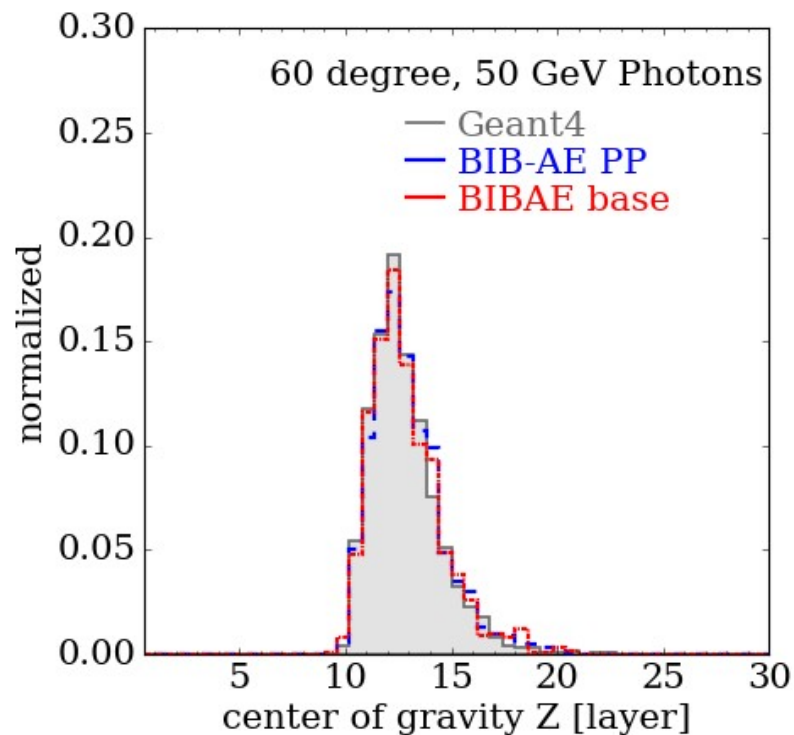
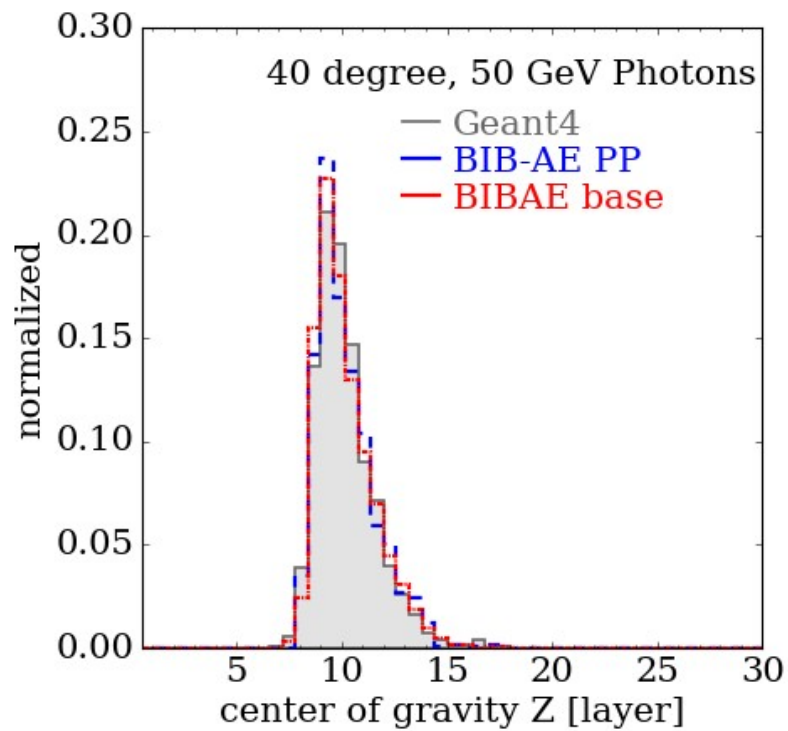
Results: Longitudinal Profile



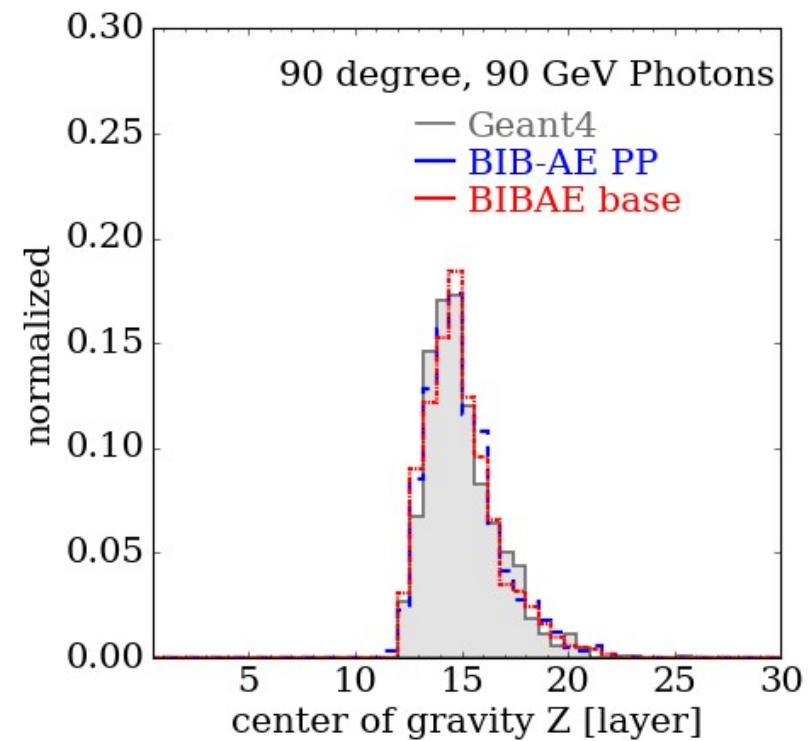
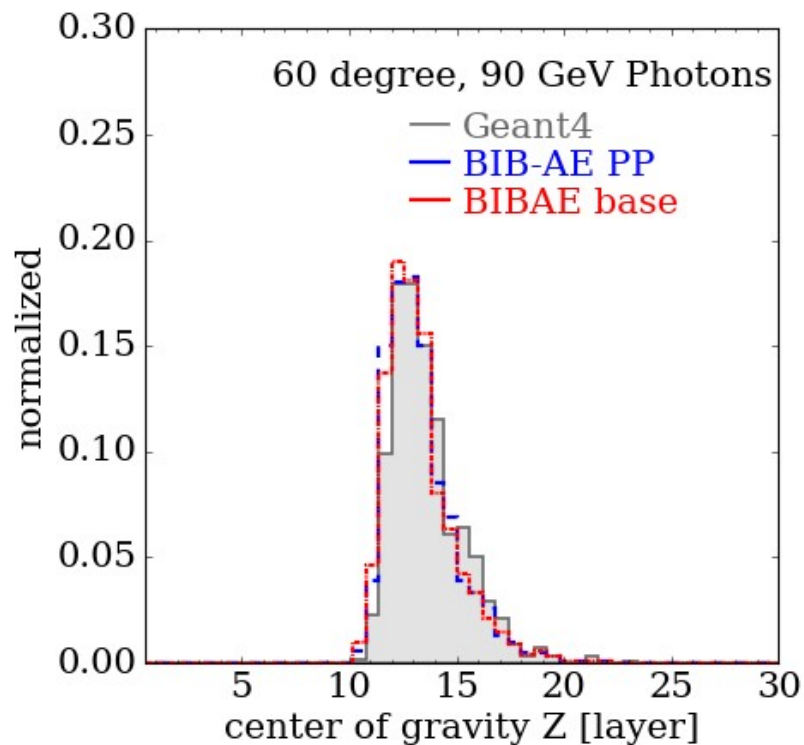
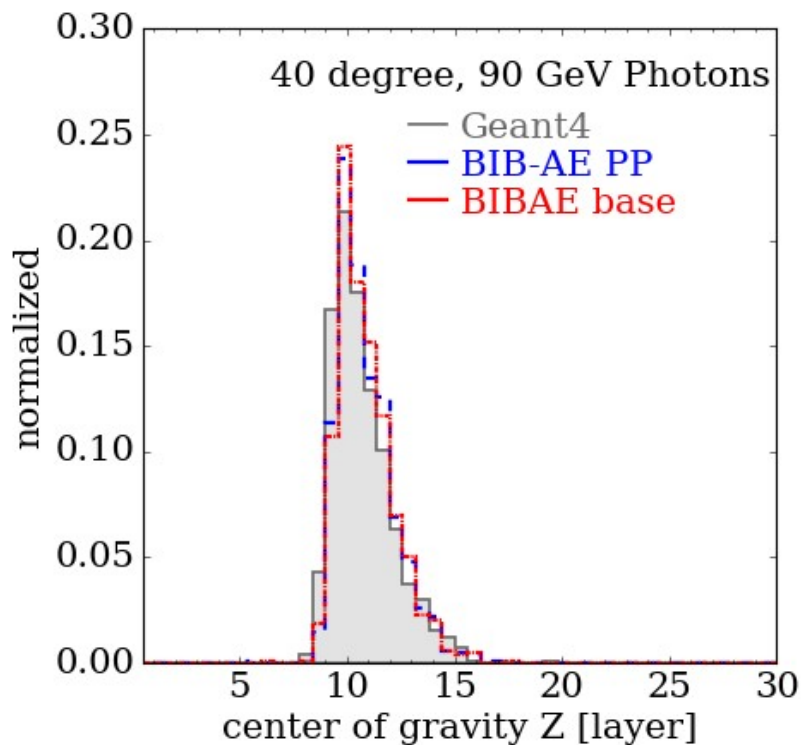
Results: Center of Gravity



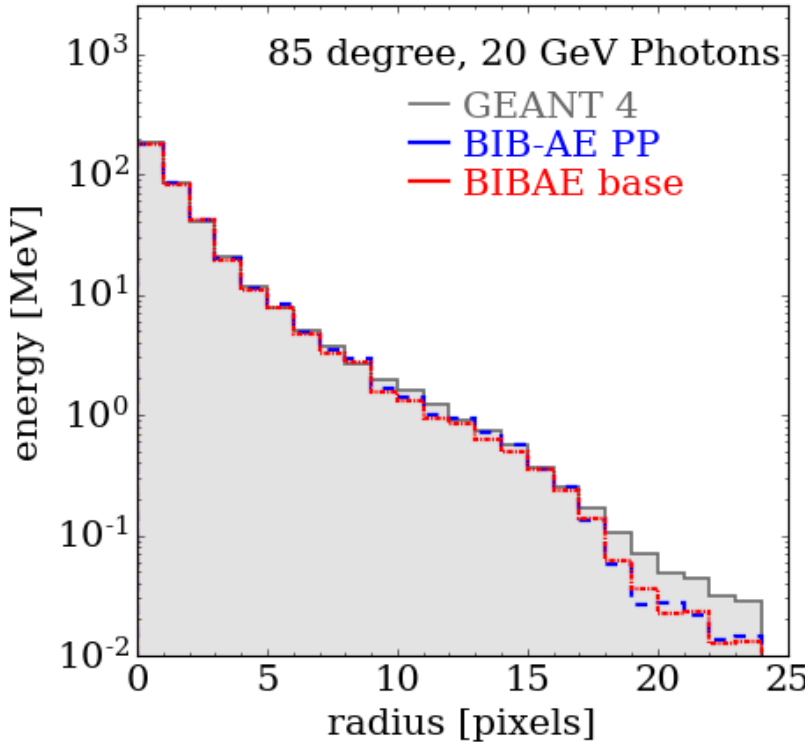
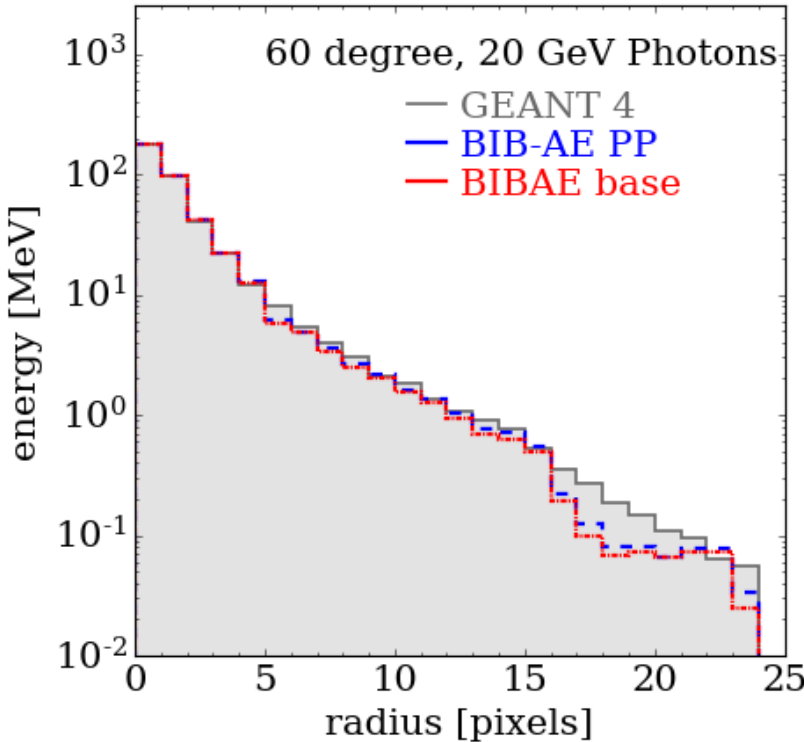
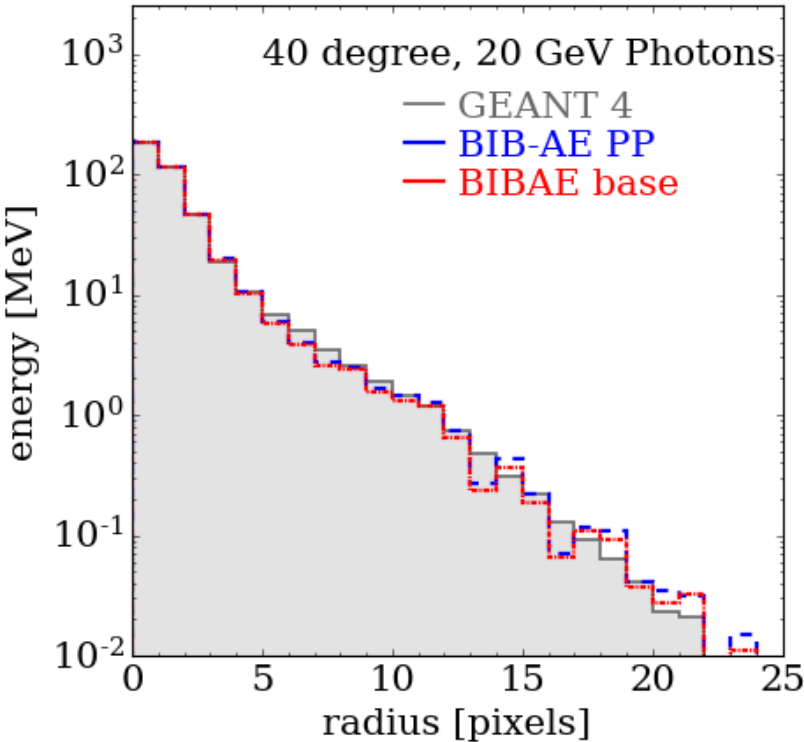
Results: Center of Gravity



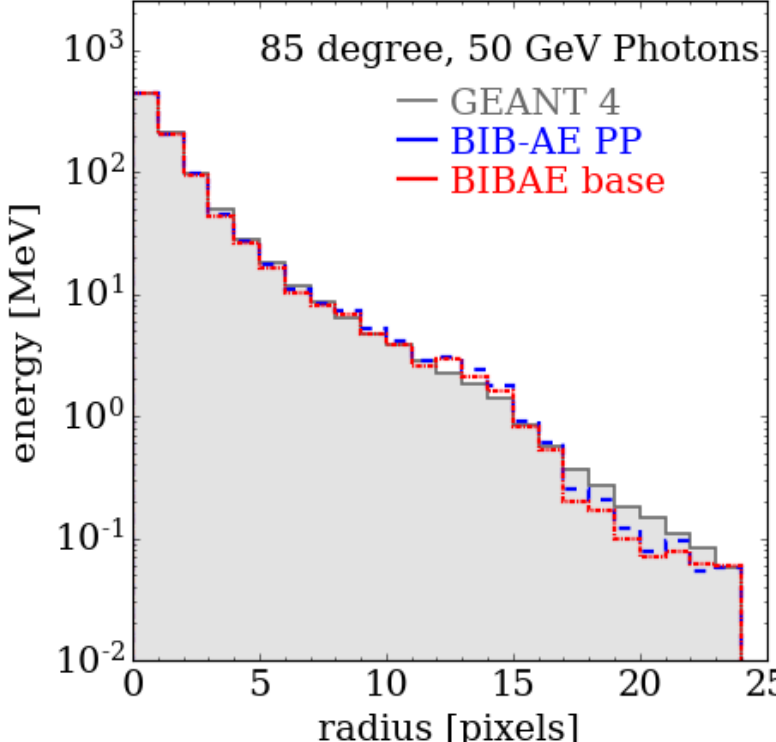
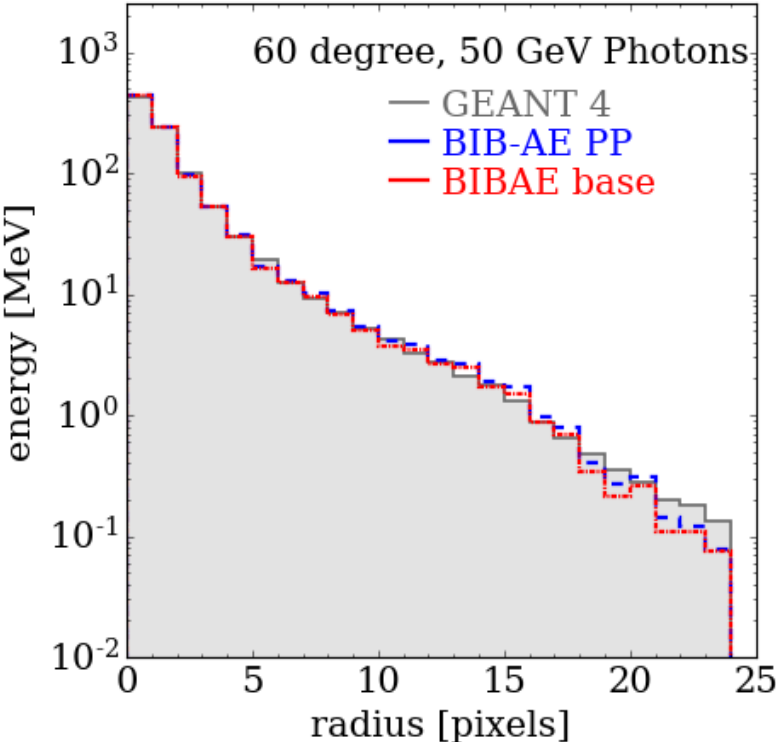
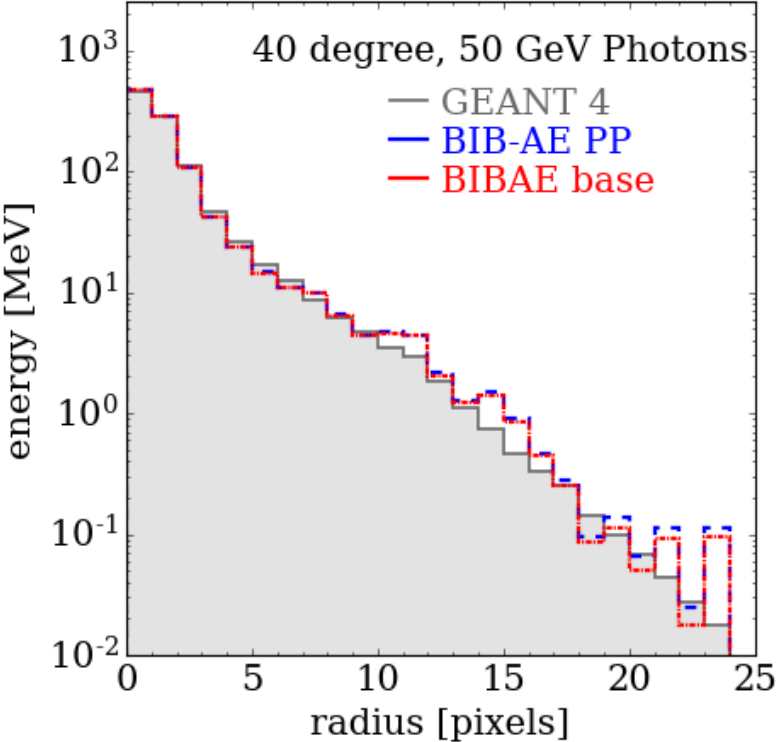
Results: Center of Gravity



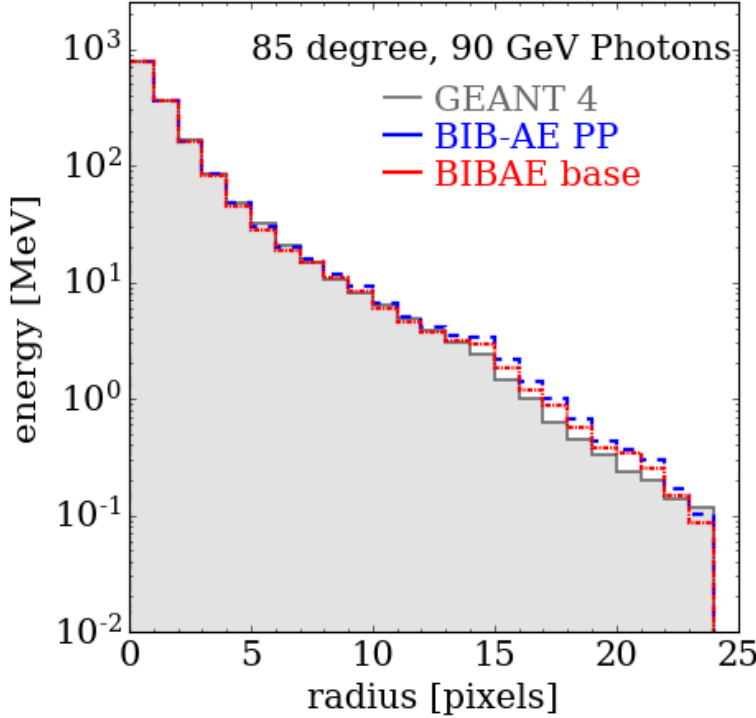
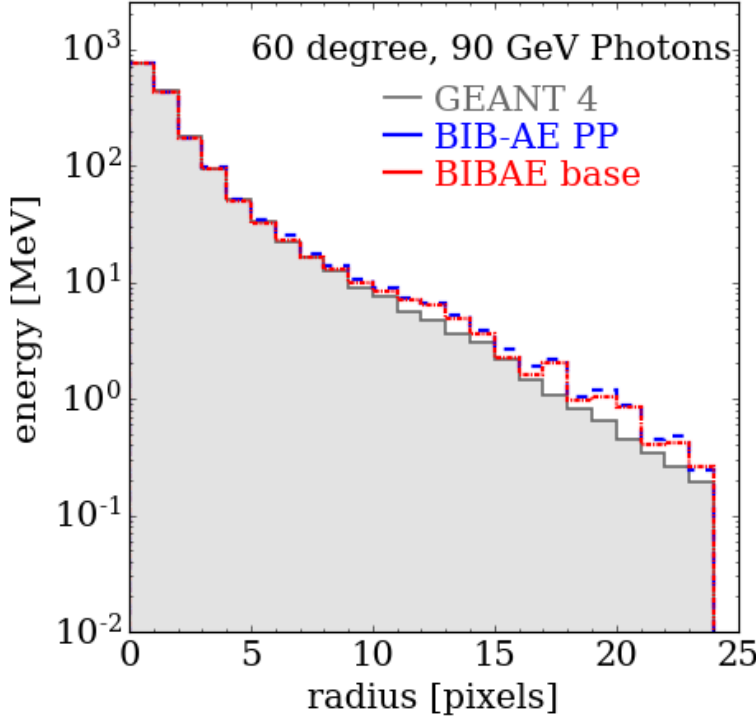
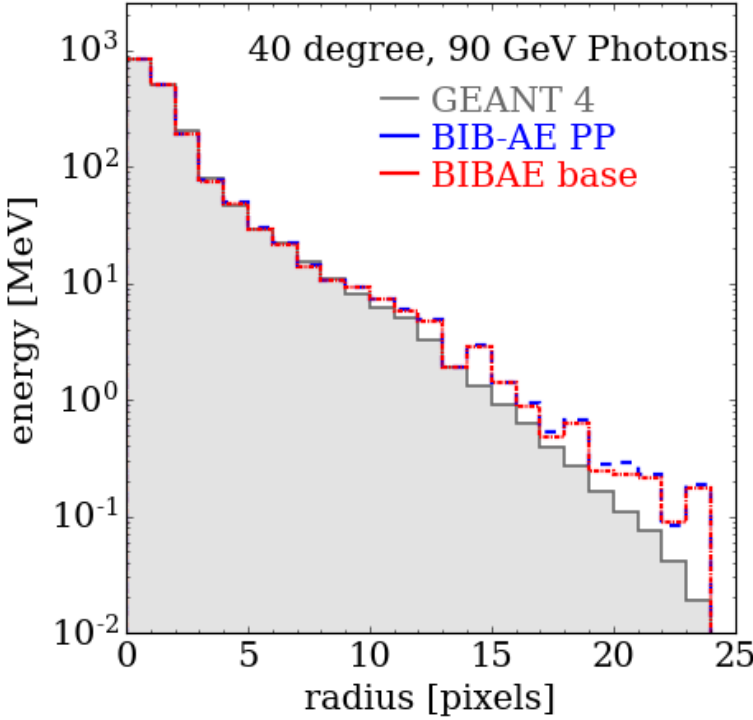
Results: Radial Profile



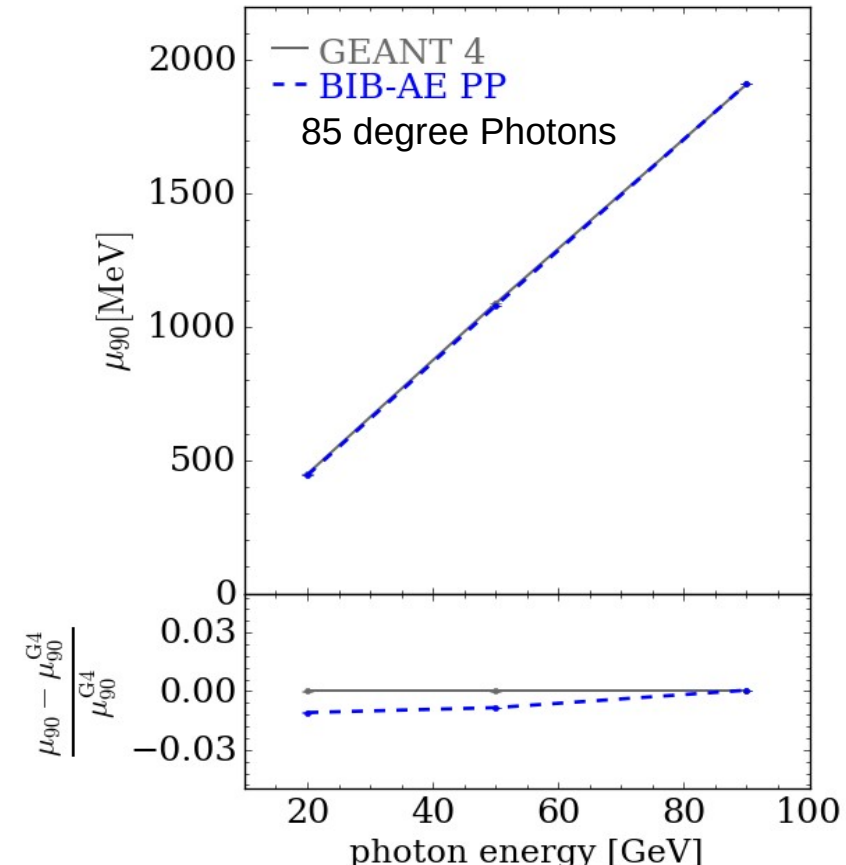
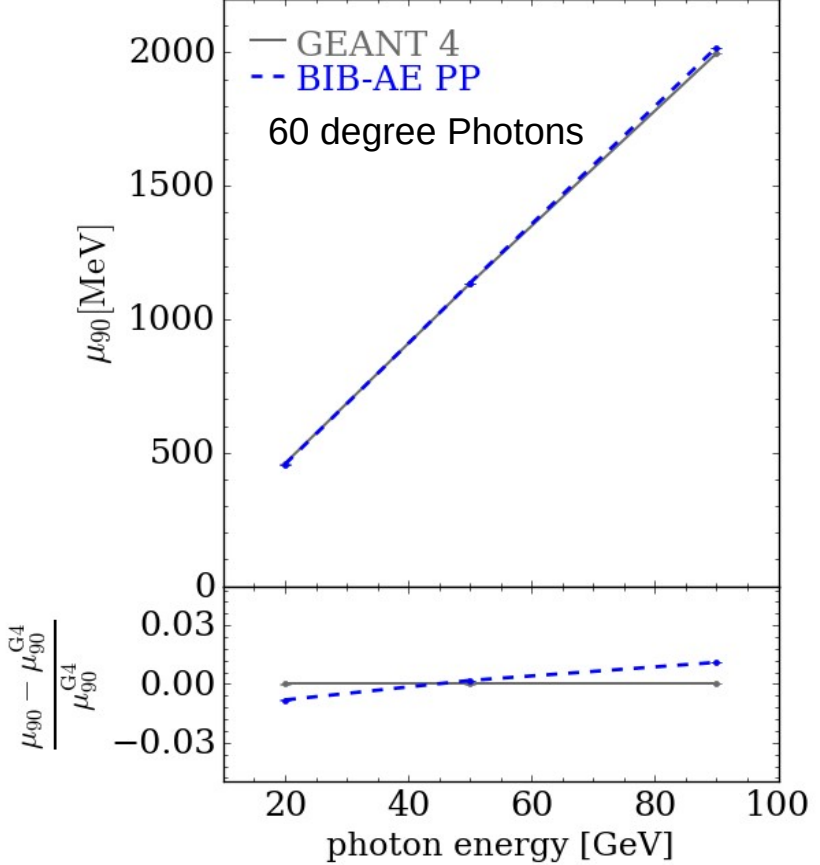
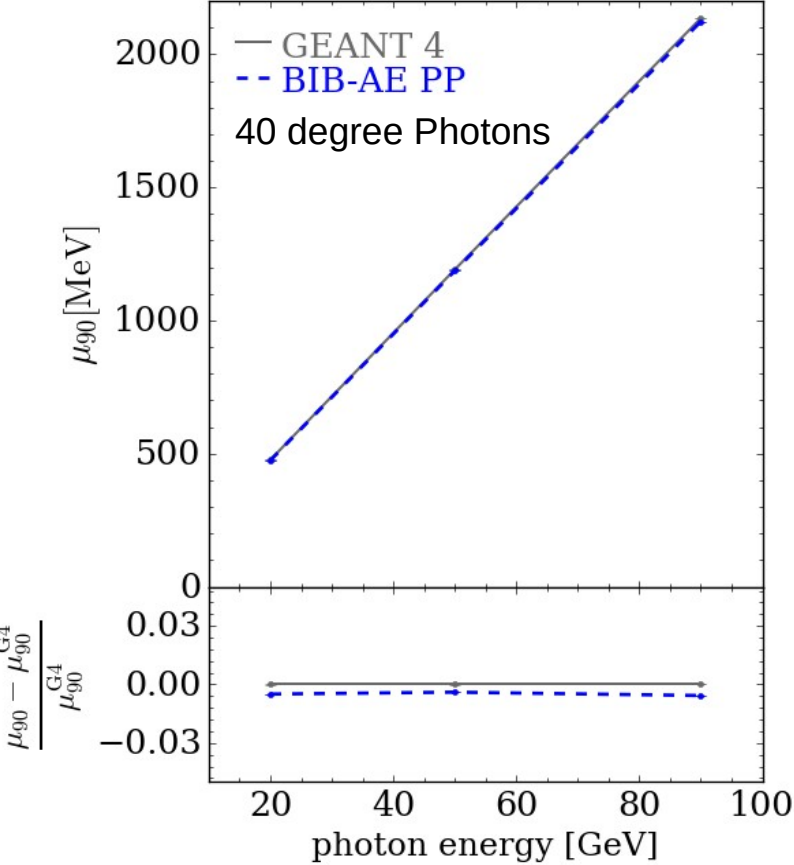
Results: Radial Profile



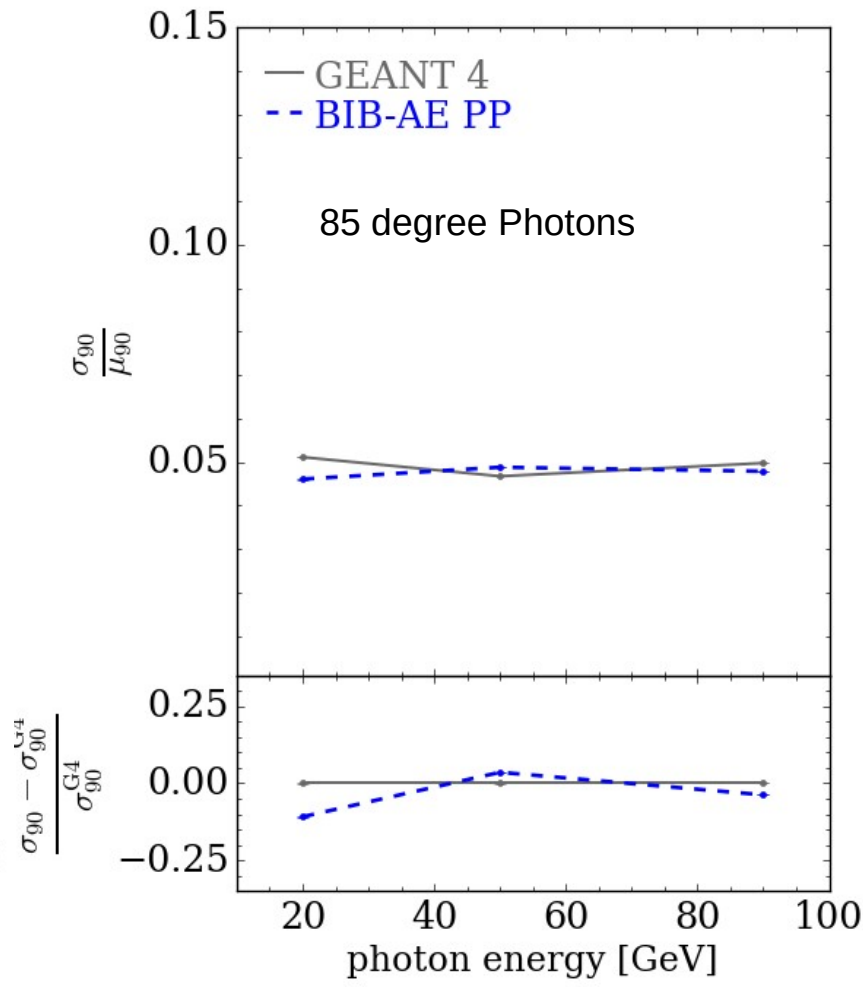
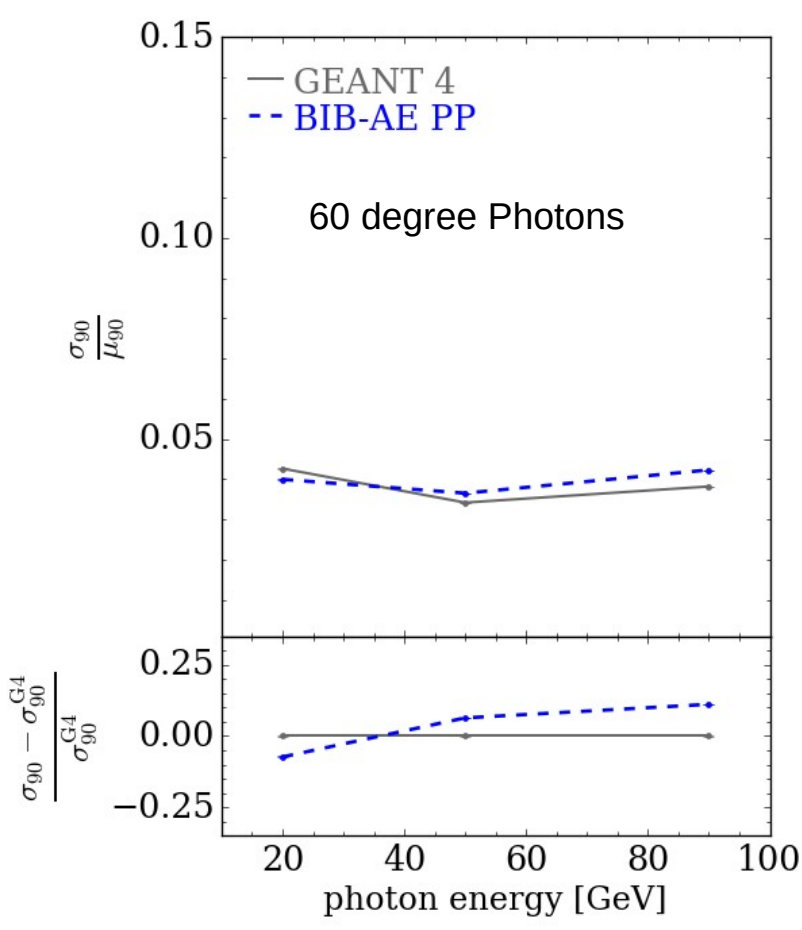
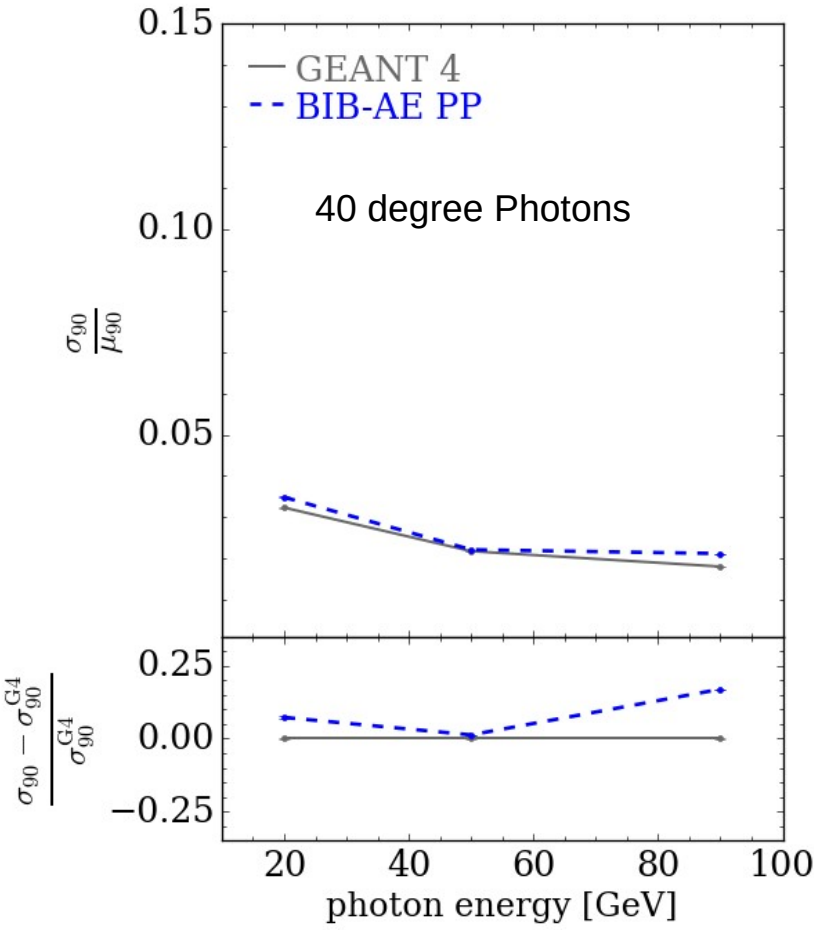
Results: Radial Profile



Results: Linearity



Results: Resolution



Take aways and next steps

- Post Processing using the raw labels significantly helps the energy sum- only slight impact on the angular performance
- Using Layer Norm seems best
- What do you think?

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