

L2Res for 24C re-reco + prompt (new: ReReco24_V9M, ref: V8M)

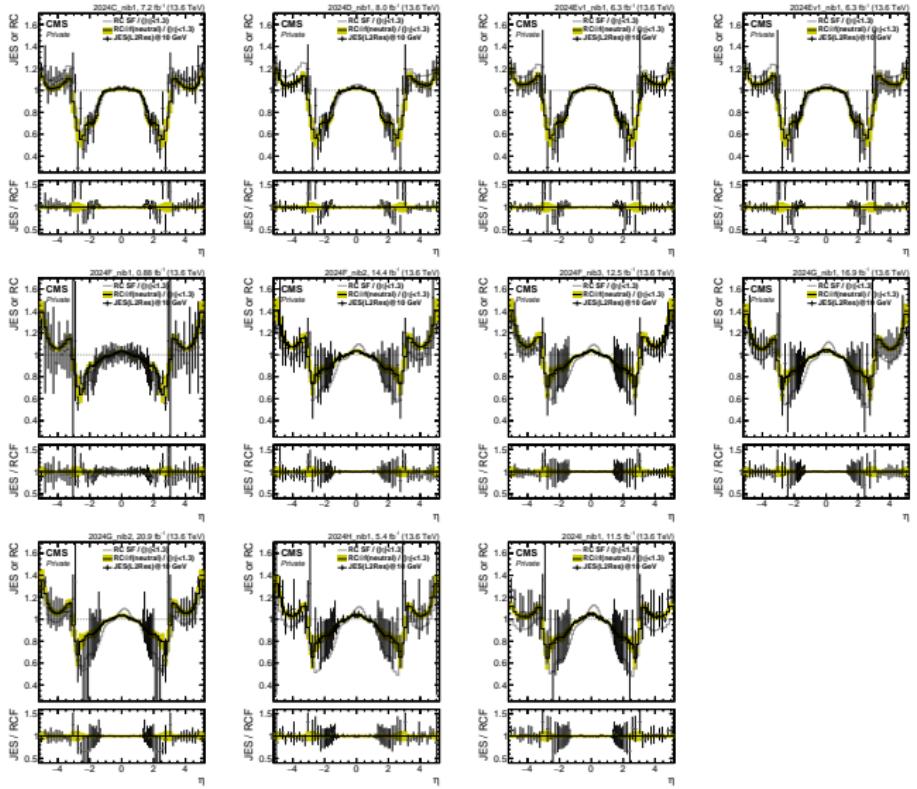
Date: June 9, 2025

- ▶ 24CDE re-reco + 24FGHI Prompt vs Summer24 MC
- ▶ Random Cone offset now constraints low p_T range
- ▶ Less fit constraints as much more MC statistics now
- ▶ New $1/p_T^2$ term added for low p_T to improve fit
- ▶ Lots of cleanup for (closure) plots to improve χ^2
- ▶ 2024F_nib1 is HCAL_DD (0.88 fb^{-1}), 2024B_nib1 excluded
- ▶ To-do: (i) correct photon scale drifts, (ii) add inclusive jets + Wqq', (iii) fix stat errs

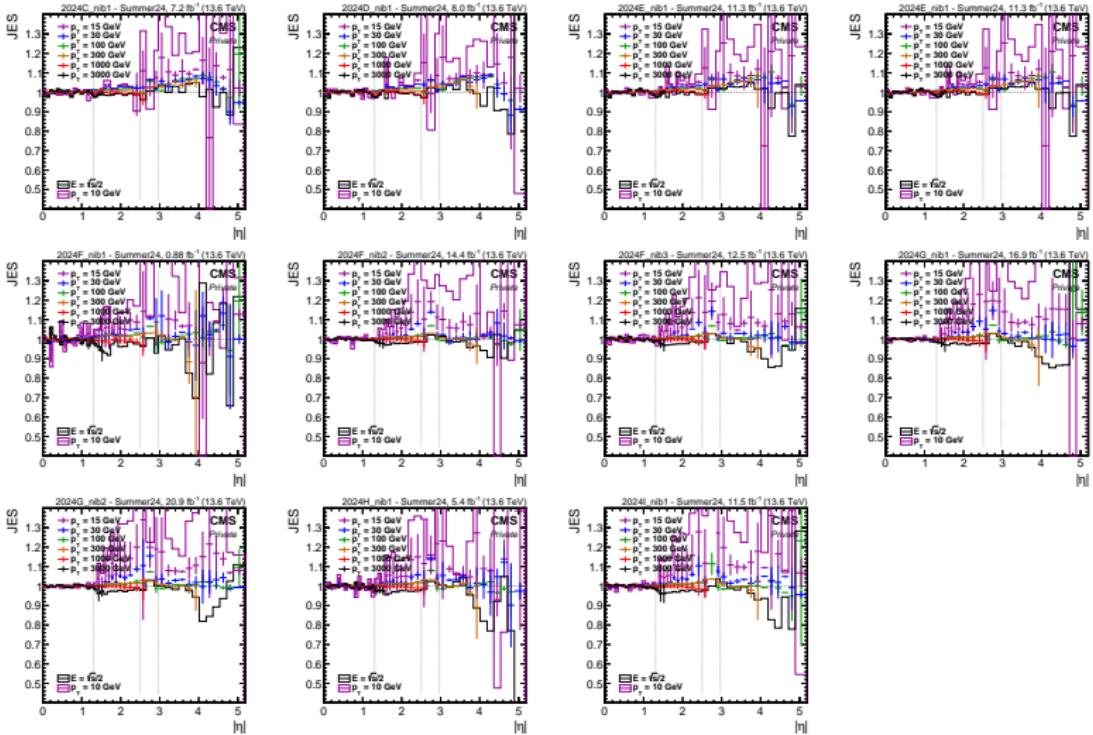
JEC L2Res fits

- ▶ Random Cone inputs
- ▶ Summary plots of final fits
- ▶ One for closure of latest officially-implemented JEC (V8M)
- ▶ One each for: (i) on-going fits (ReReco24_V9M), (ii) last stable release as reference (V8M)

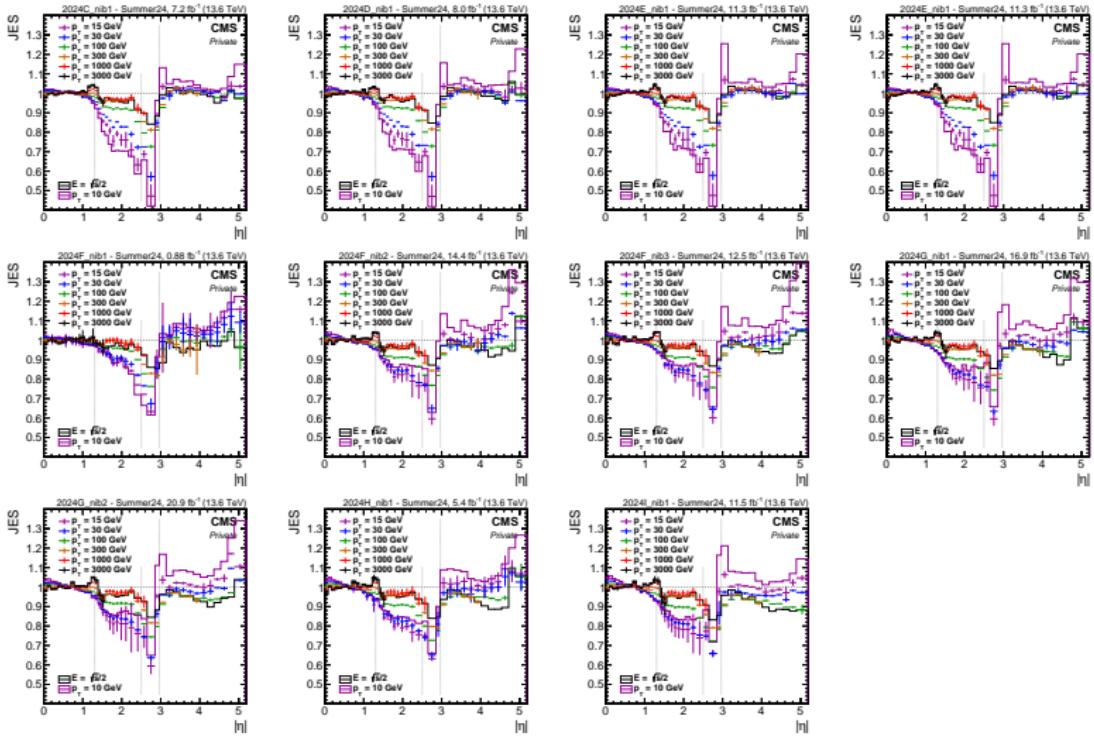
RandomCone inputs for ReReco24_V9M



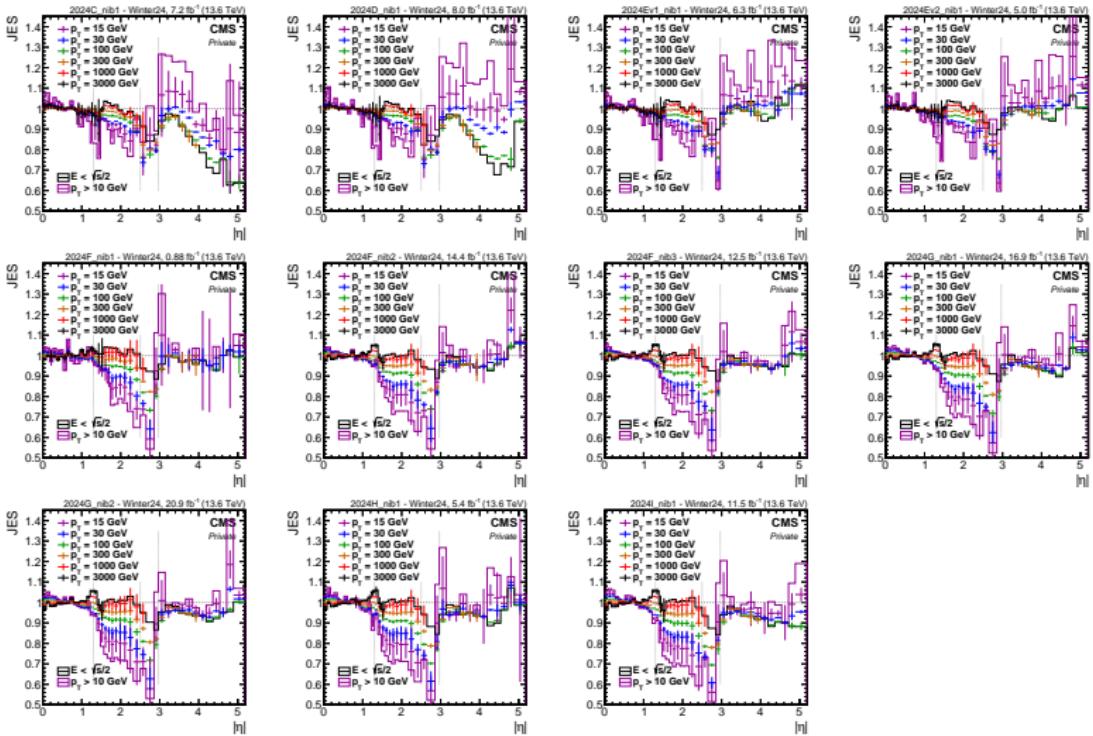
JES L2Res closure (ReReco24_V9M with V8M)



JES L2Res fits (ReReco24_V9M)



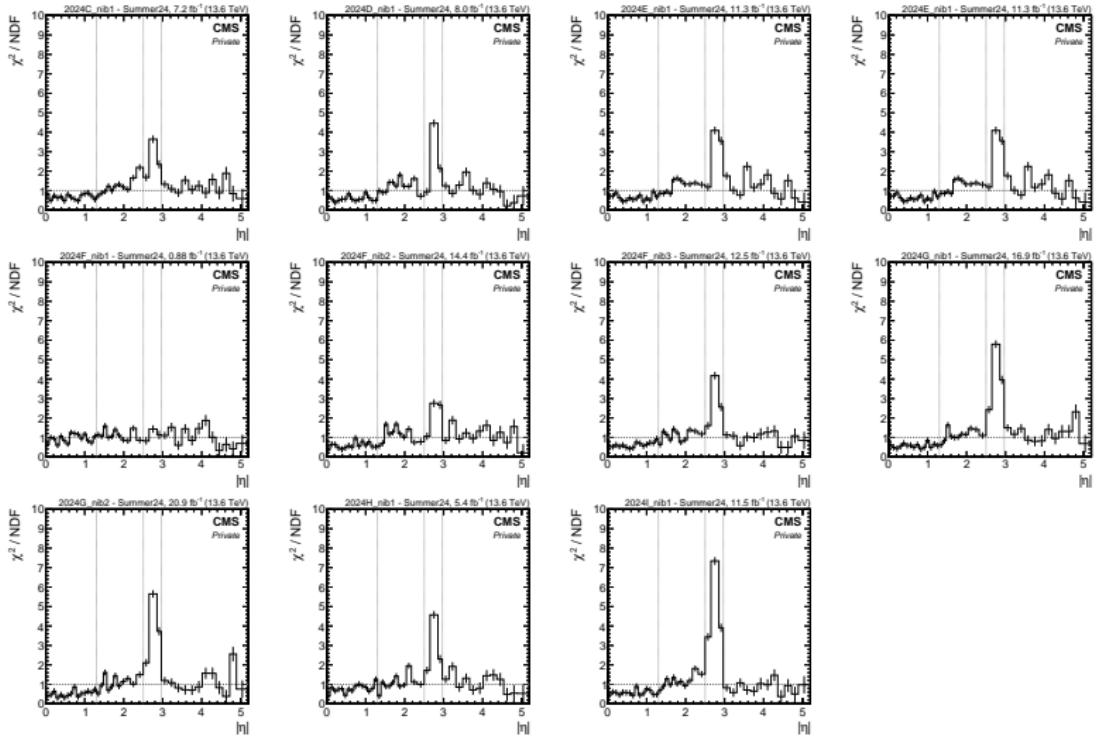
JES L2Res fits (V8M)



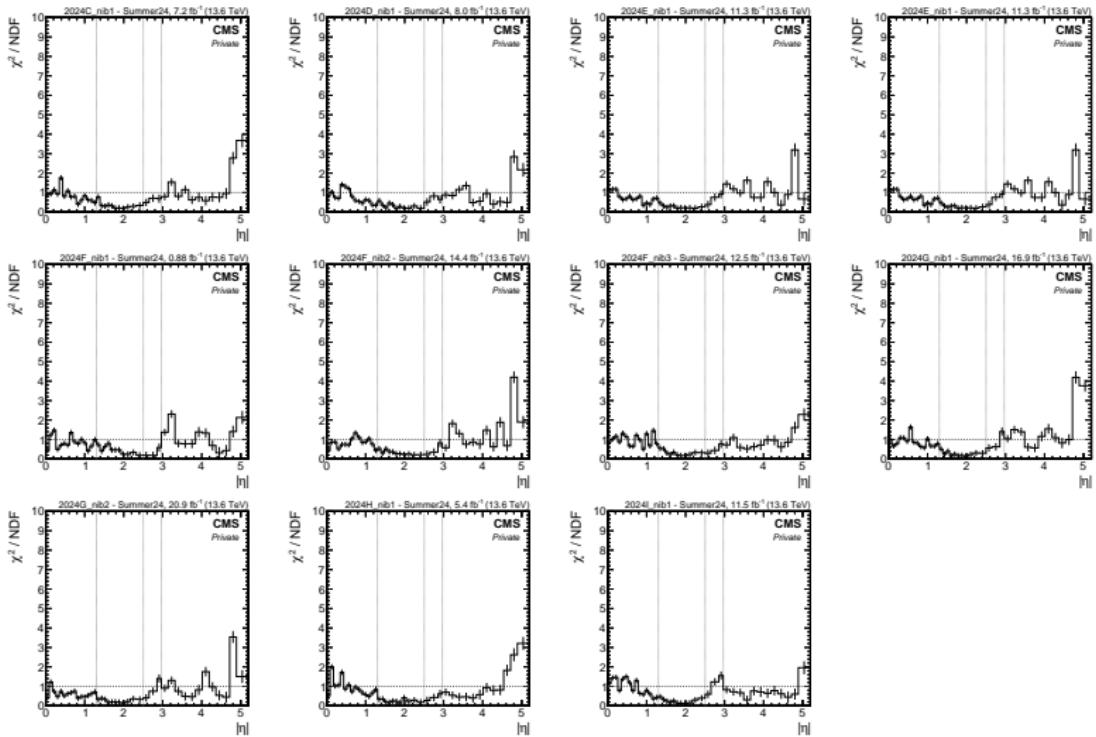
JEC L2Res chisquare

- ▶ Summary plots of fit chisquare
- ▶ One for closure of latest officially-implemented JEC (V8M)
- ▶ One each for: (i) on-going fits (ReReco24_V9M), (ii) last stable release as reference (V8M)

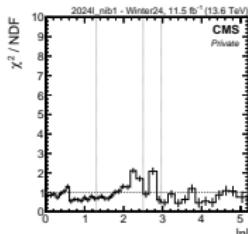
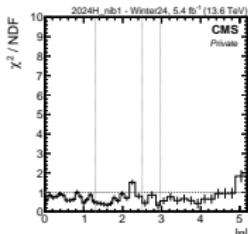
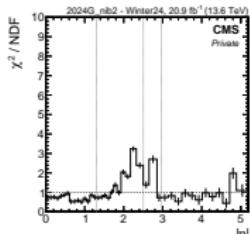
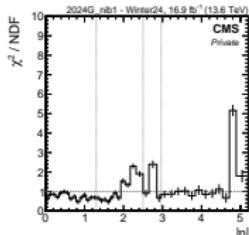
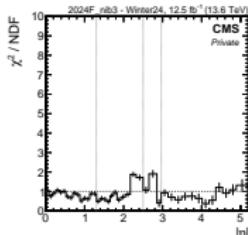
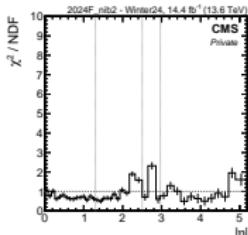
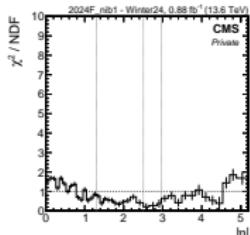
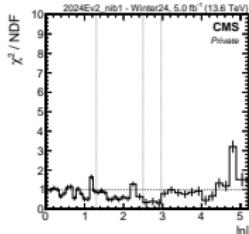
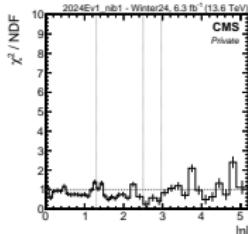
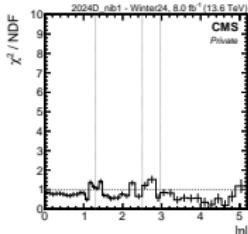
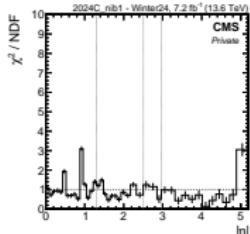
JES L2Res closure (ReReco24_V9M with V8M): Chisquare



JES L2Res fits (ReReco24_V9M): Chisquare



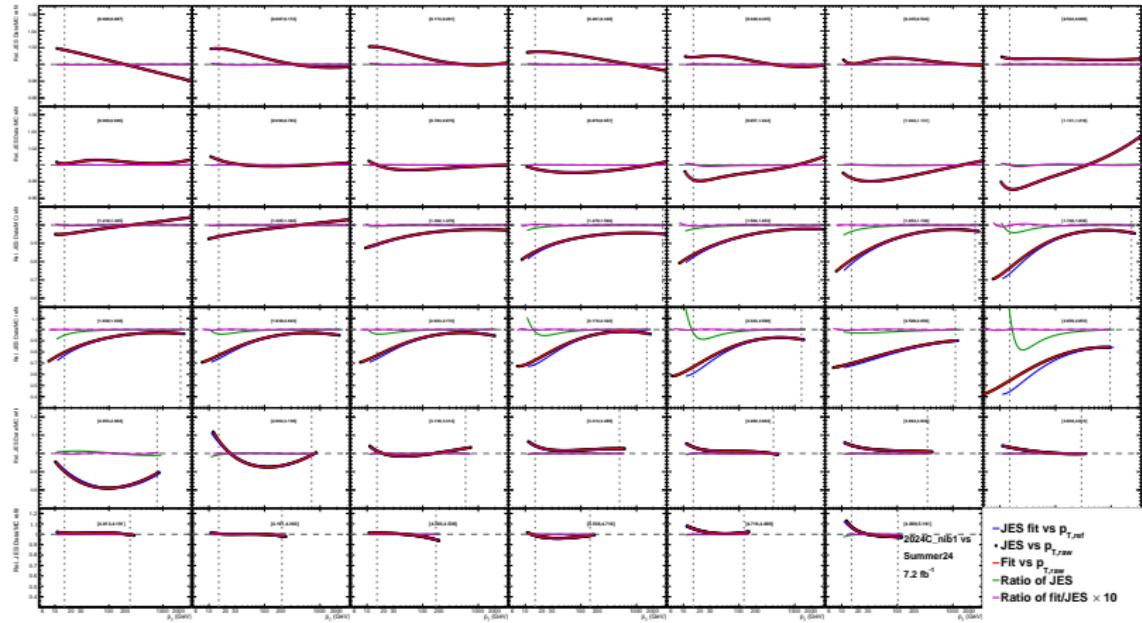
JES L2Res fits (V8M): Chisquare



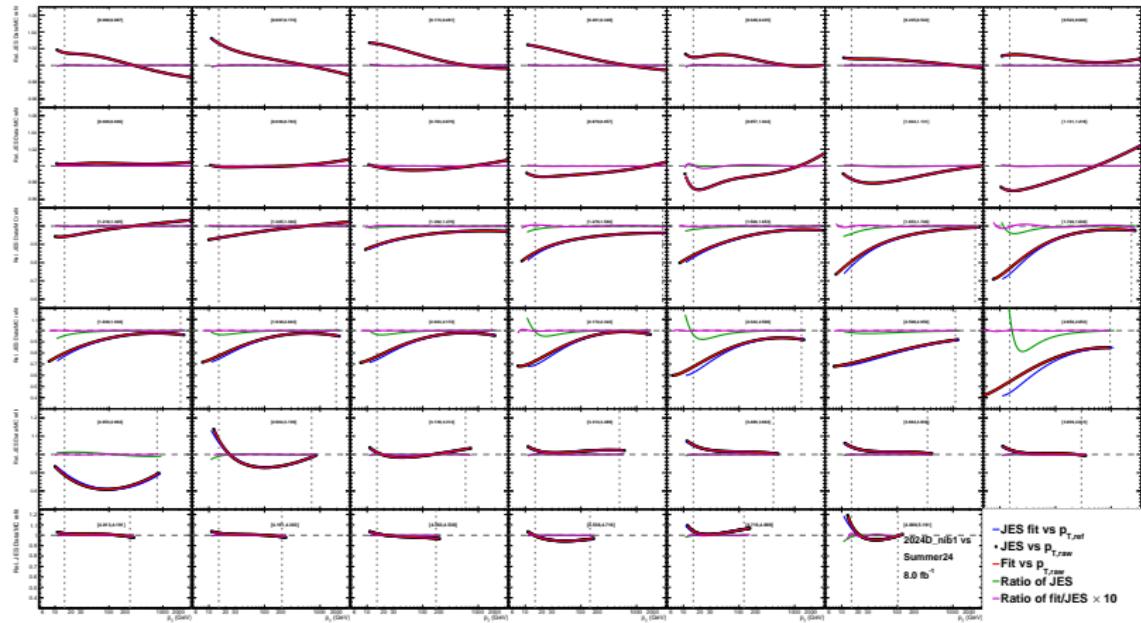
JEC L2Res refits

- ▶ Re-parameterize L2Res vs $p_{T,\text{raw}}$ instead of $p_{T,\text{ref}}$
- ▶ Results provided as text file, but not used in final L2L3Res, because proper mapping has to consider L3Res at the same footing (so re-parameterized there)
- ▶ Main value here is to check that fits are somewhat reasonable and can be inverted with at least L3Res==1 special case

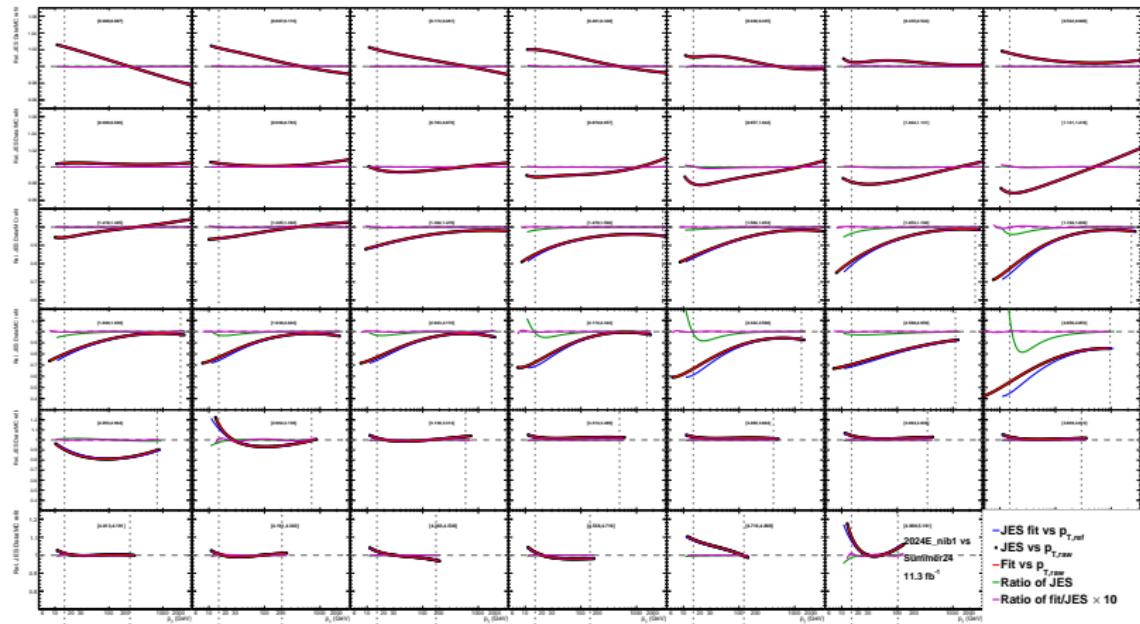
JES L2Res re-fits (ReReco24_V9M): 2024C_nib1



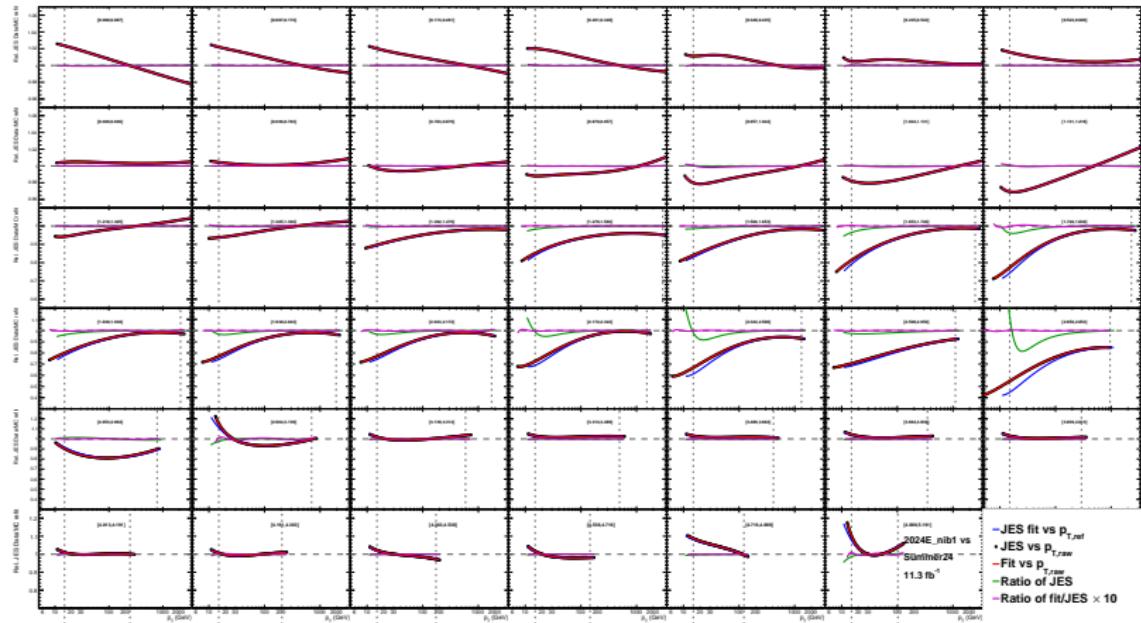
JES L2Res re-fits (ReReco24_V9M): 2024D_nib1



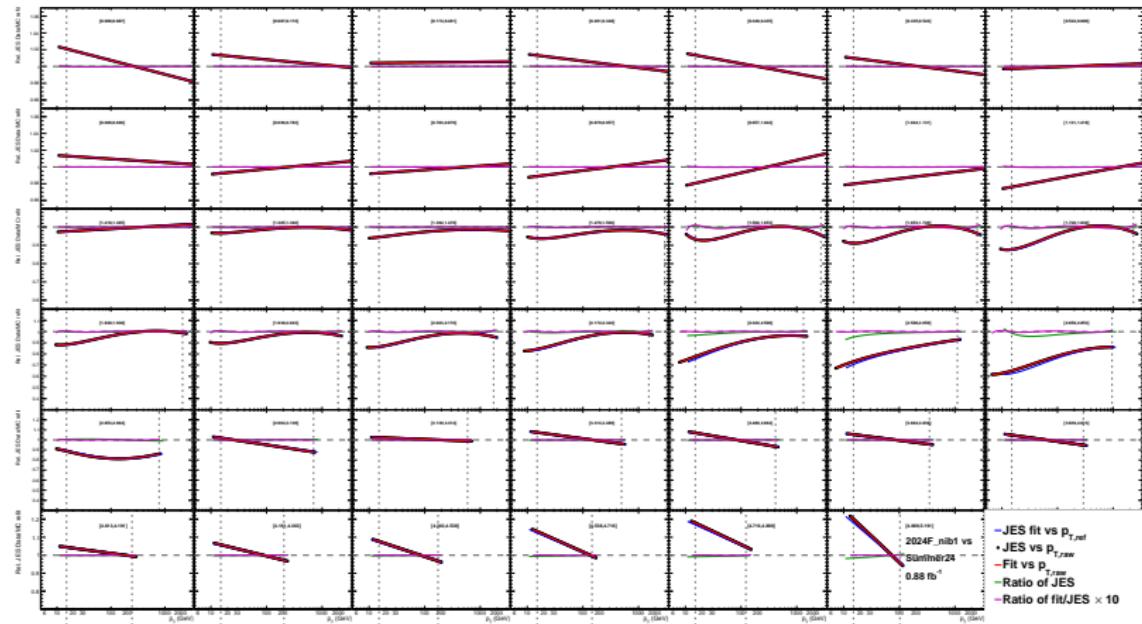
JES L2Res re-fits (ReReco24_V9M): 2024E_nib1



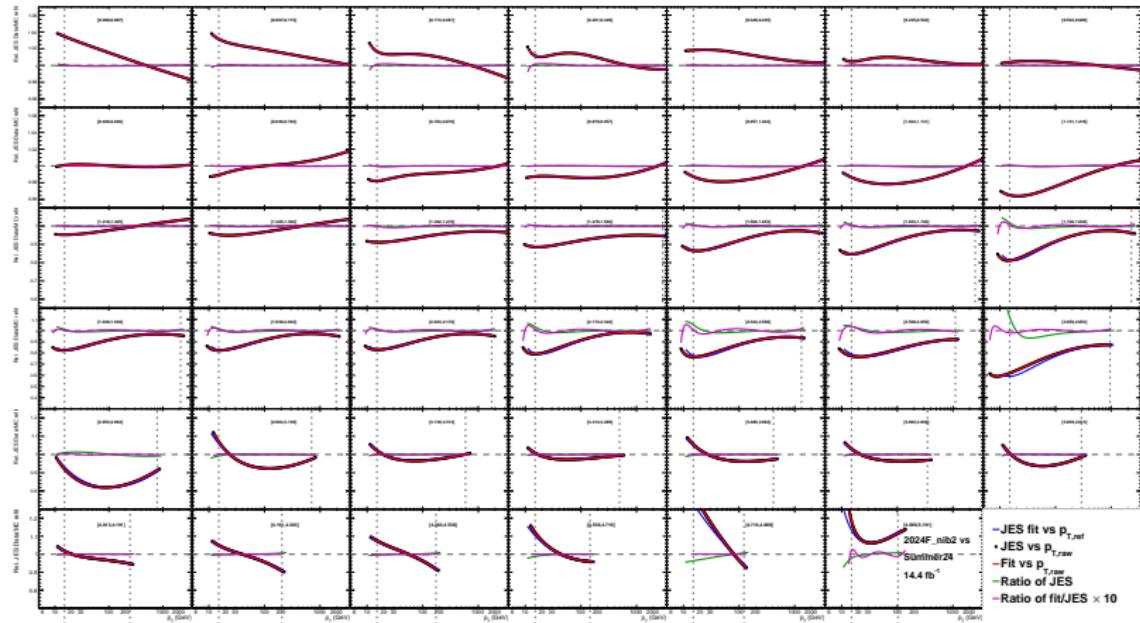
JES L2Res re-fits (ReReco24_V9M): 2024E_nib1



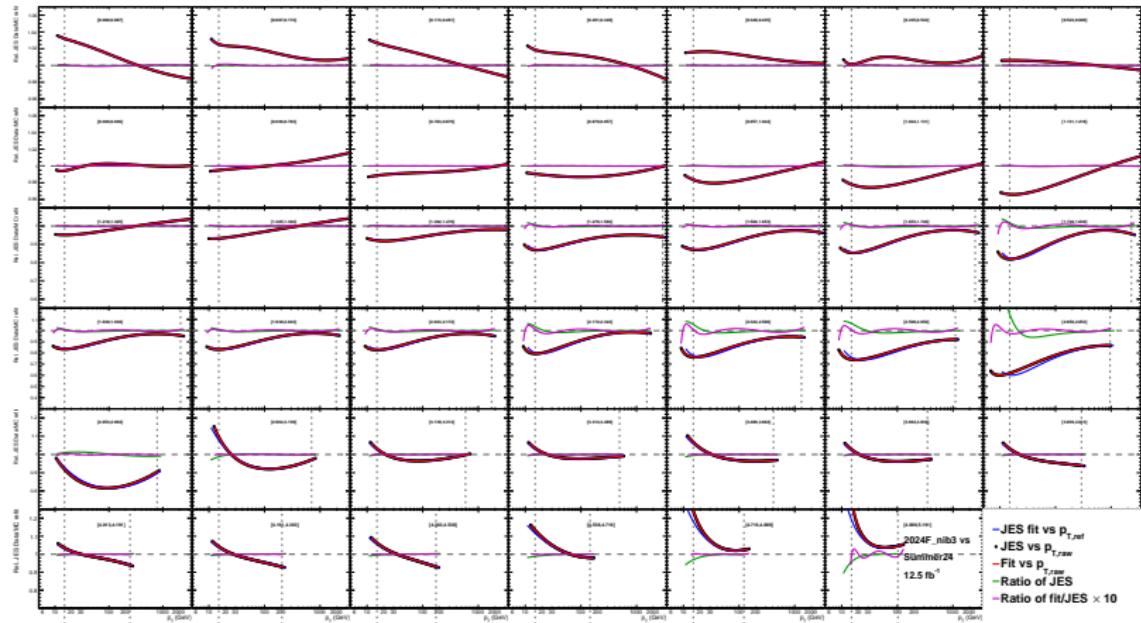
JES L2Res re-fits (ReReco24_V9M): 2024F_nib1



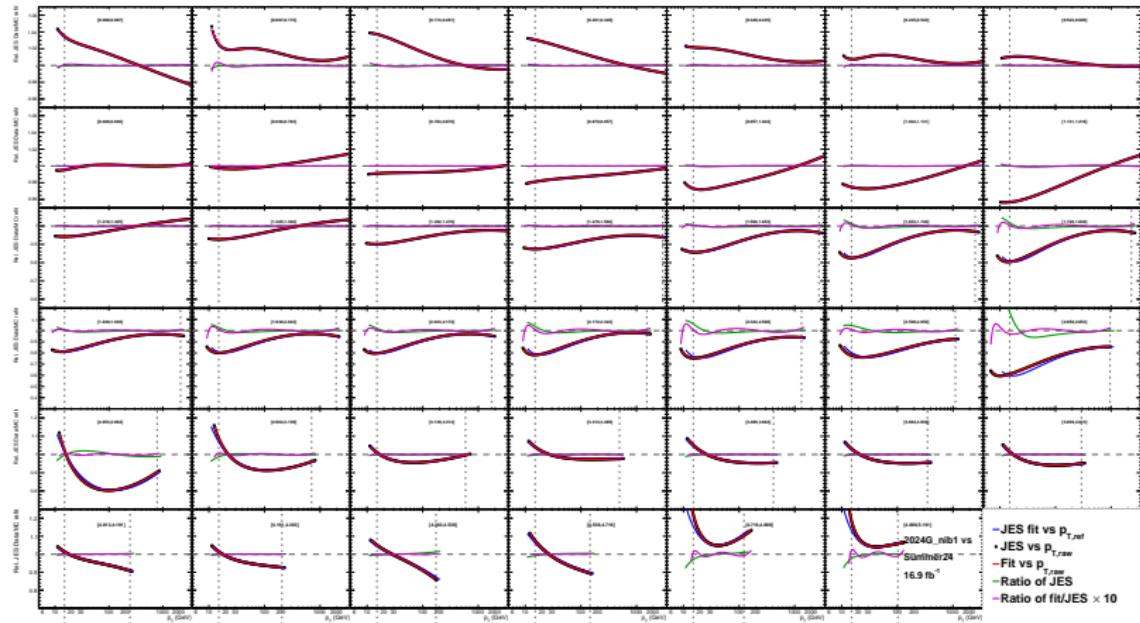
JES L2Res re-fits (ReReco24_V9M): 2024F_nib2



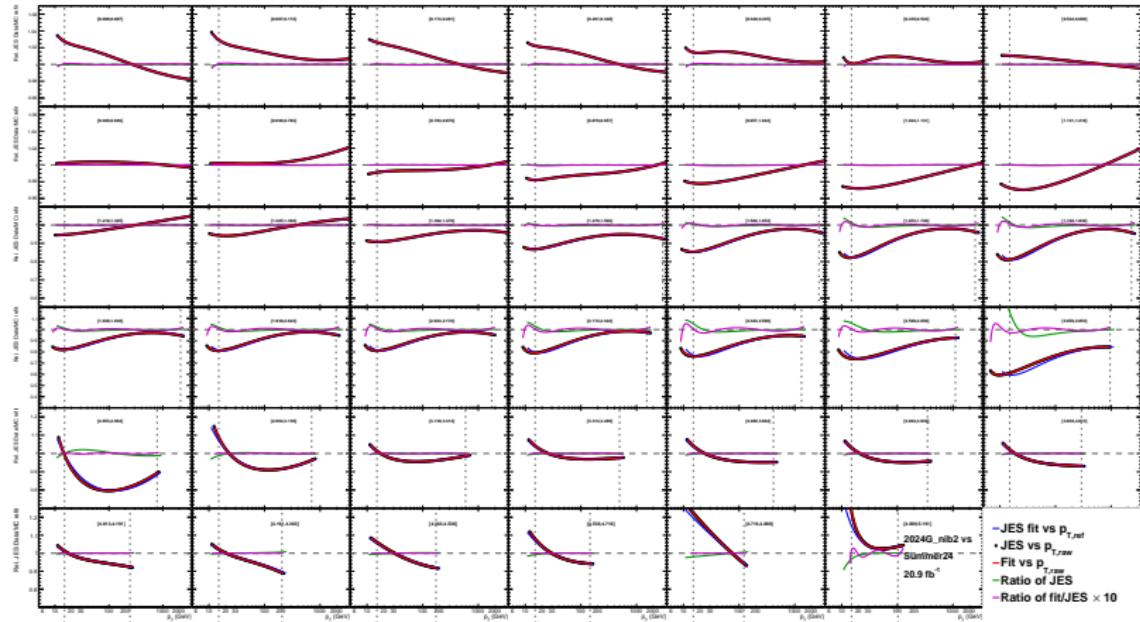
JES L2Res re-fits (ReReco24_V9M): 2024F_nib3



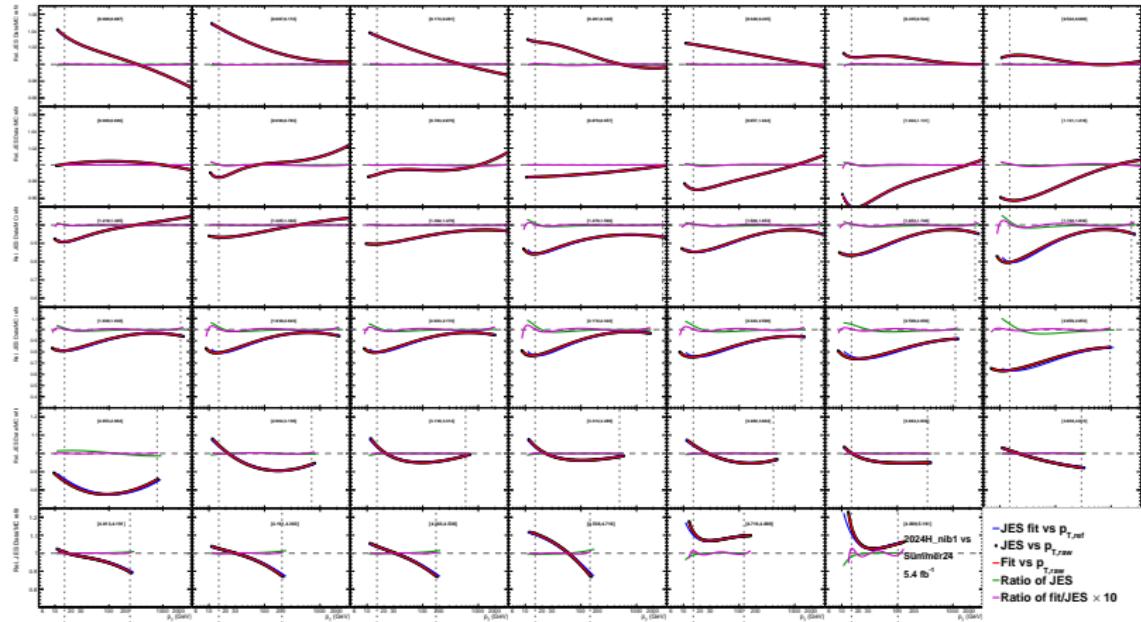
JES L2Res re-fits (ReReco24_V9M): 2024G_nib1



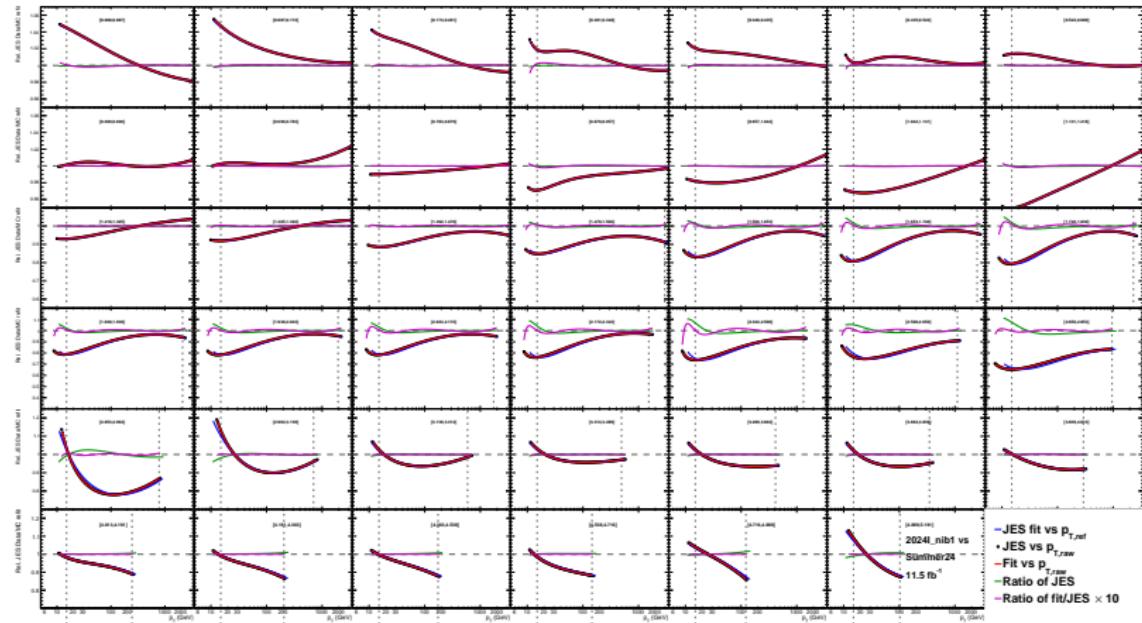
JES L2Res re-fits (ReReco24_V9M): 2024G_nib2



JES L2Res re-fits (ReReco24_V9M): 2024H_nib1



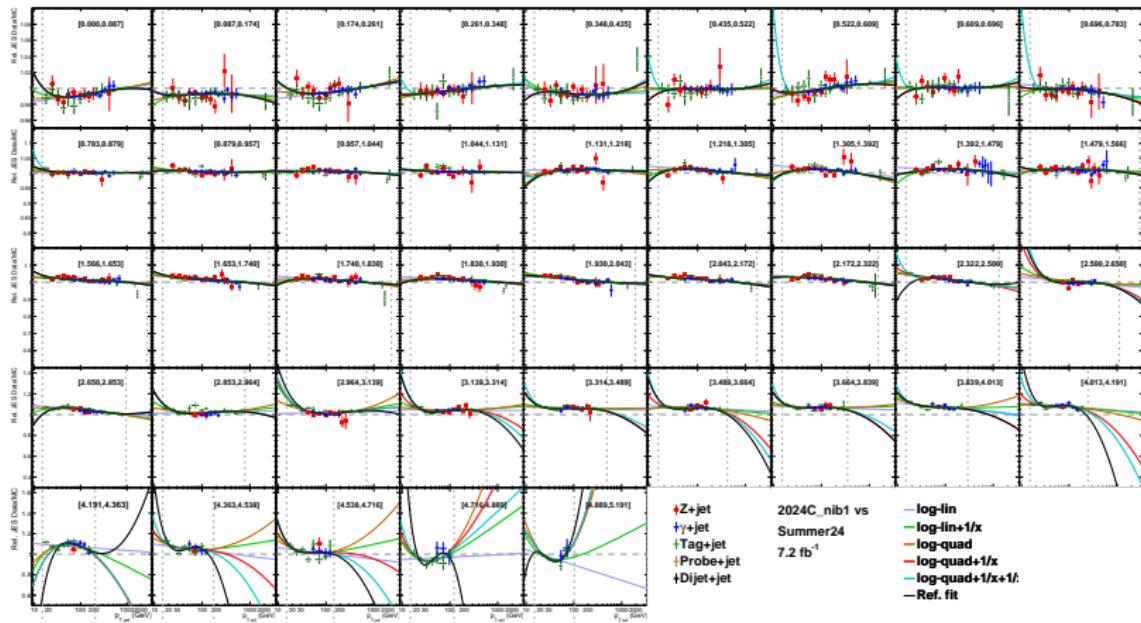
JES L2Res re-fits (ReReco24_V9M): 2024I_nib1



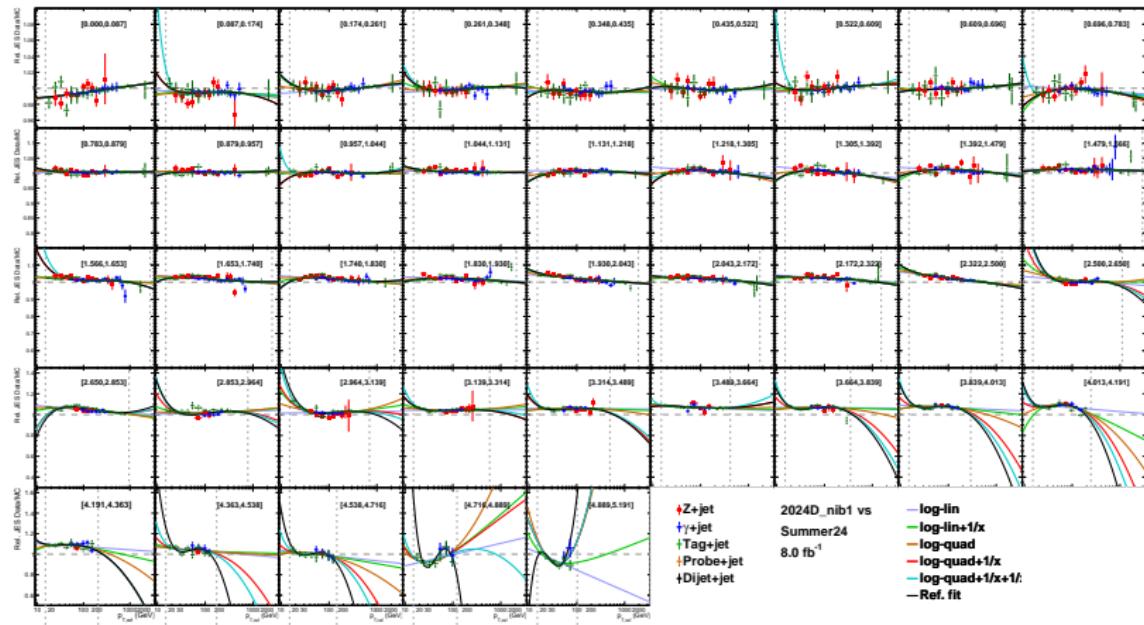
JEC L2Res fits with all data)

- ▶ Summary plots of all fit data and more
- ▶ One for closure of latest officially-implemented JEC (V8M)
- ▶ One each for: (i) on-going fits (ReReco24_V9M), (ii) last stable release as reference (V8M)
- ▶ Flip back and forth to check stability vs preceding and succeeding era
- ▶ Goal 1: check changes over time vs known effects
- ▶ Goal 2: catch unstable fits producing unexpected changes (sometimes points with e.g. bad error bars biasing things)

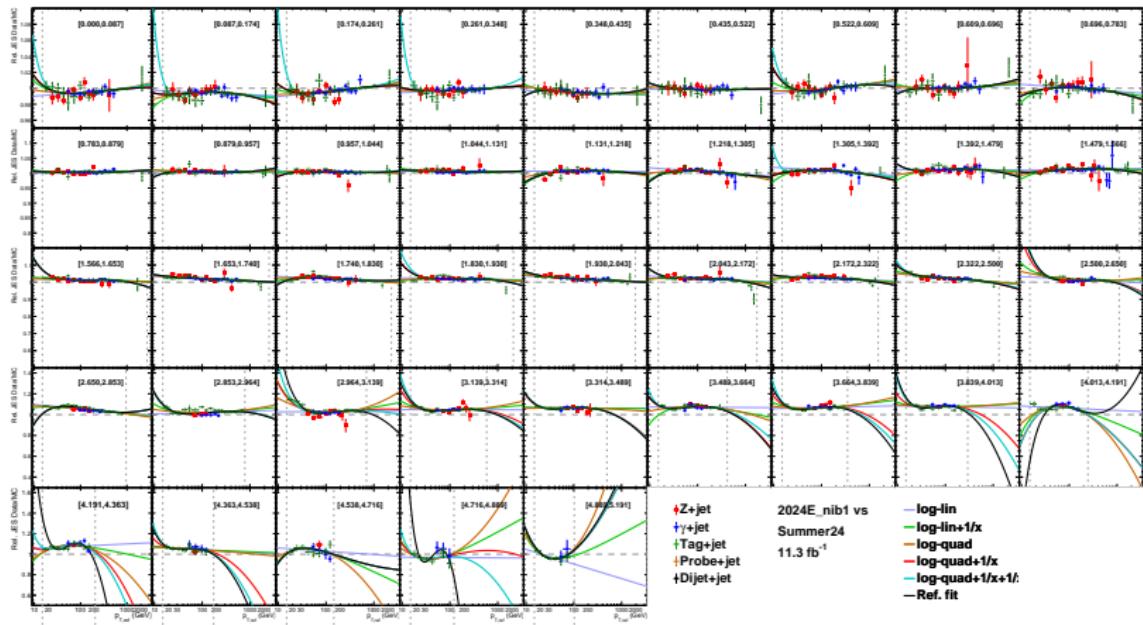
JES L2Res closure (ReReco24_V9M with V8M): 2024C_nib1



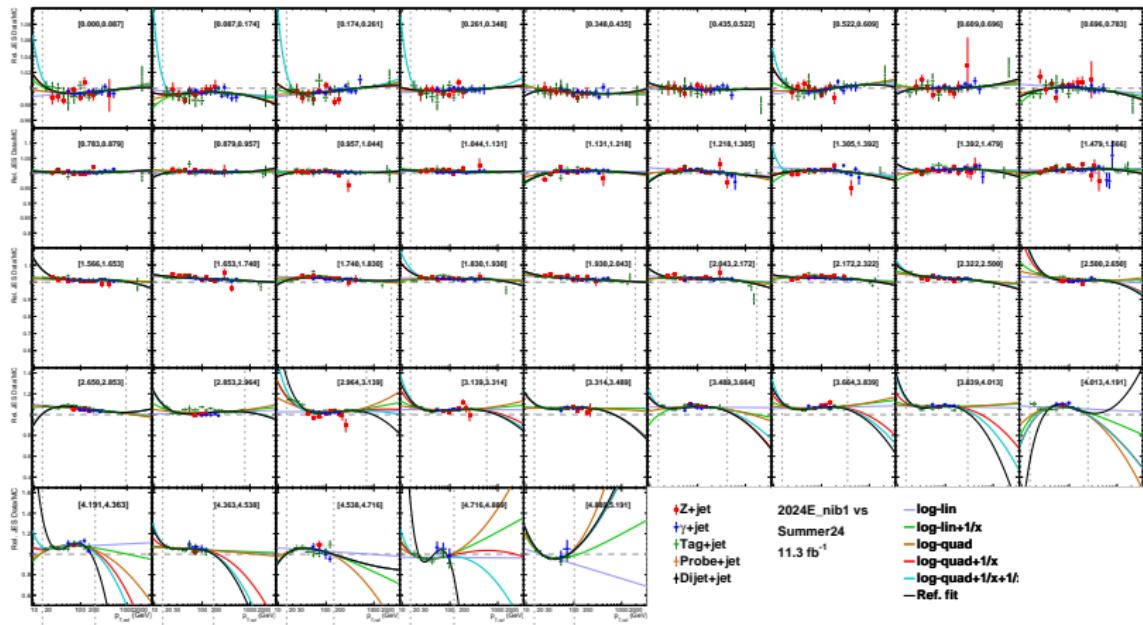
JES L2Res closure (ReReco24_V9M with V8M): 2024D_nib1



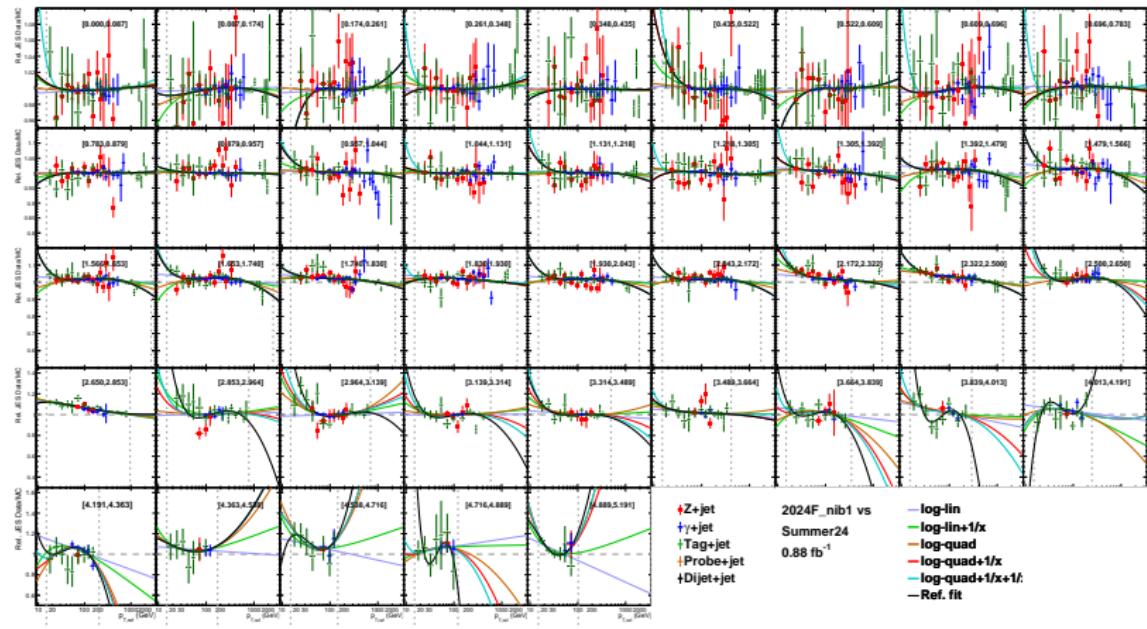
JES L2Res closure (ReReco24_V9M with V8M): 2024E_nib1



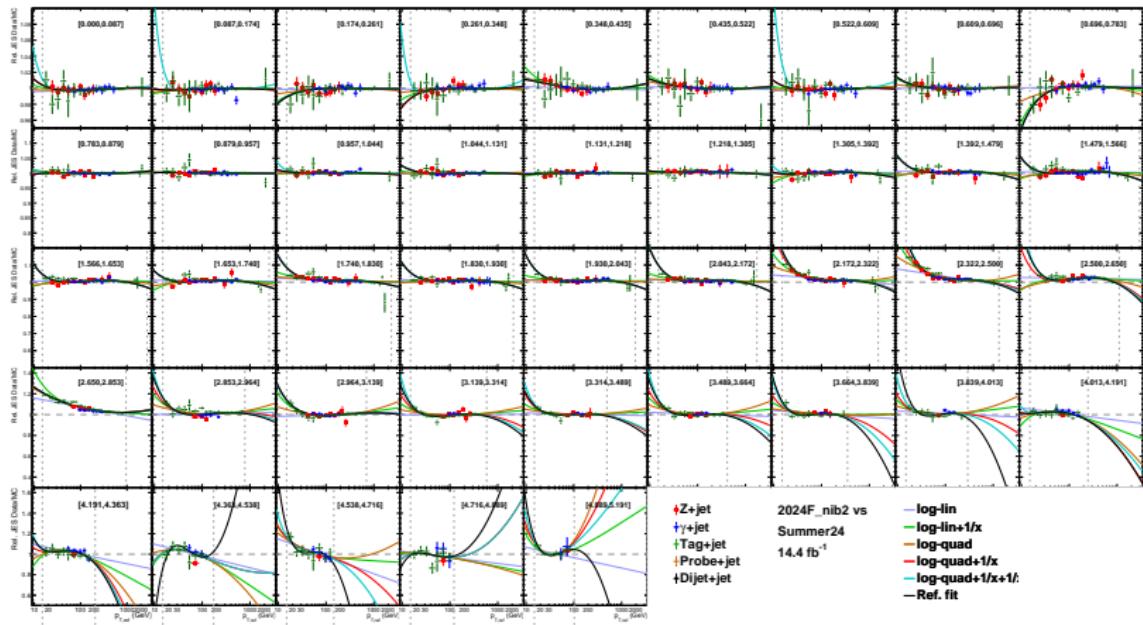
JES L2Res closure (ReReco24_V9M with V8M): 2024E_nib1



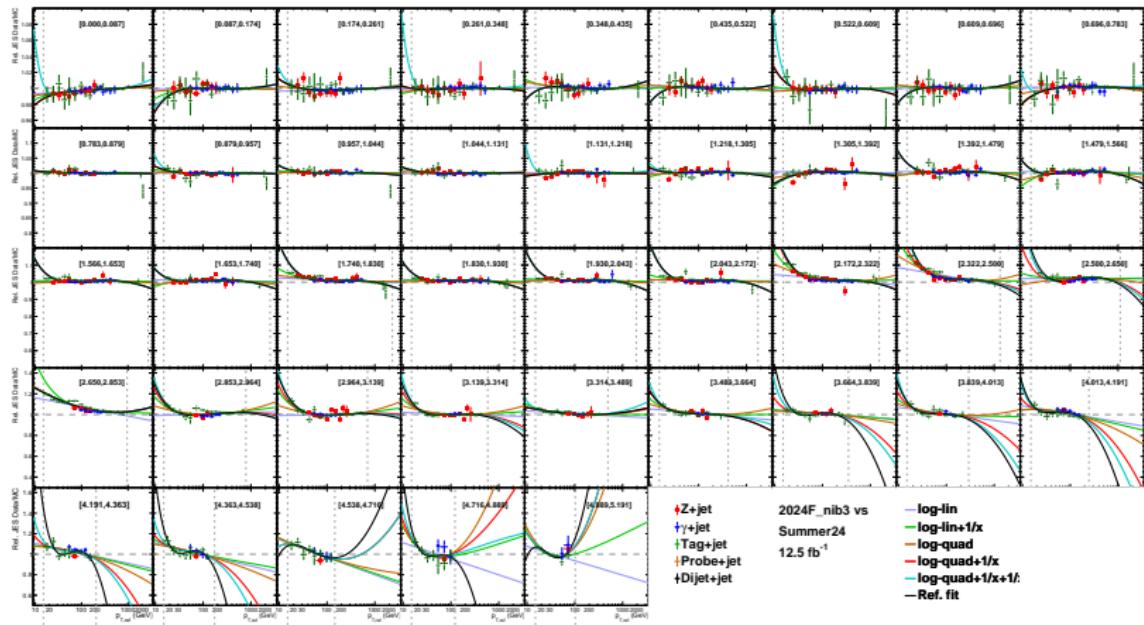
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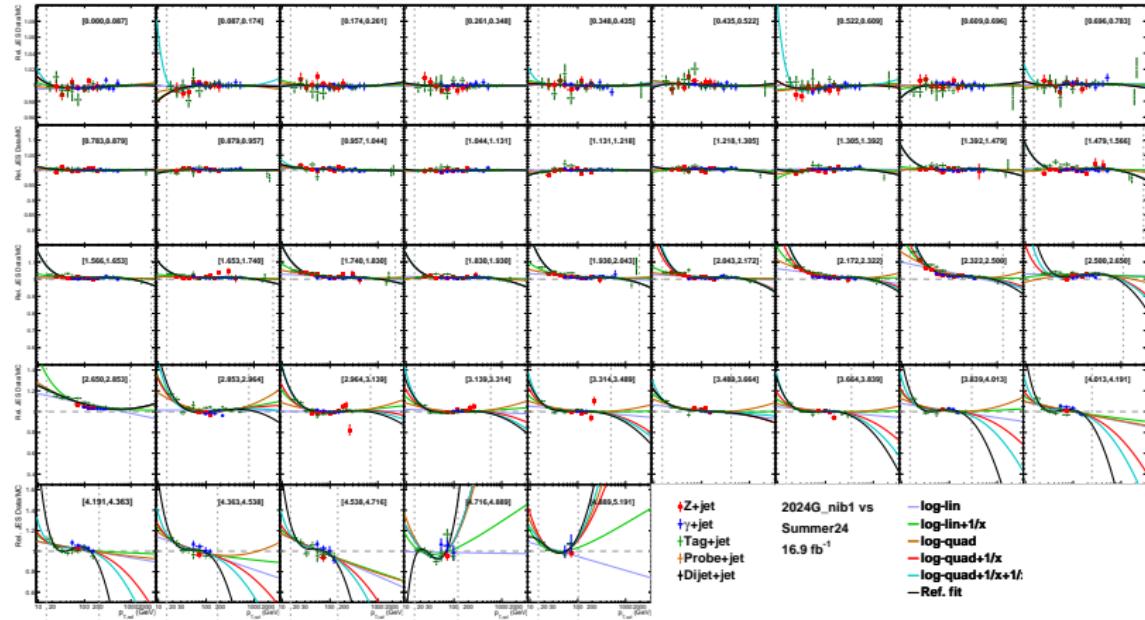
JES L2Res closure (ReReco24_V9M with V8M): 2024F_nib2



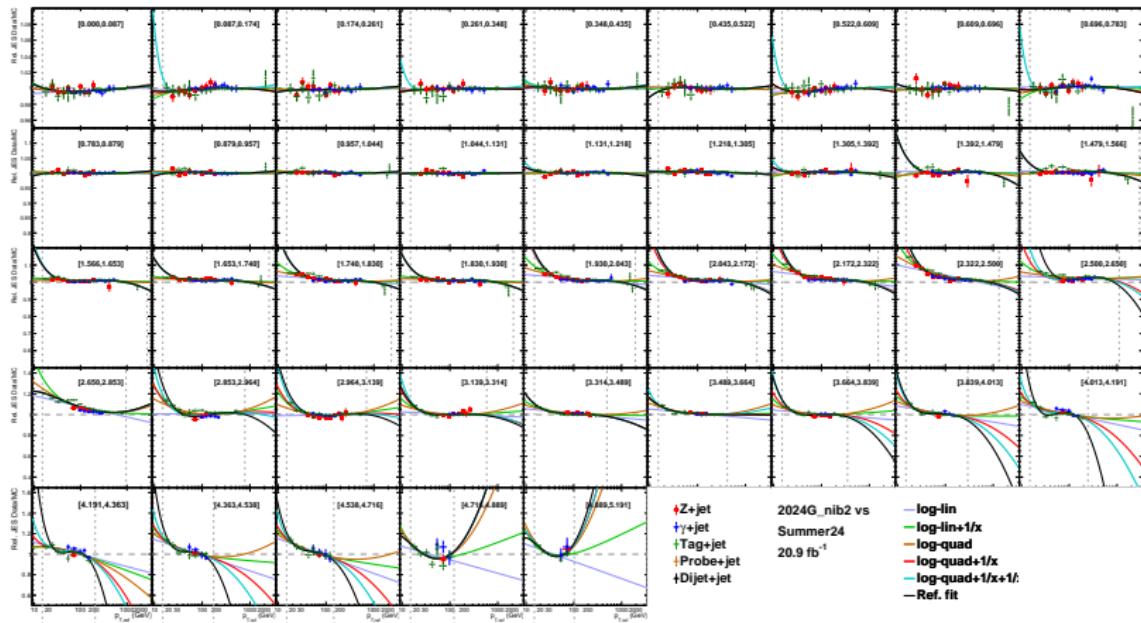
JES L2Res closure (ReReco24_V9M with V8M): 2024F_nib3



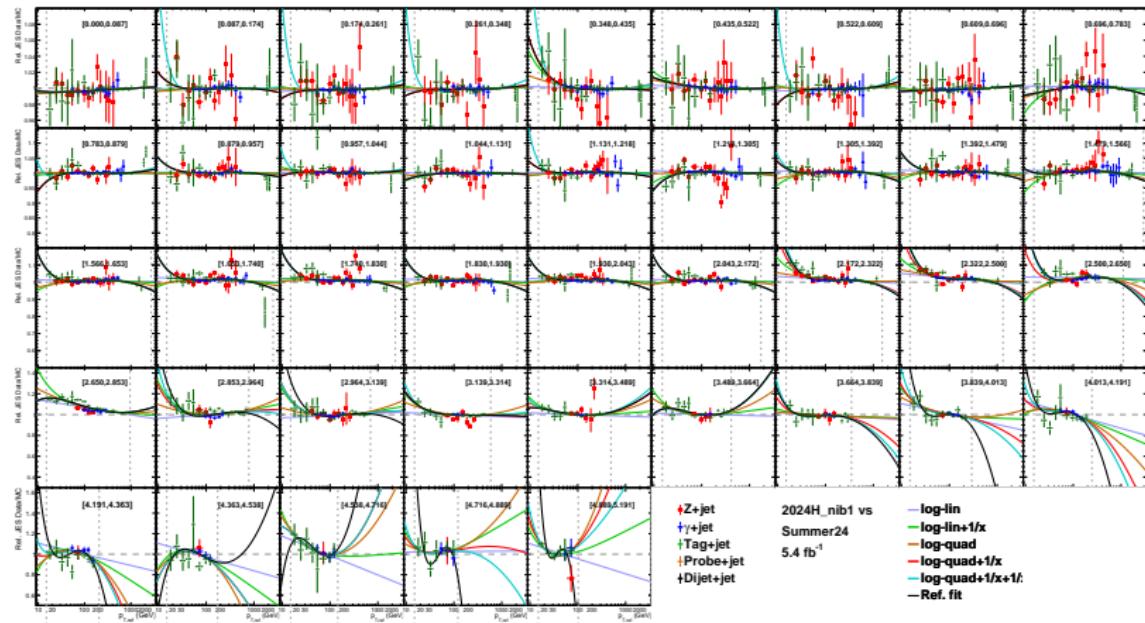
JES L2Res closure (ReReco24_V9M with V8M): 2024G_nib1



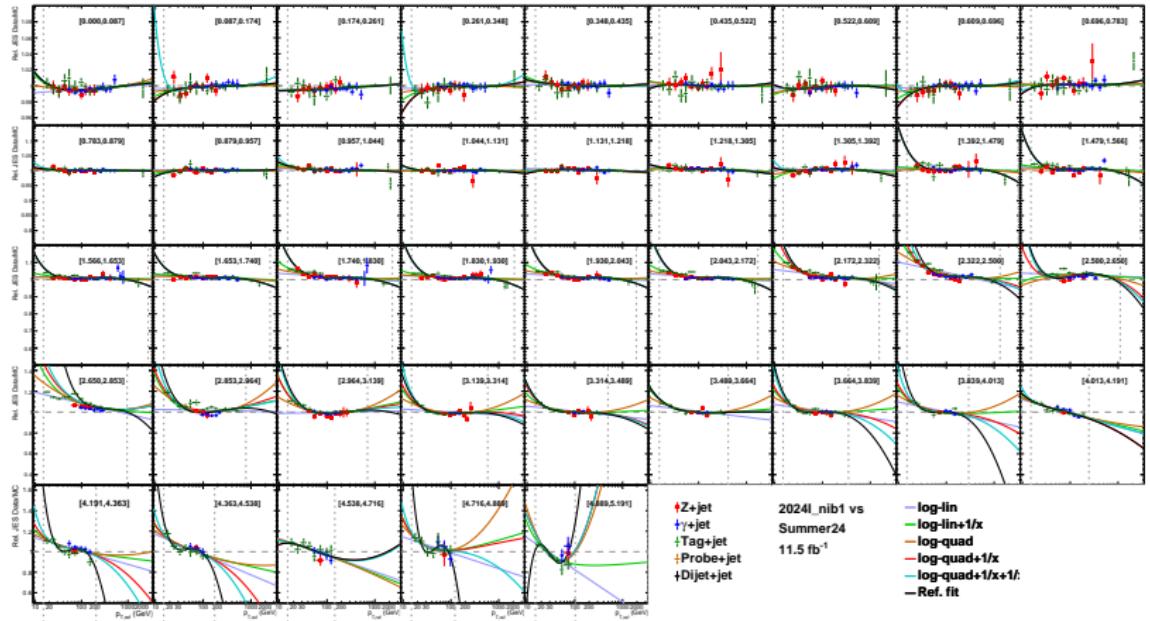
JES L2Res closure (ReReco24_V9M with V8M): 2024G_nib2



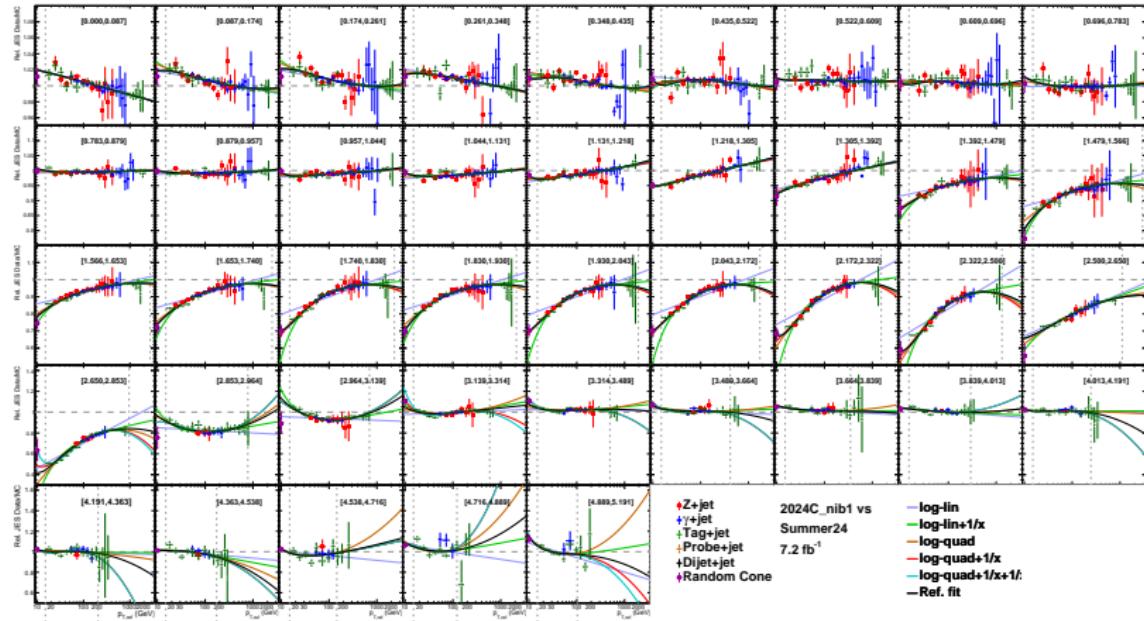
JES L2Res closure (ReReco24_V9M with V8M): 2024H_nib1



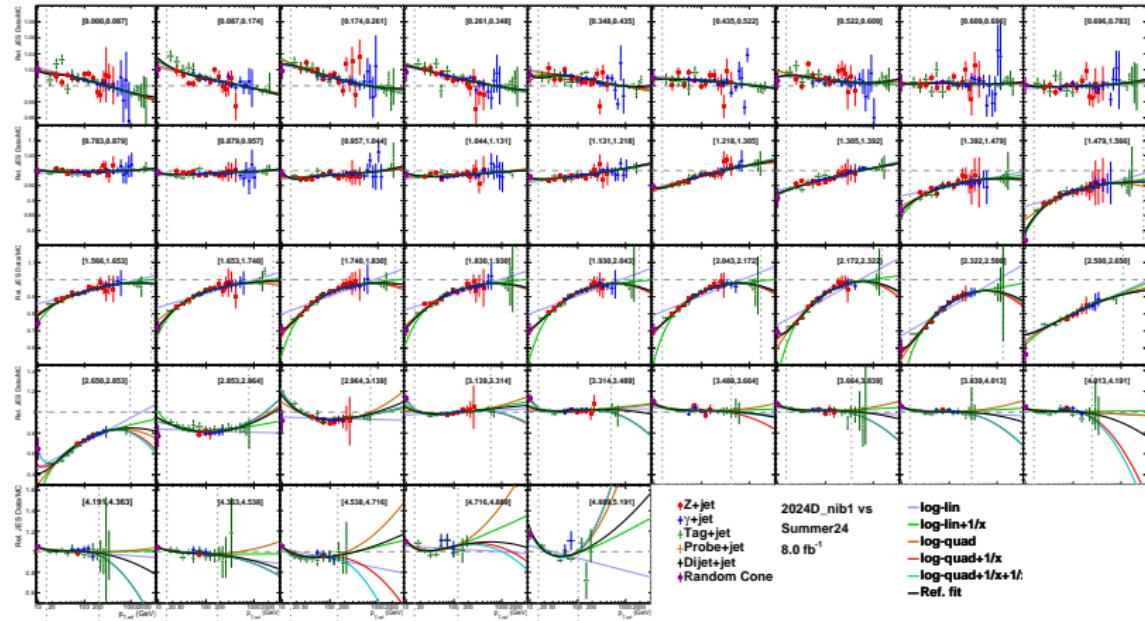
JES L2Res closure (ReReco24_V9M with V8M): 2024I_nib1



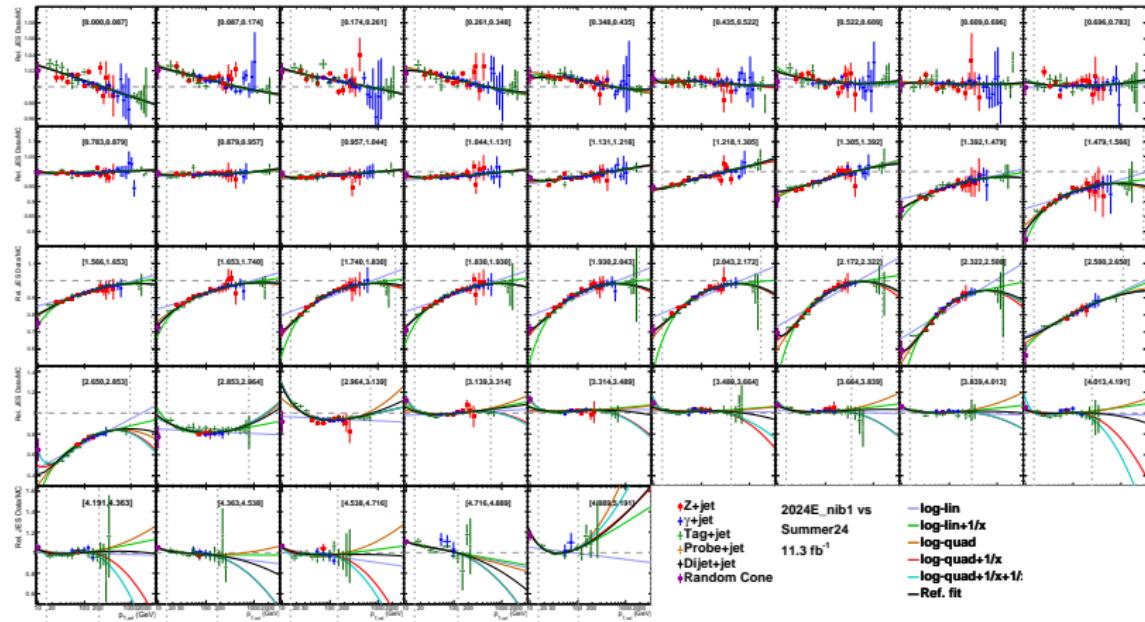
JES L2Res fits (ReReco24_V9M): 2024C_nib1



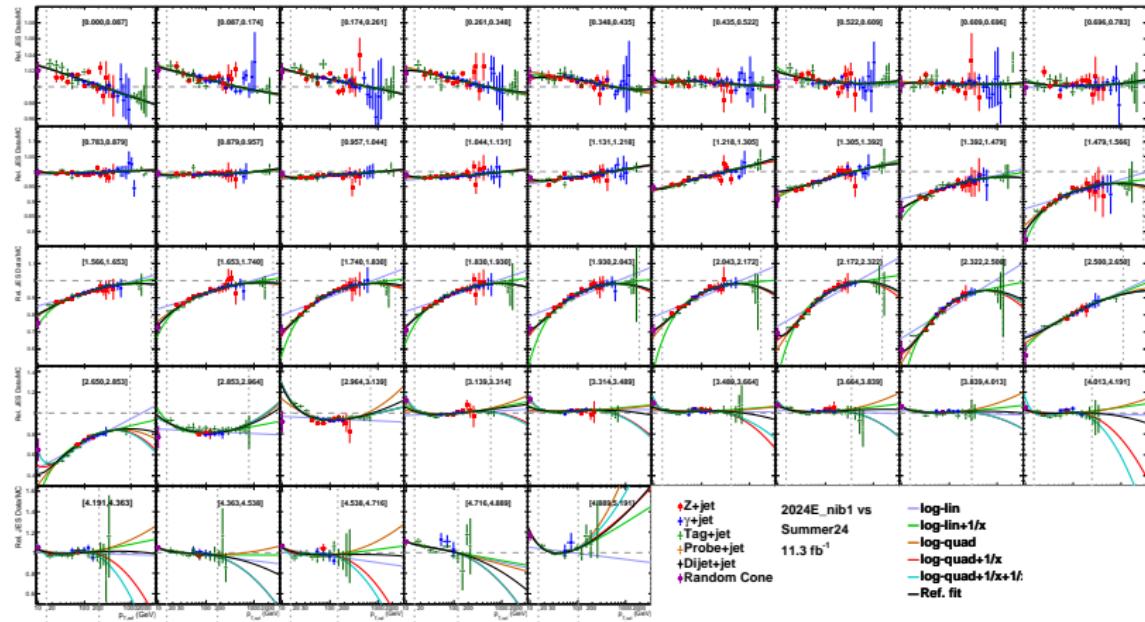
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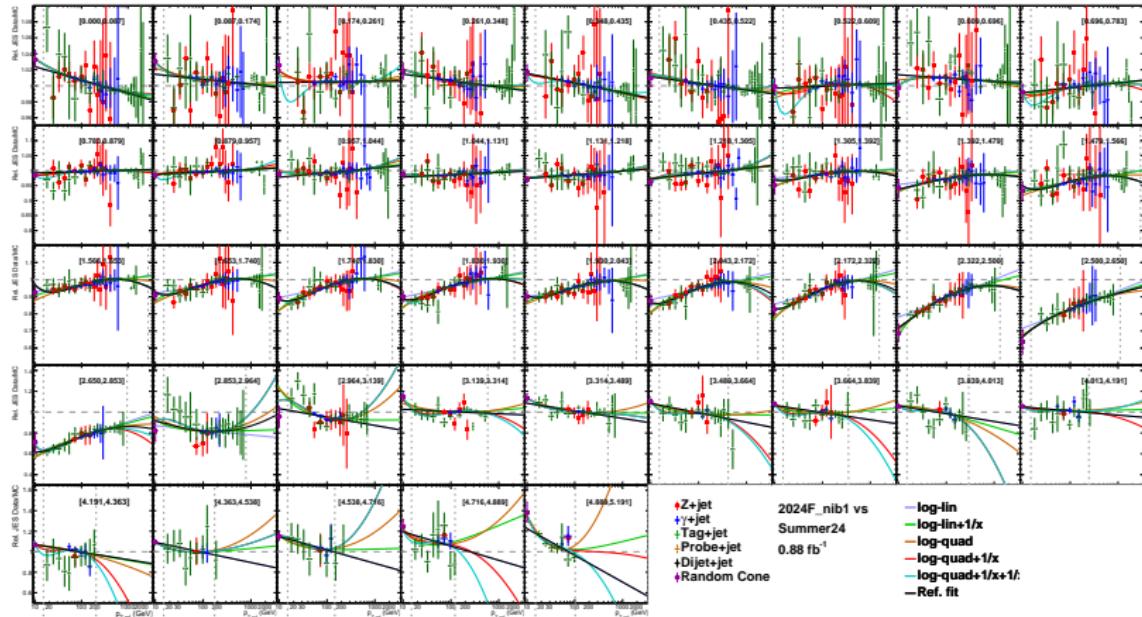
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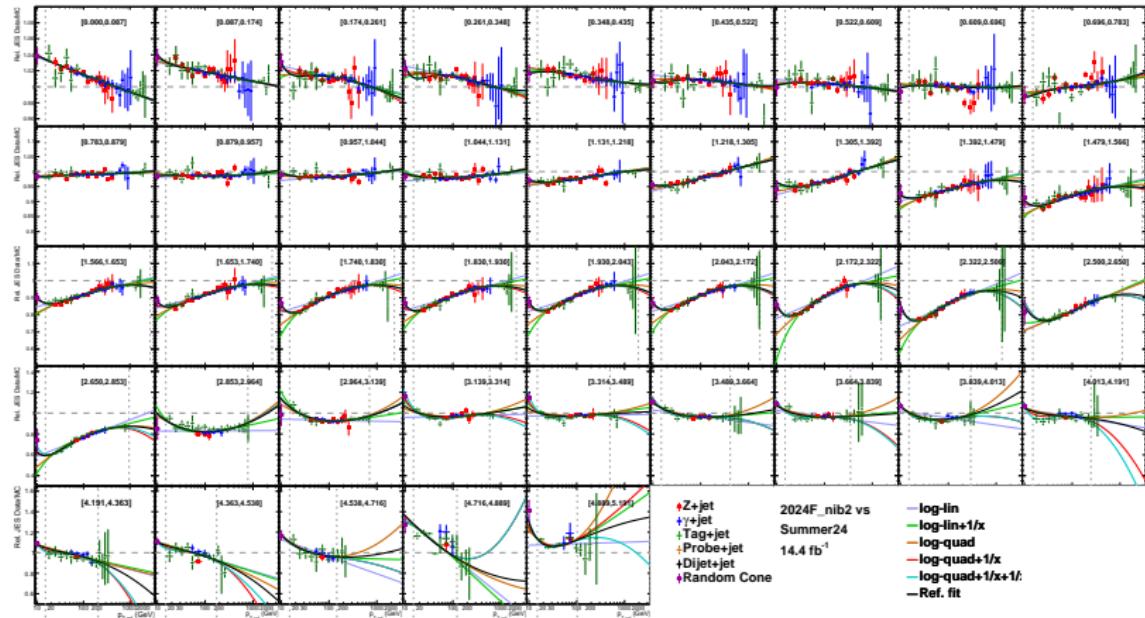
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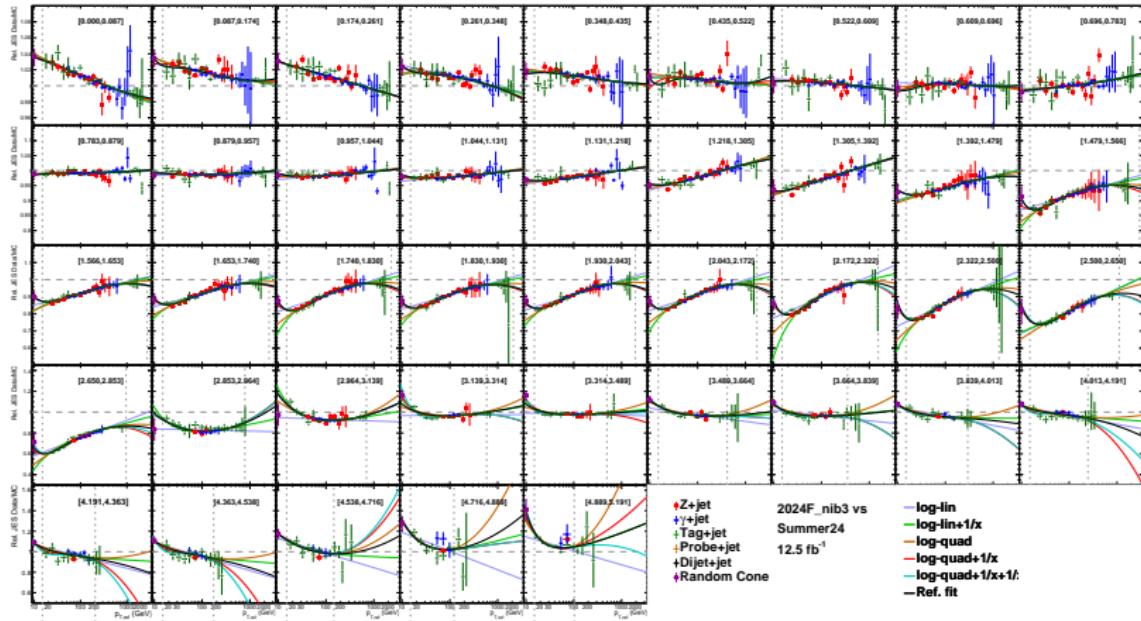
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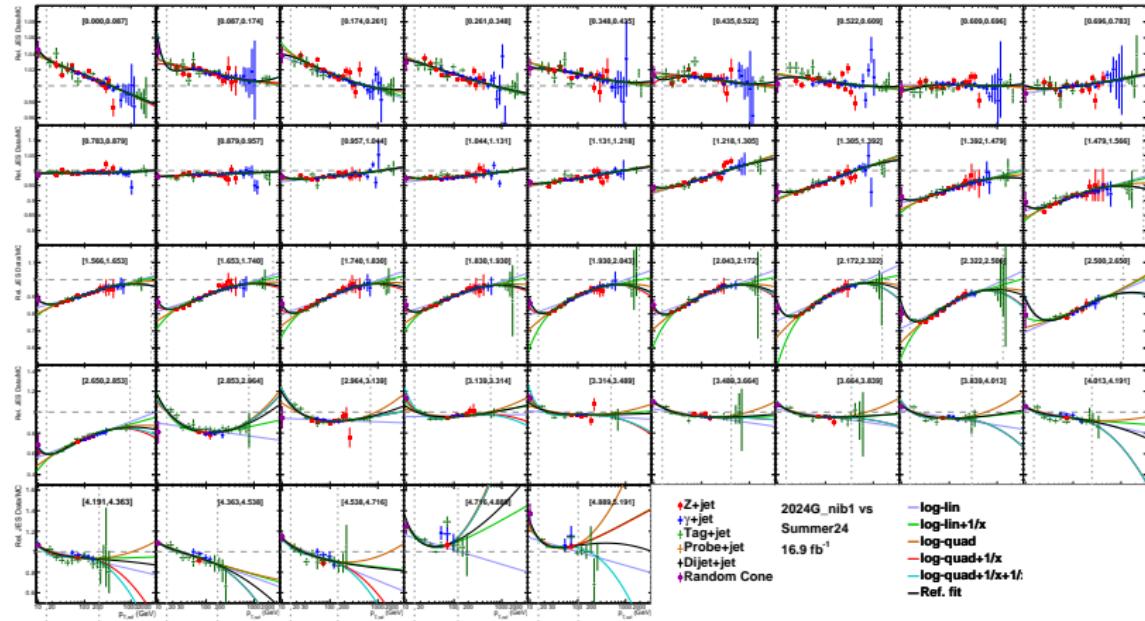
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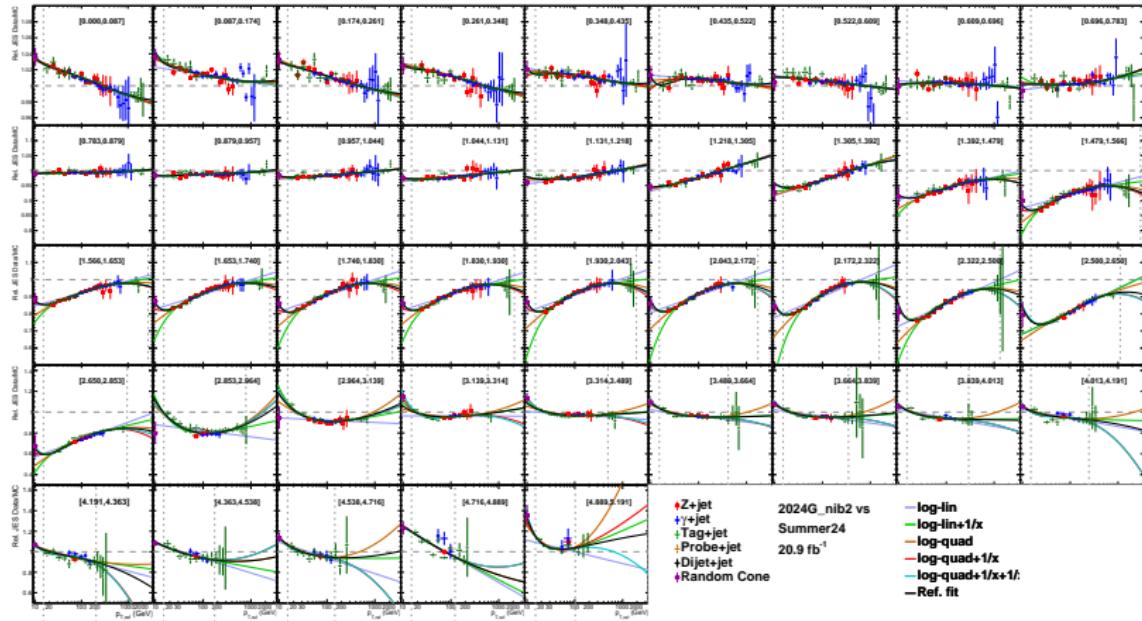
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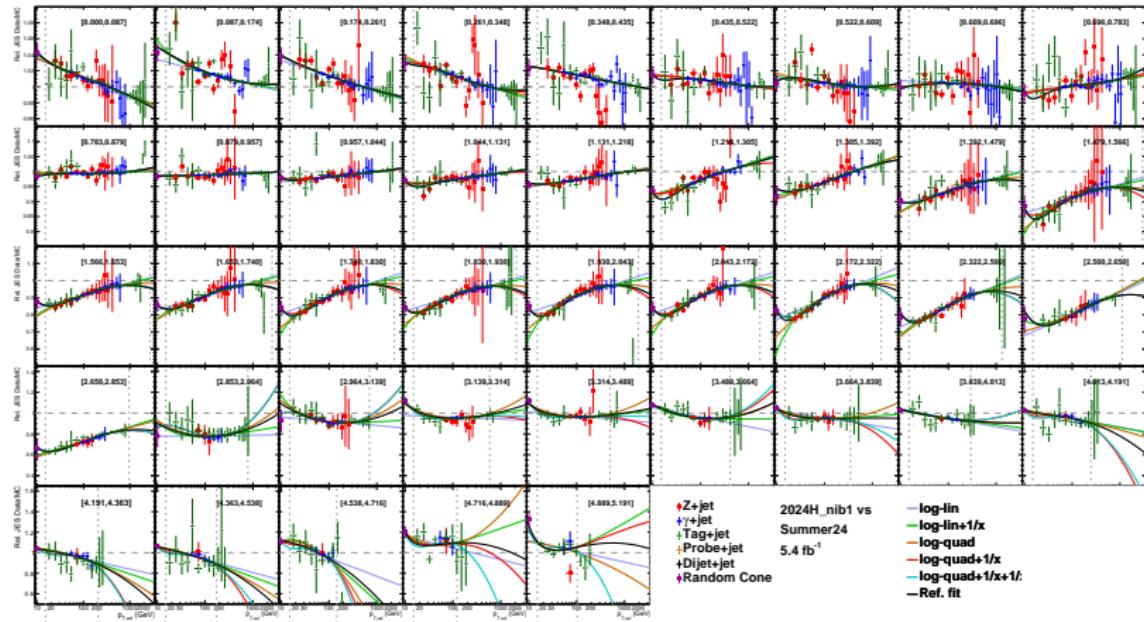
JES L2Res fits (ReReco24_V9M): 2024G_nib1



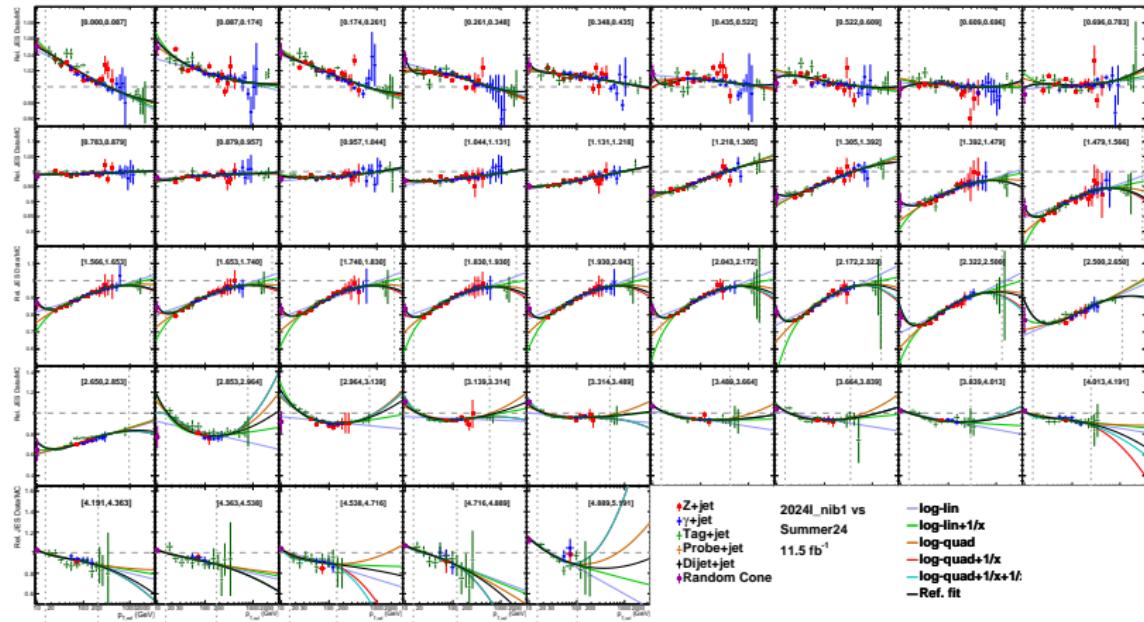
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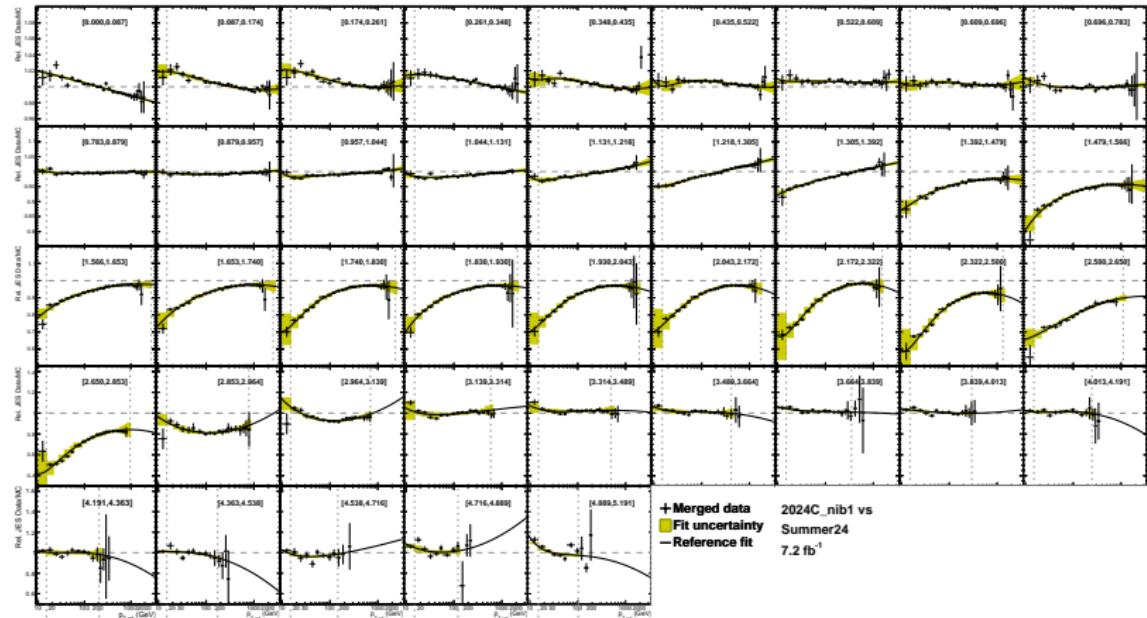
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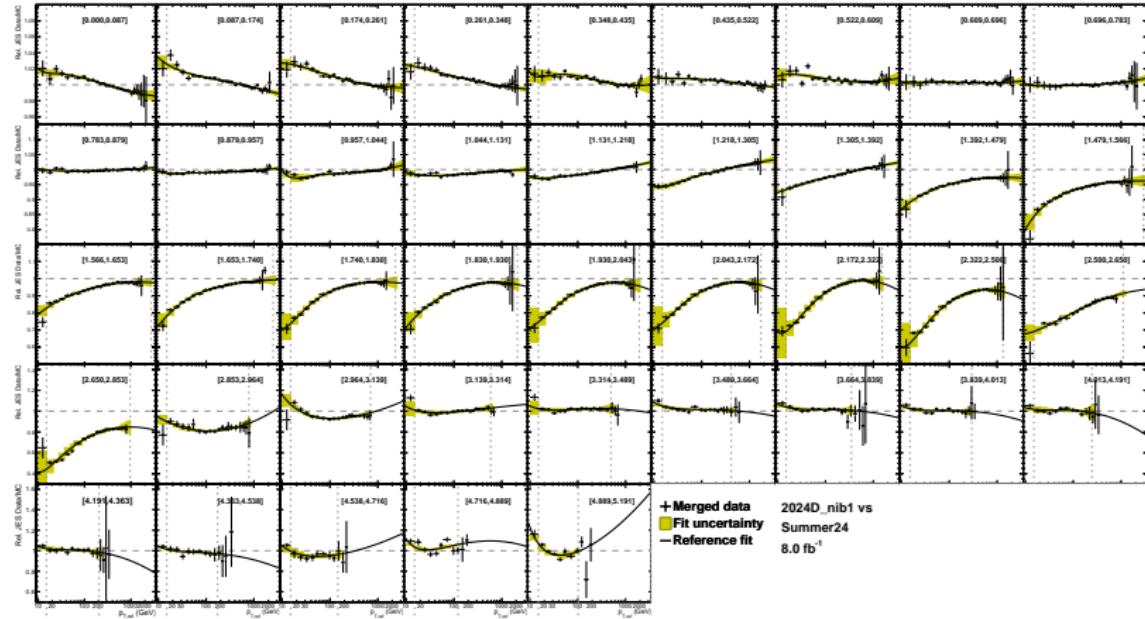
JES L2Res fits (ReReco24_V9M): 2024I_nib1



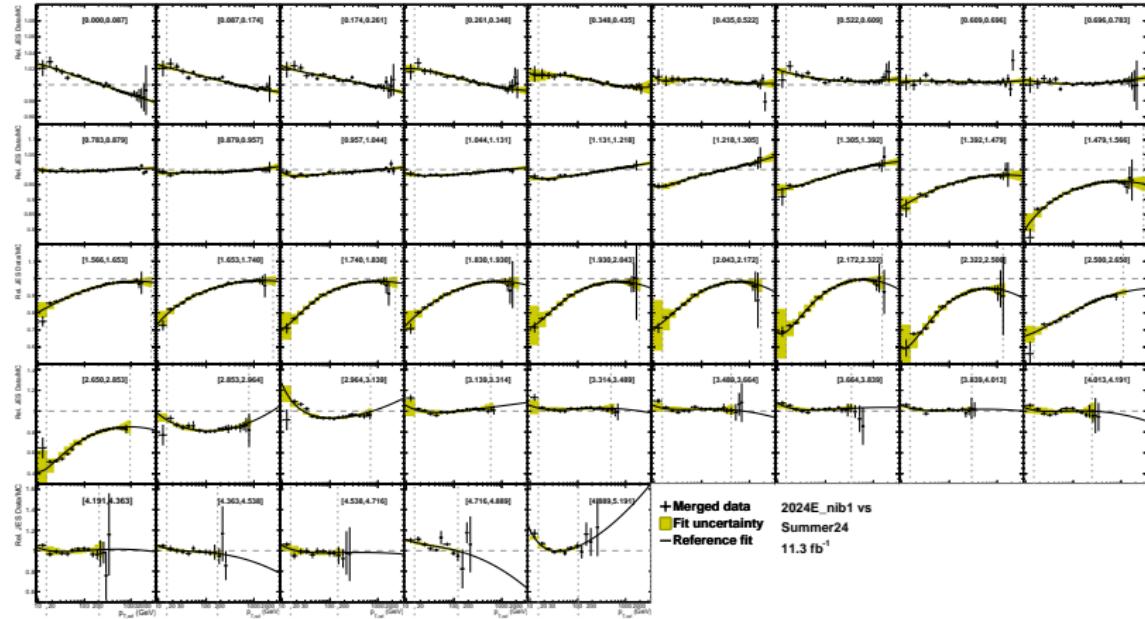
Merged L2Res data+fits (ReReco24_V9M): 2024C_nib1



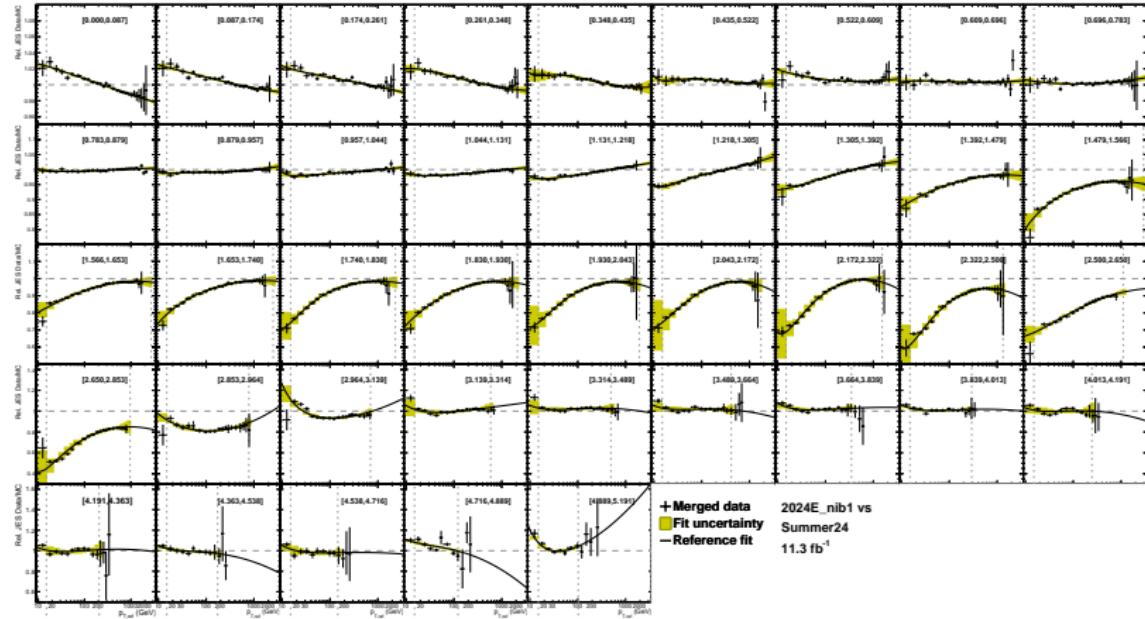
Merged L2Res data+fits (ReReco24_V9M): 2024D_nib1



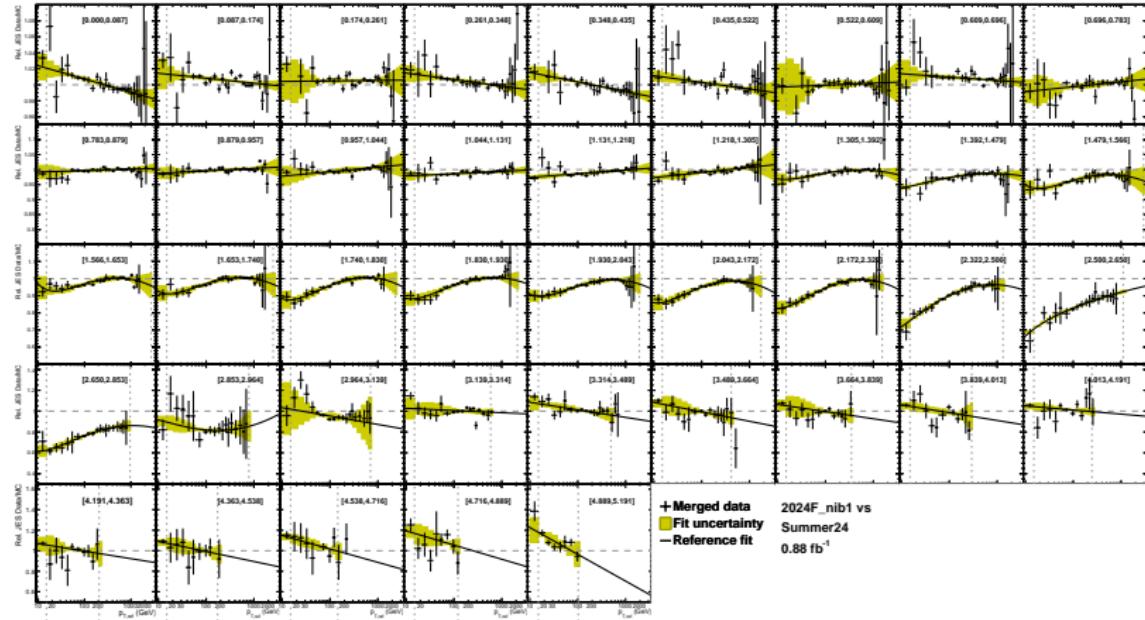
Merged L2Res data+fits (ReReco24_V9M): 2024E_nib1



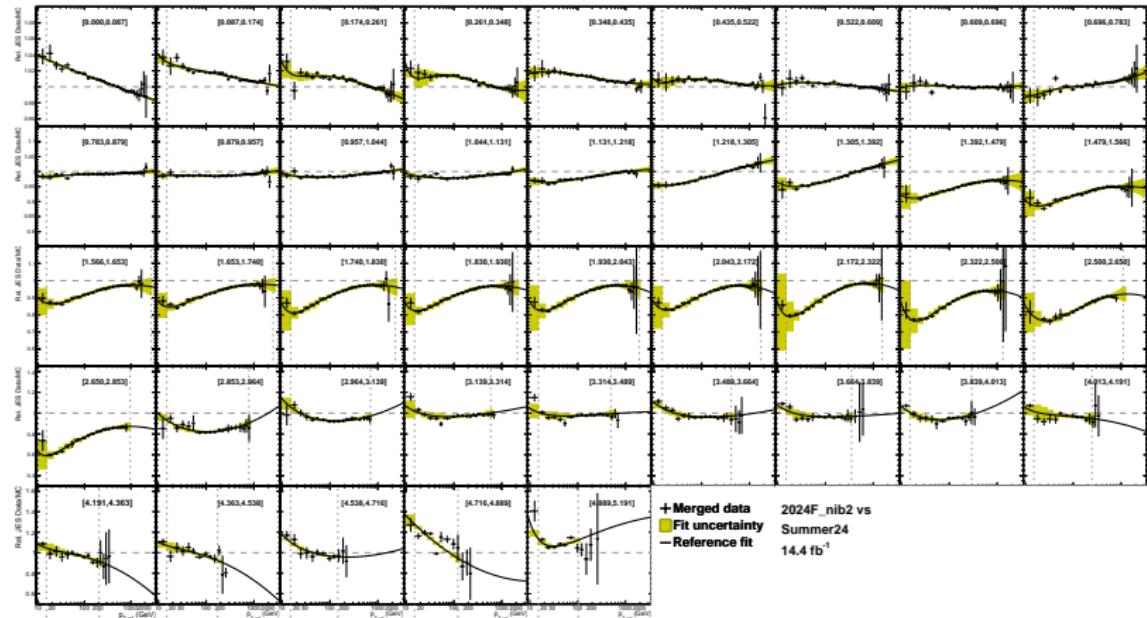
Merged L2Res data+fits (ReReco24_V9M): 2024E_nib1



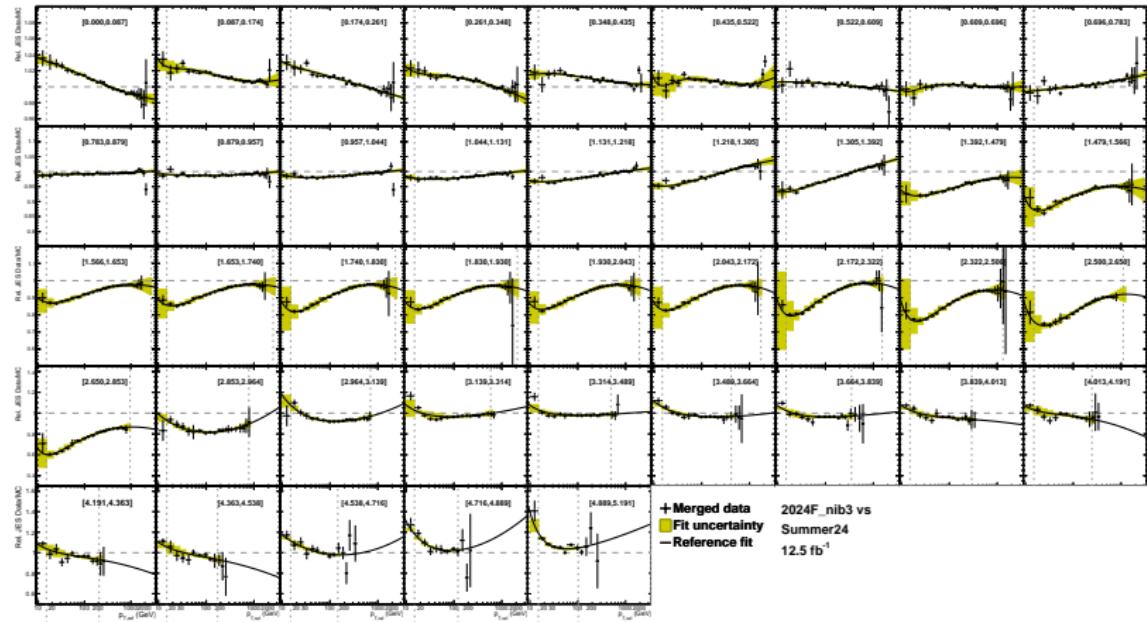
Merged L2Res data+fits (ReReco24_V9M): 2024F_nib1



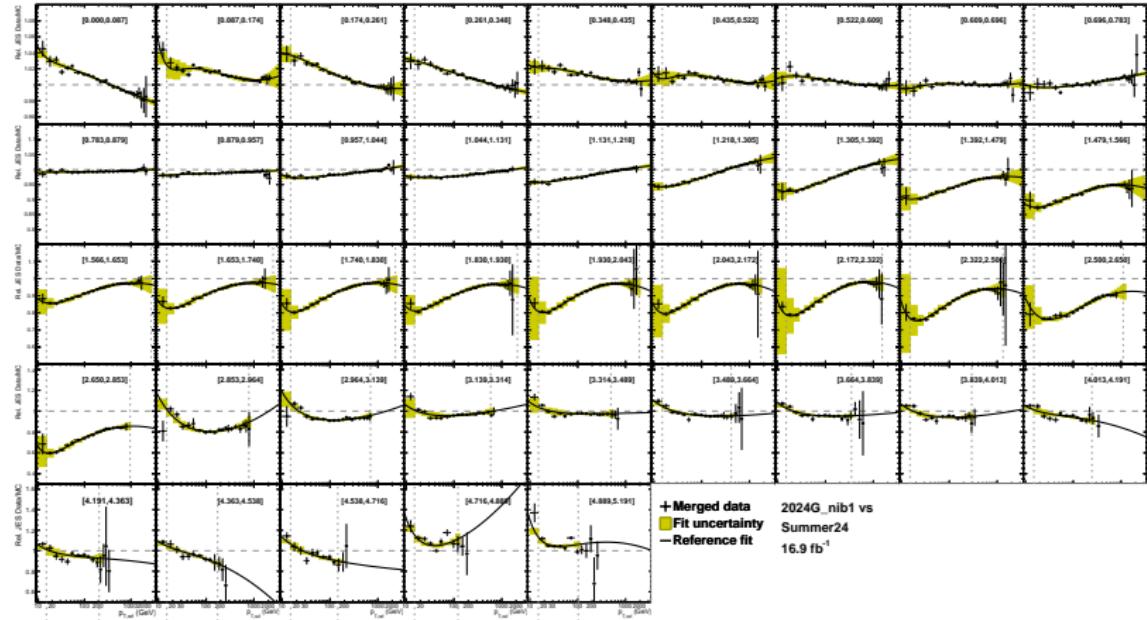
Merged L2Res data+fits (ReReco24_V9M): 2024F_nib2



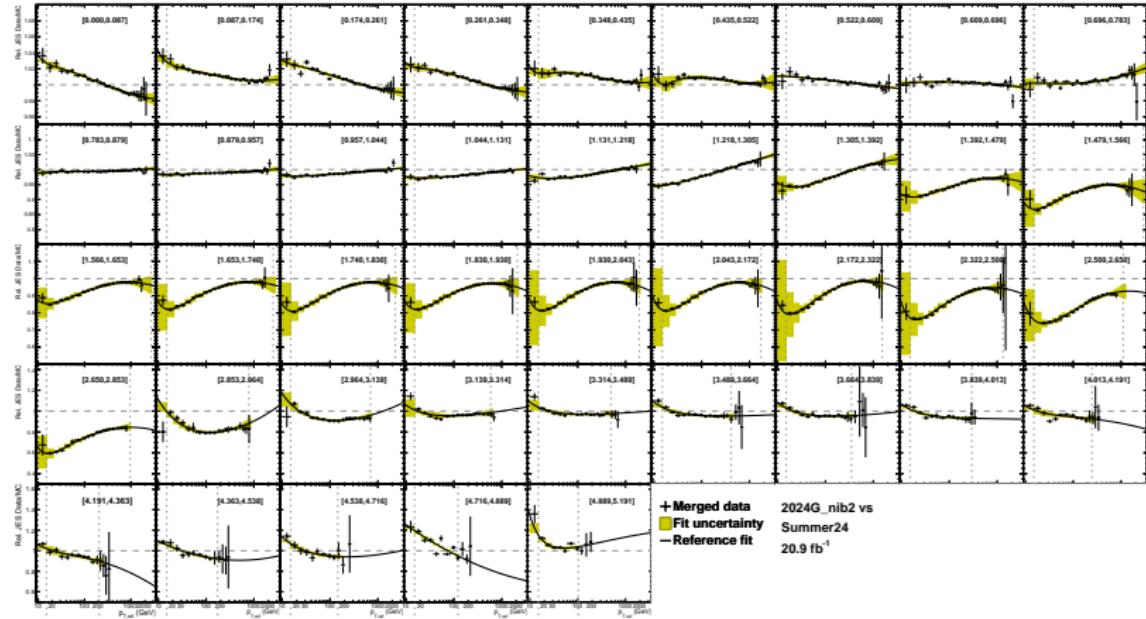
Merged L2Res data+fits (ReReco24_V9M): 2024F_nib3



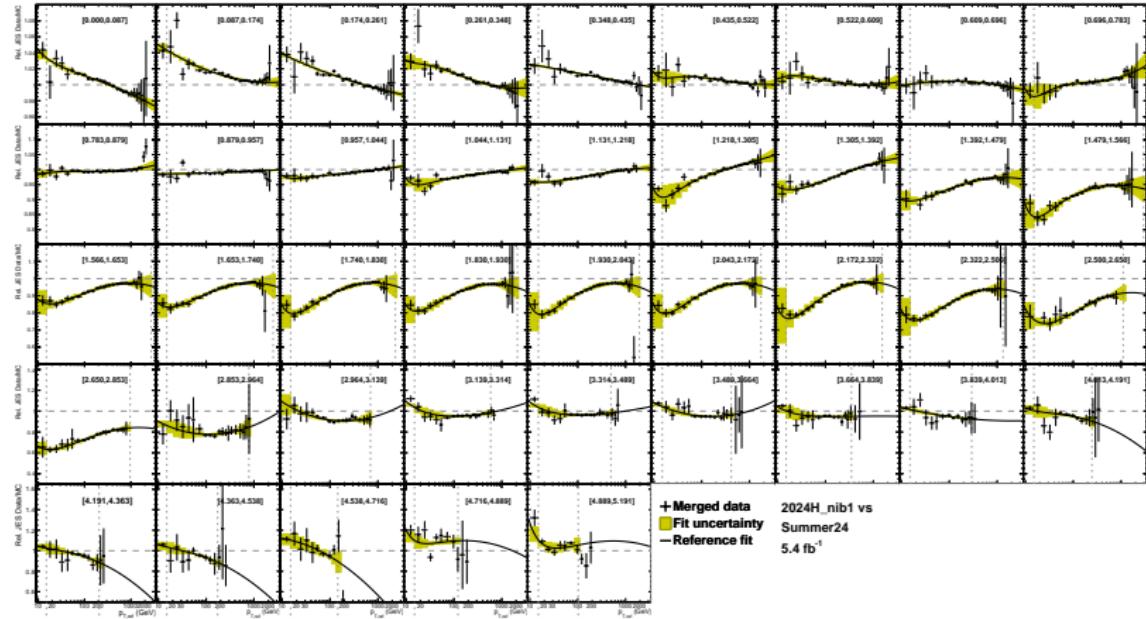
Merged L2Res data+fits (ReReco24_V9M): 2024G_nib1



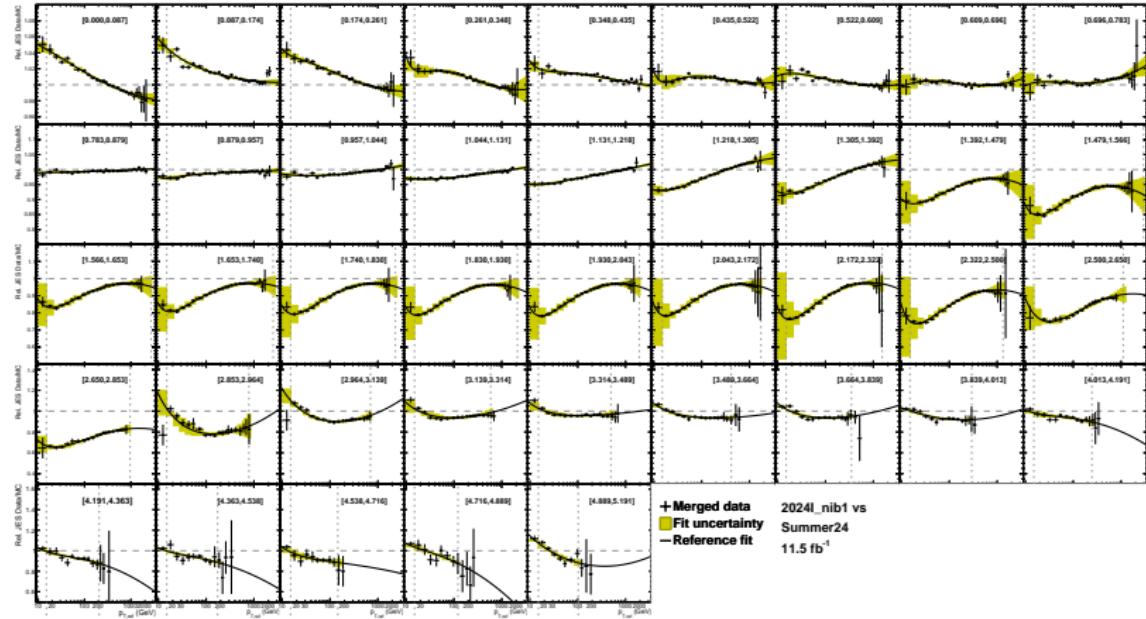
Merged L2Res data+fits (ReReco24_V9M): 2024G_nib2



Merged L2Res data+fits (ReReco24_V9M): 2024H_nib1



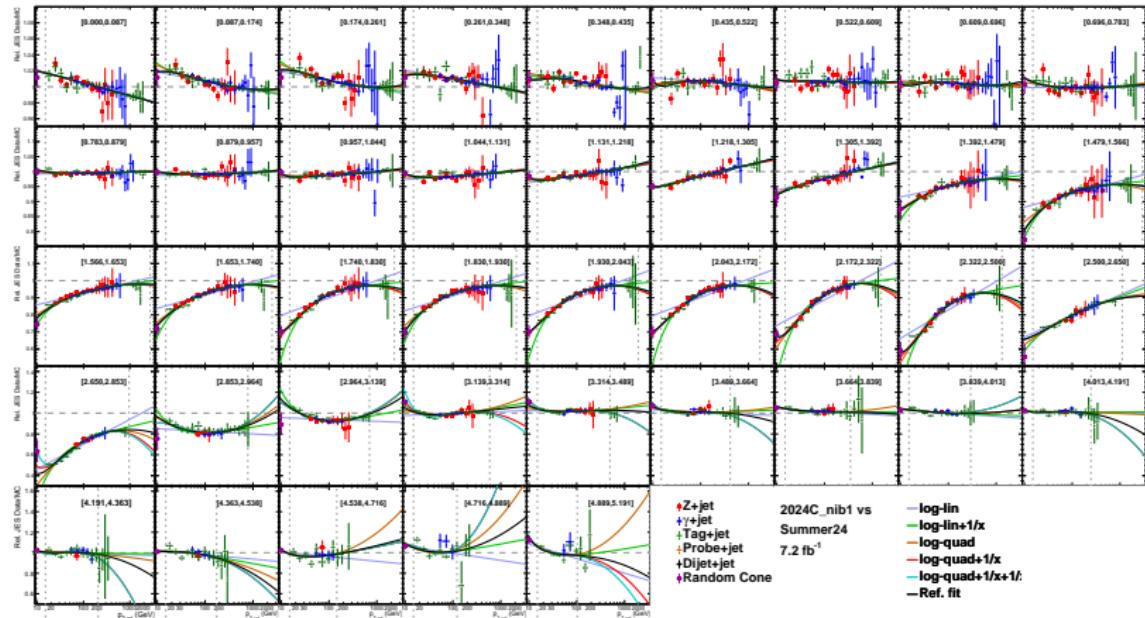
Merged L2Res data+fits (ReReco24_V9M): 2024I_nib1



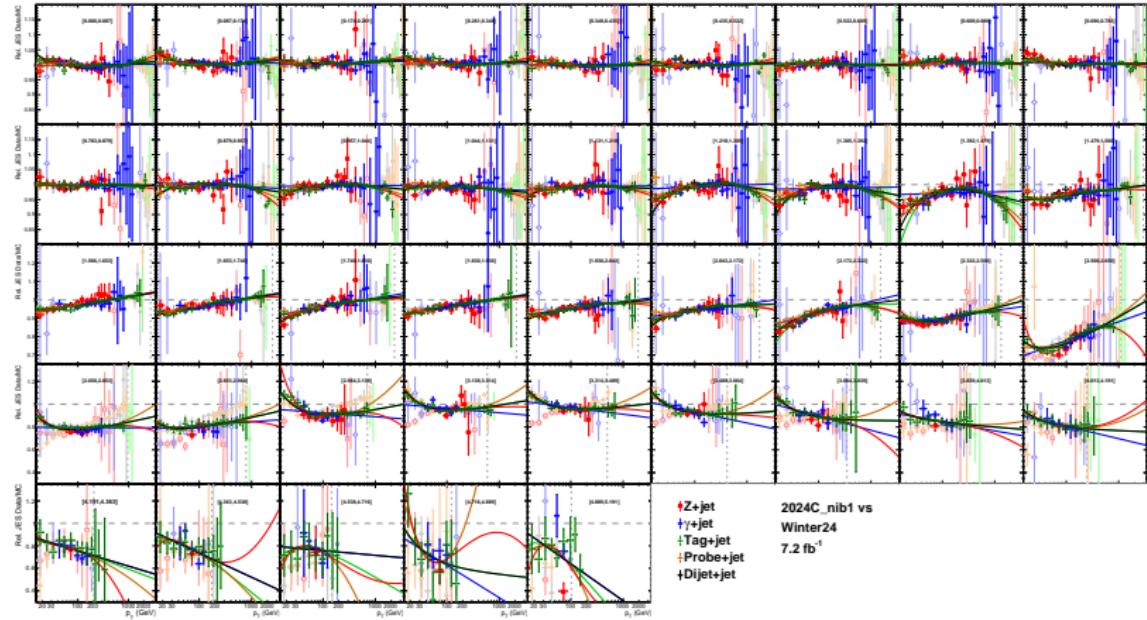
JEC L2Res fits vs era for ReReco24_V9M, V8M

- ▶ Flip back and forth to check stability of ReReco24_V9M vs baseline reference V8M
- ▶ Goal 1: check changes with respect to previous version
- ▶ Goal 2: catch unstable fits producing unexpected changes (sometimes points with e.g. bad error bars biasing things)

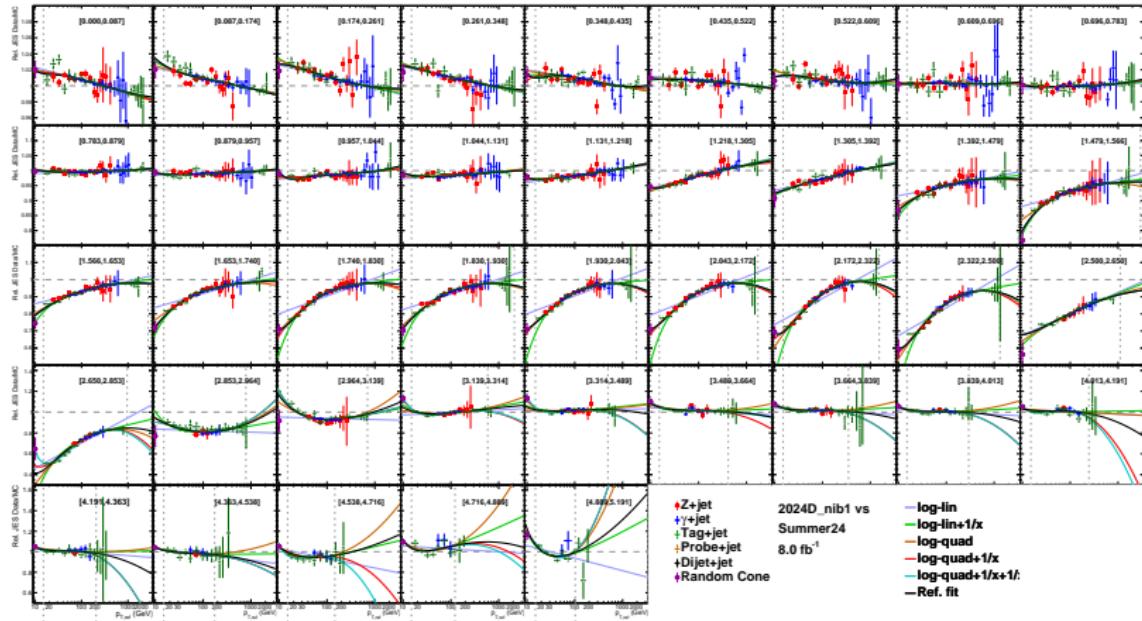
JES L2Res fits (ReReco24_V9M): 2024C_nib1



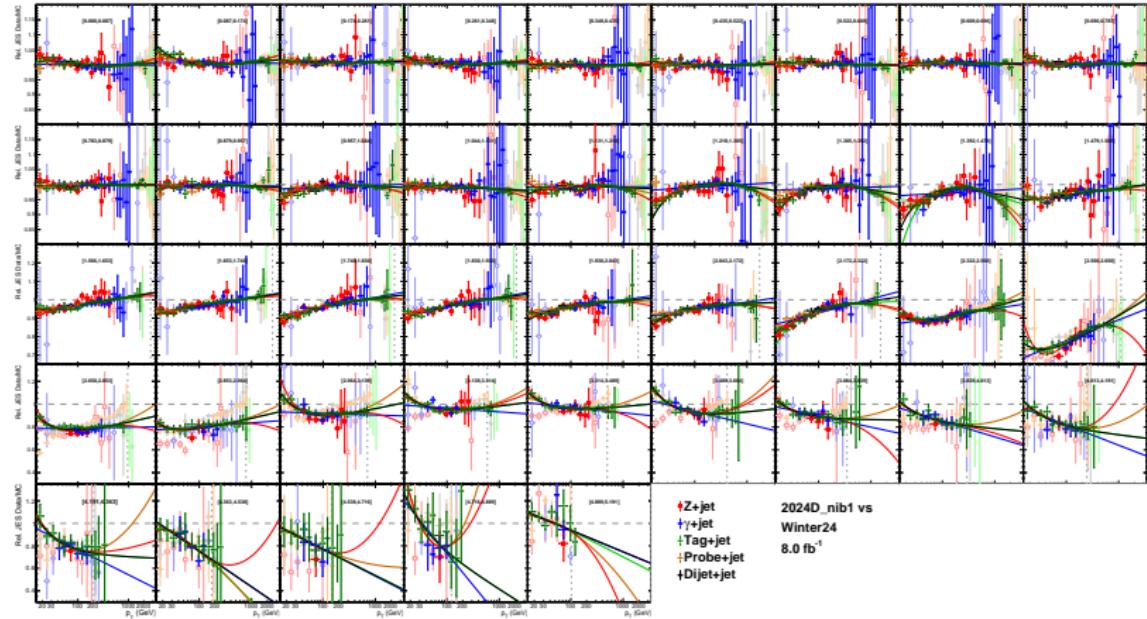
JES L2Res fits (V8M): 2024C_nib1



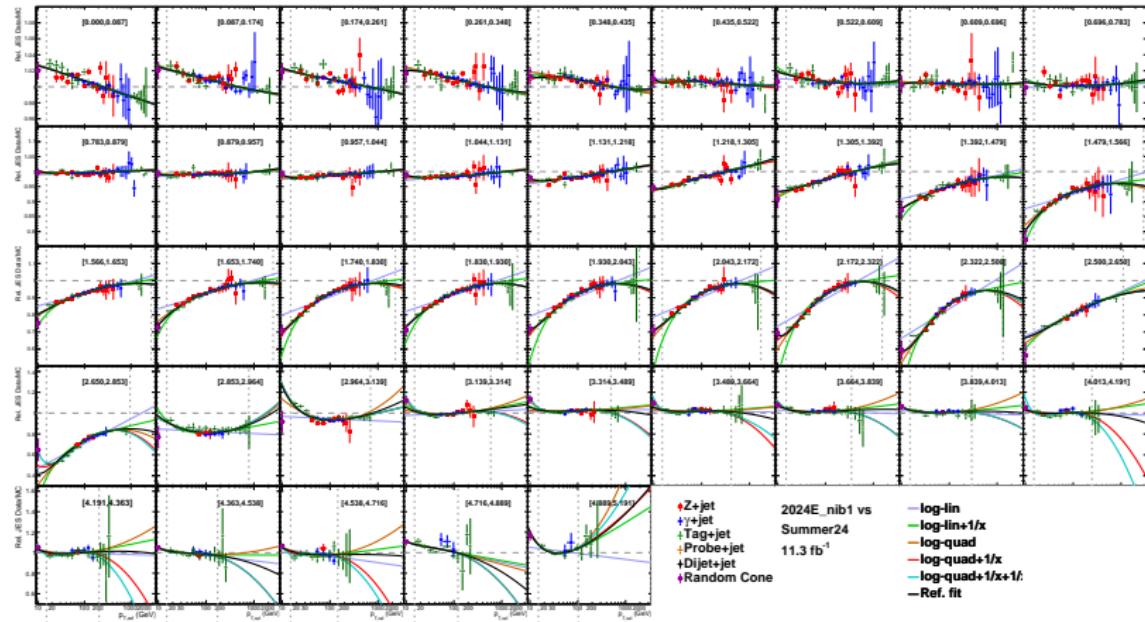
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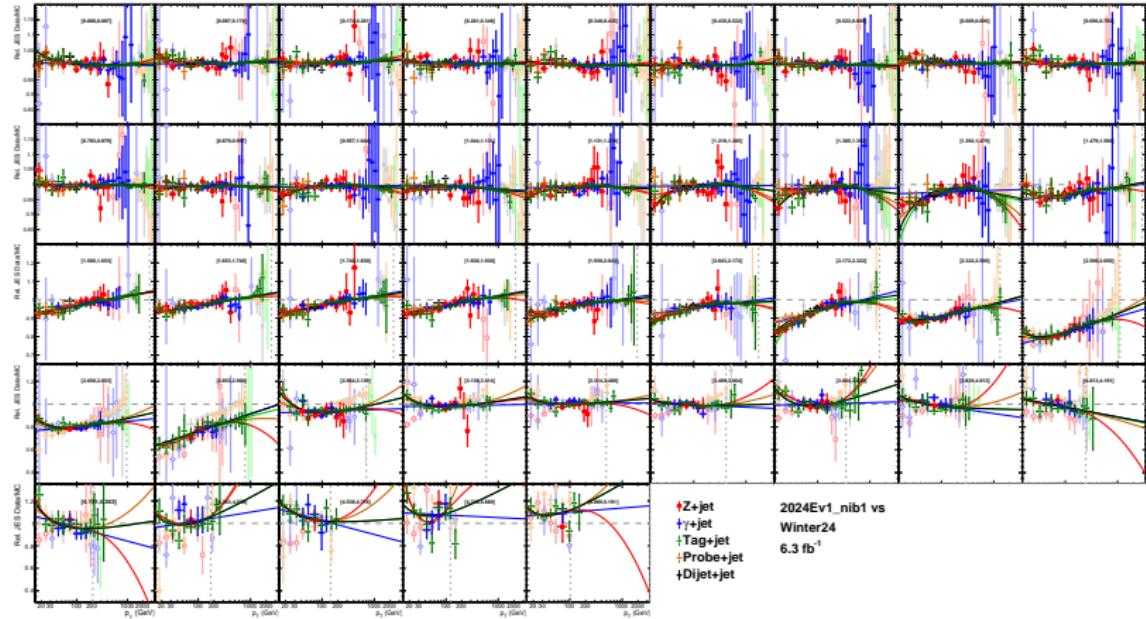
JES L2Res fits (V8M): 2024D_nib1



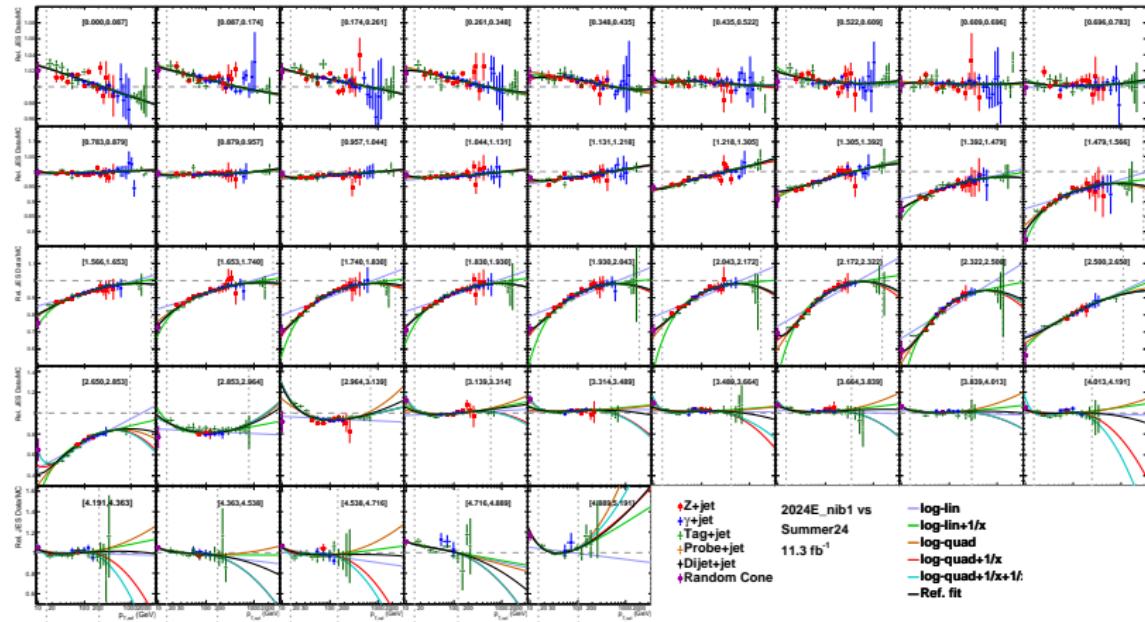
JES L2Res fits (ReReco24_V9M): 2024E_nib1



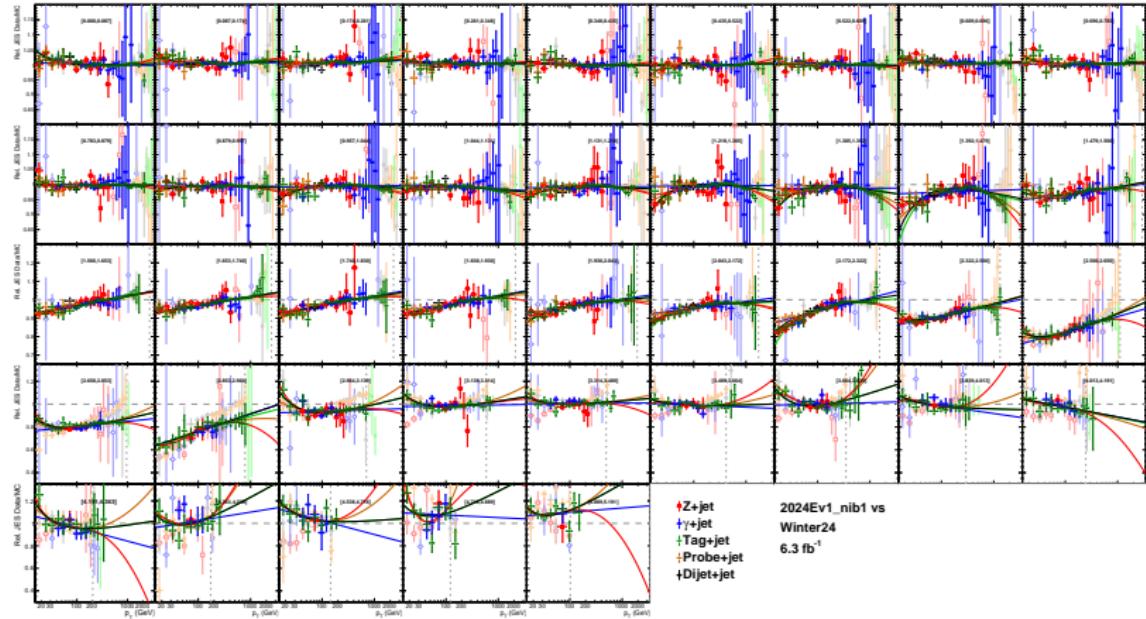
JES L2Res fits (V8M): 2024Ev1_nib1



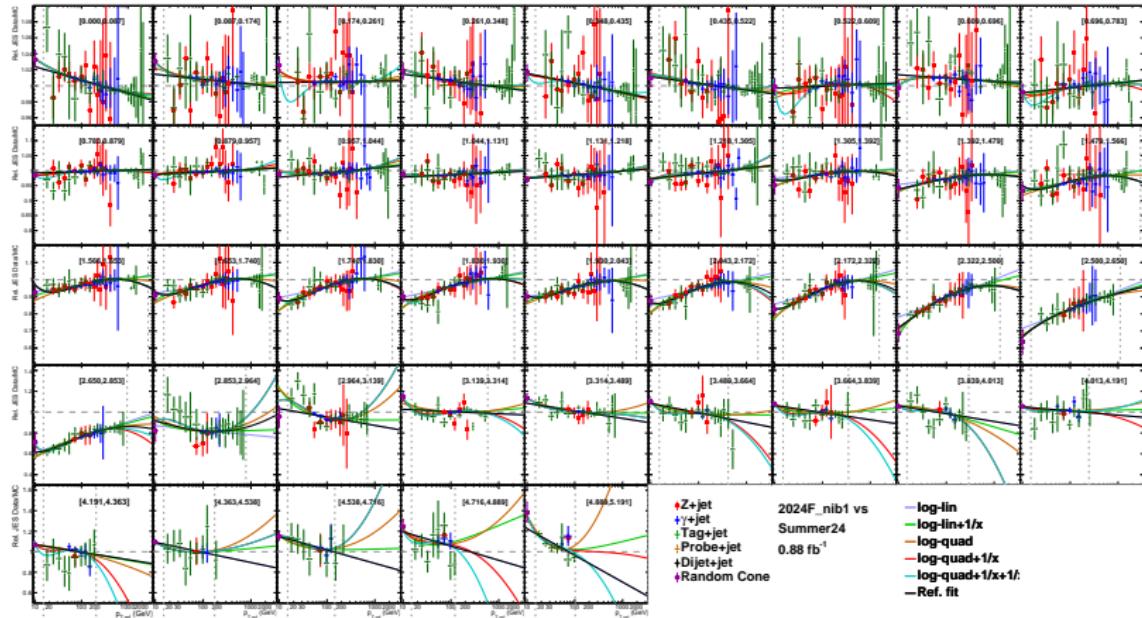
JES L2Res fits (ReReco24_V9M): 2024E_nib1



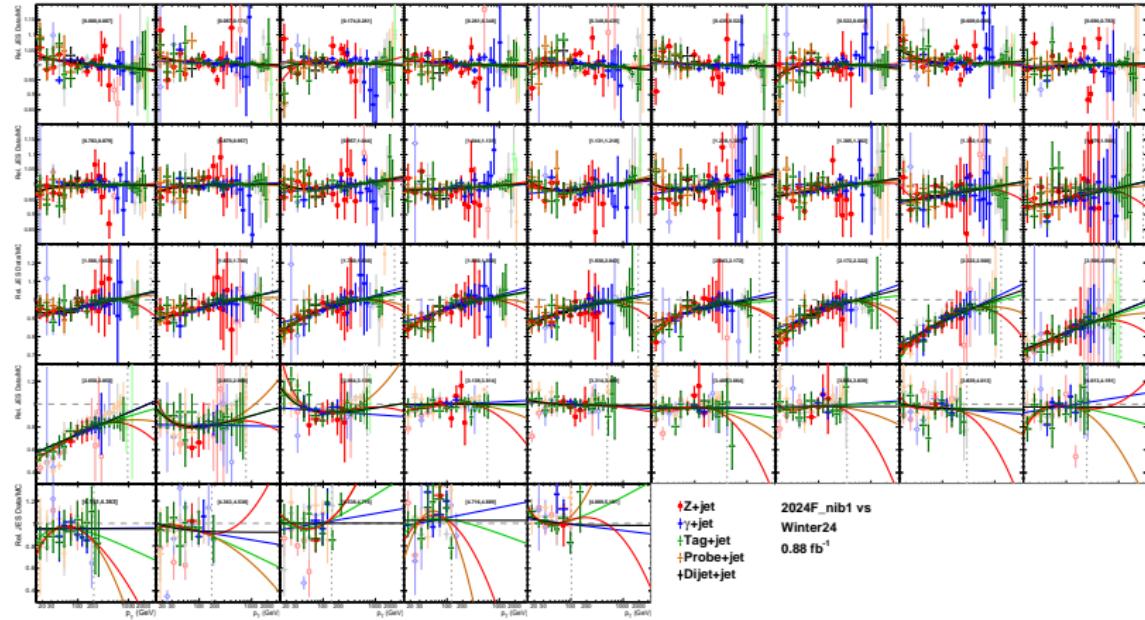
JES L2Res fits (V8M): 2024Ev1_nib1



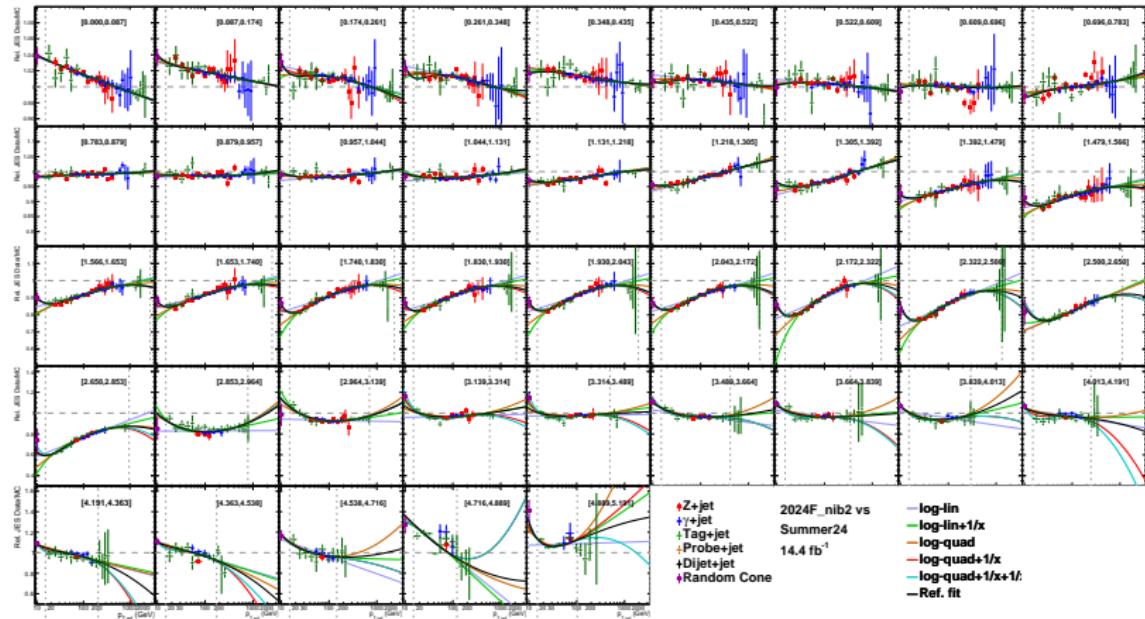
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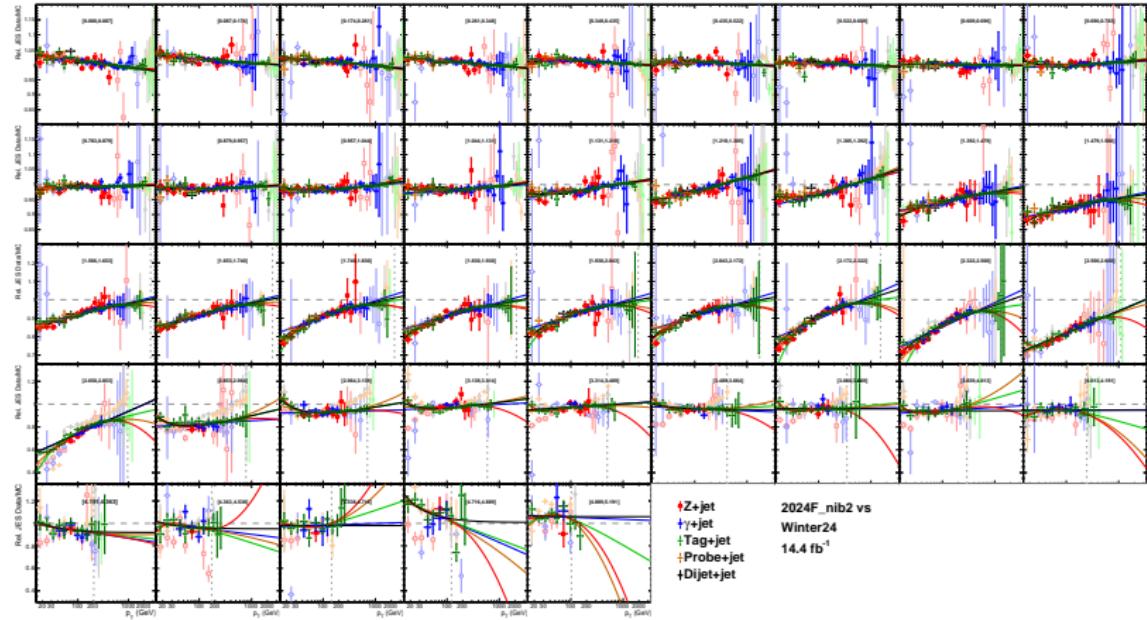
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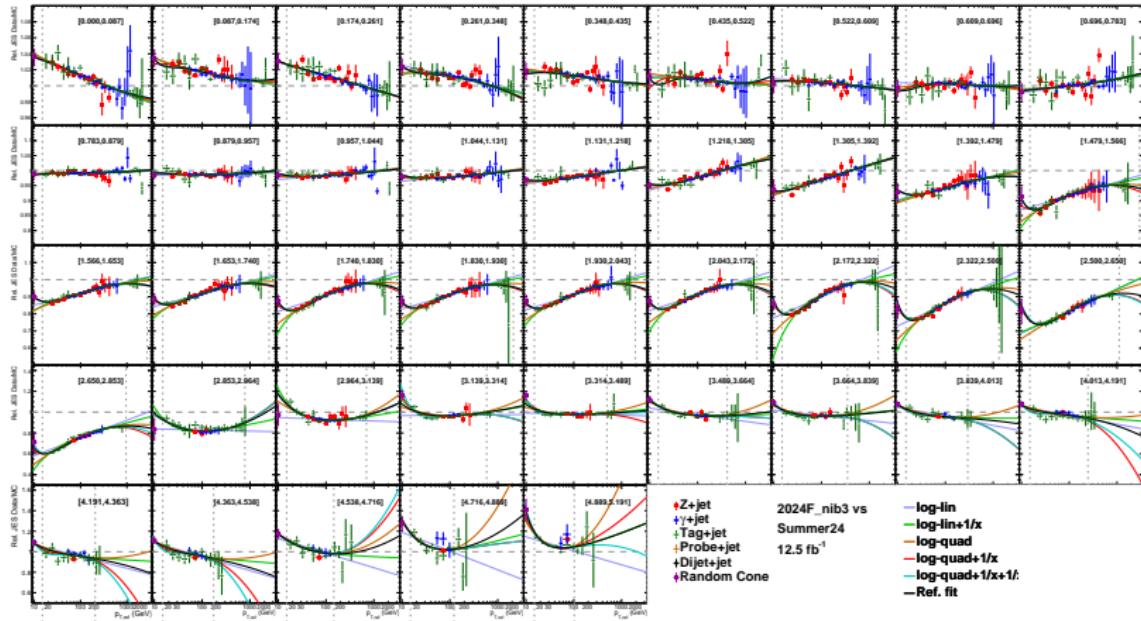
JES L2Res fits (ReReco24_V9M): 2024F_nib2



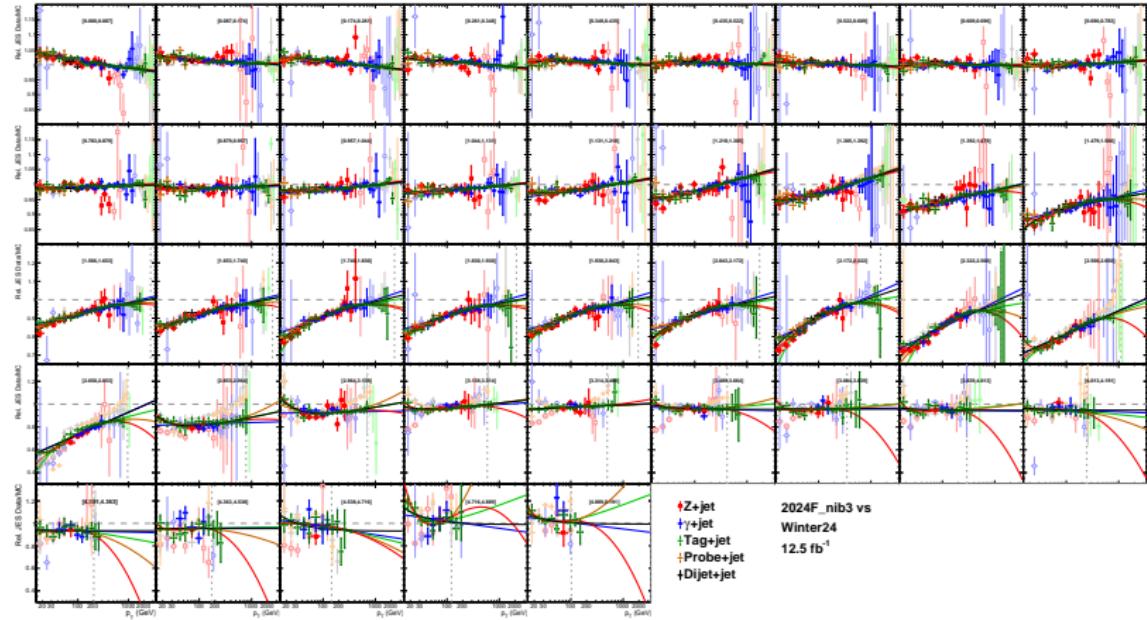
JES L2Res fits (V8M): 2024F_nib2



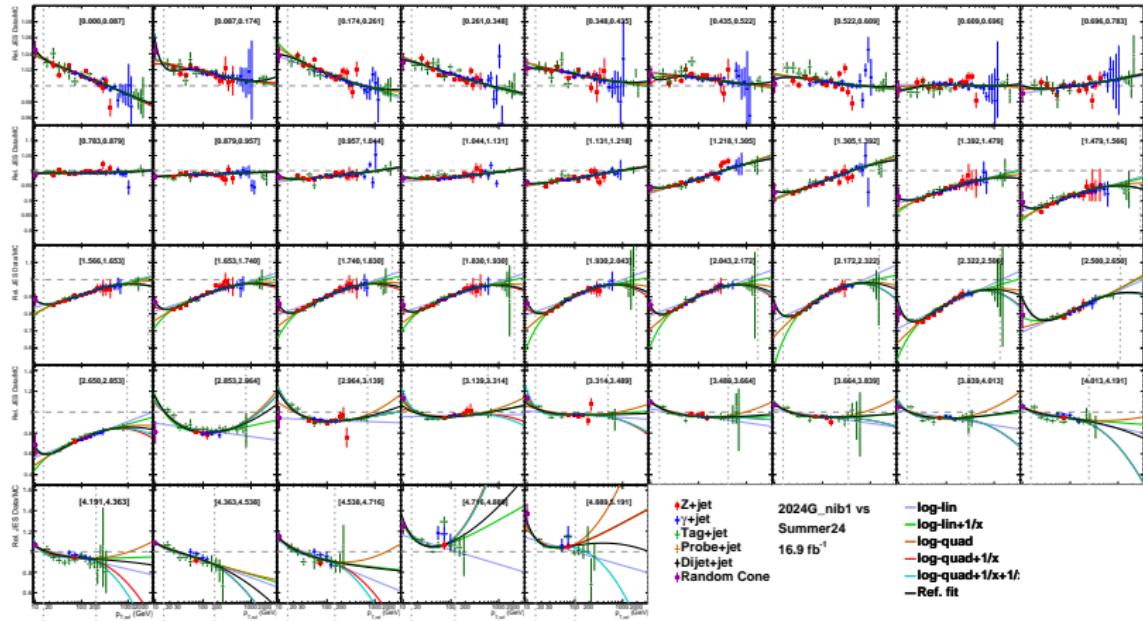
JES L2Res fits (ReReco24_V9M): 2024F_nib3



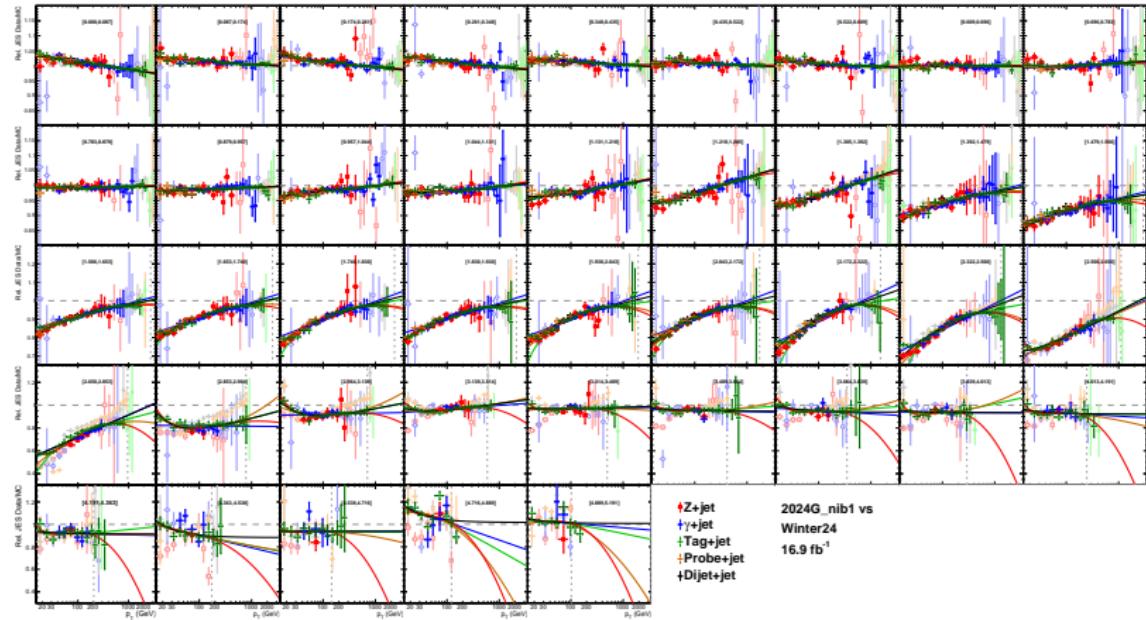
JES L2Res fits (V8M): 2024F_nib3



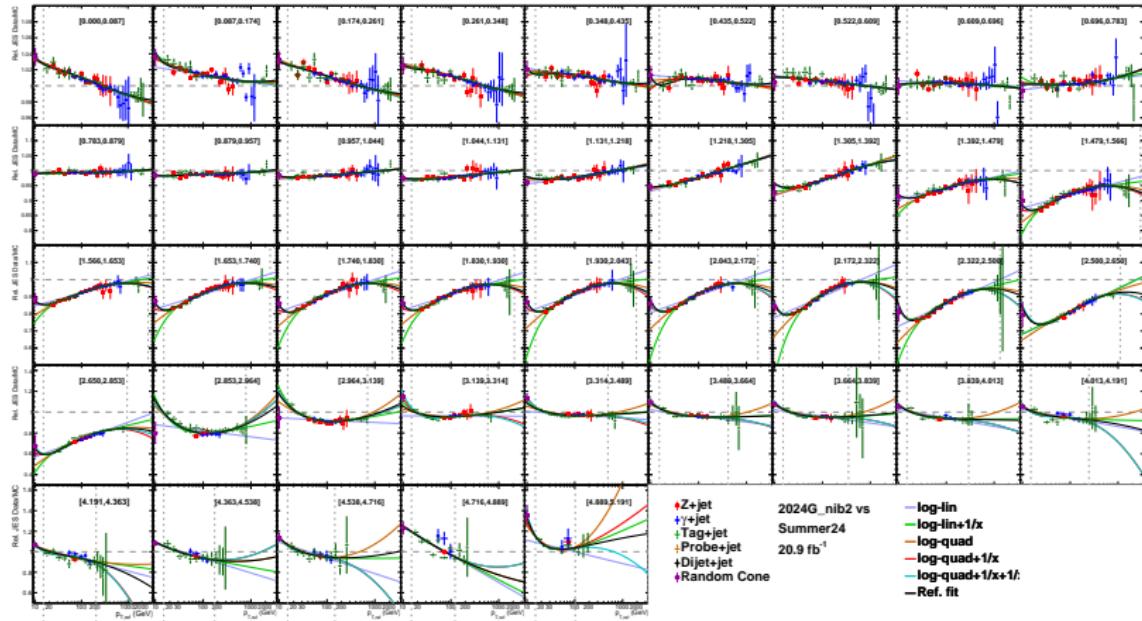
JES L2Res fits (ReReco24_V9M): 2024G_nib1



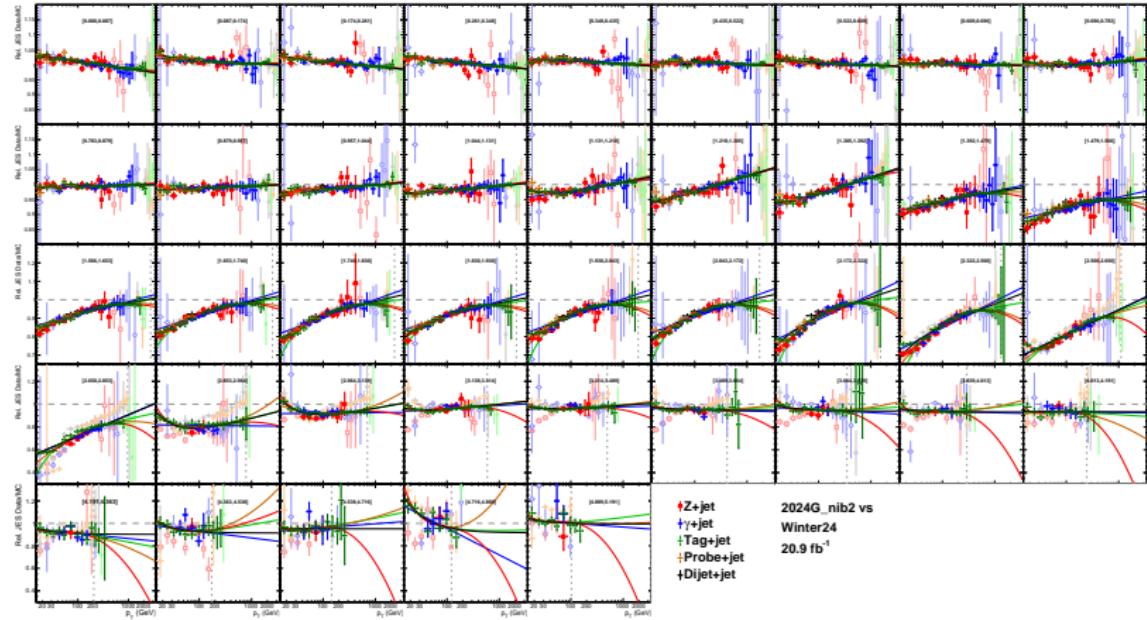
JES L2Res fits (V8M): 2024G_nib1



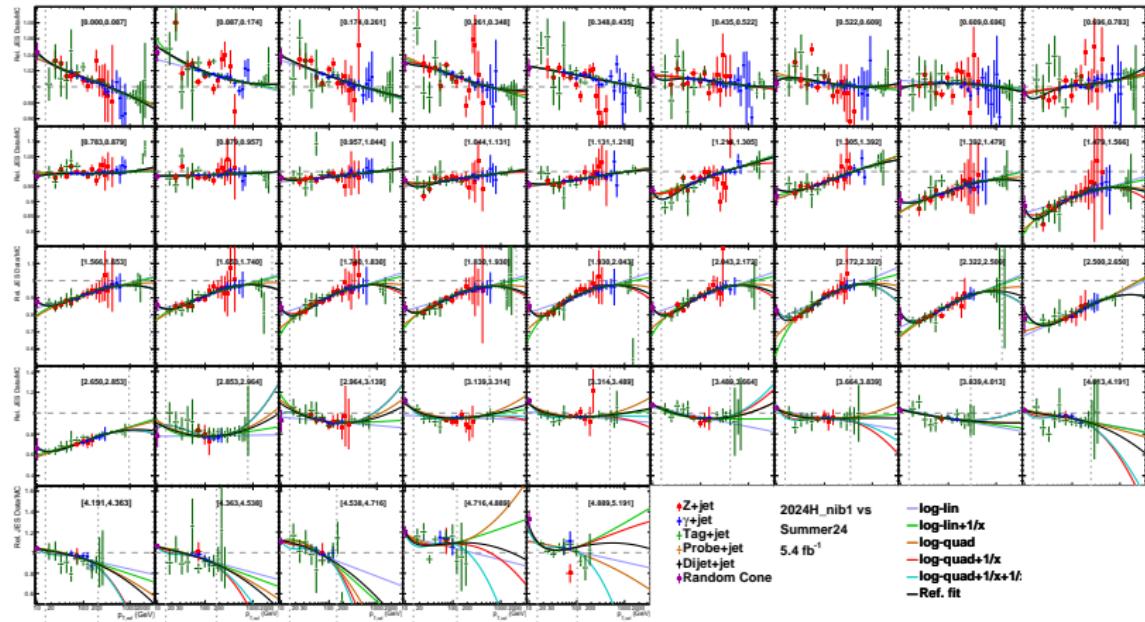
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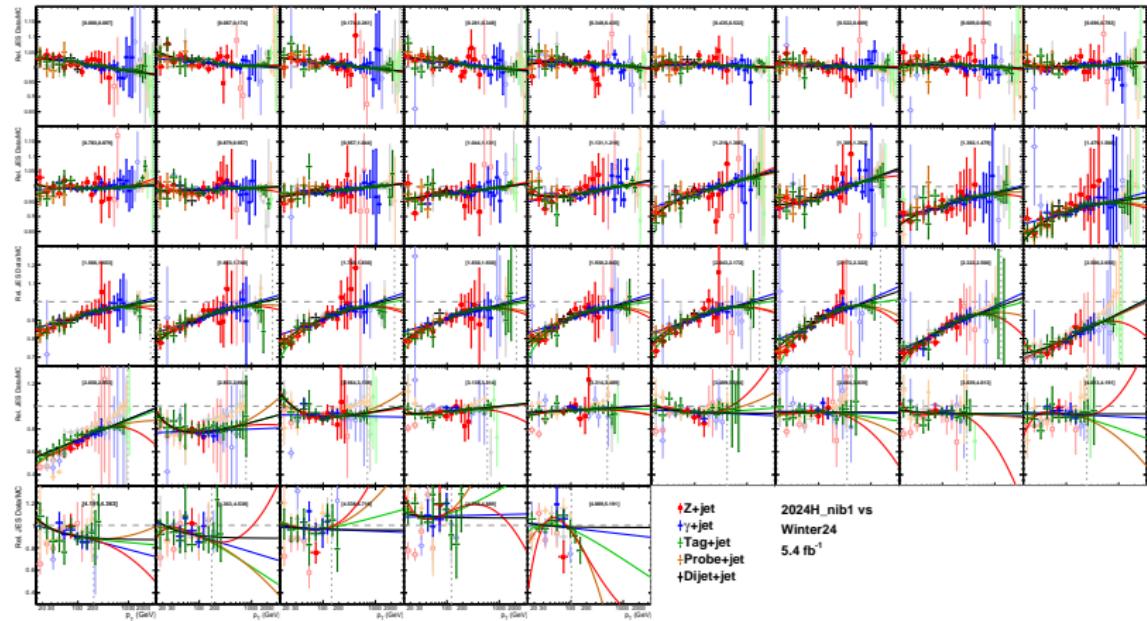
JES L2Res fits (V8M): 2024G_nib2



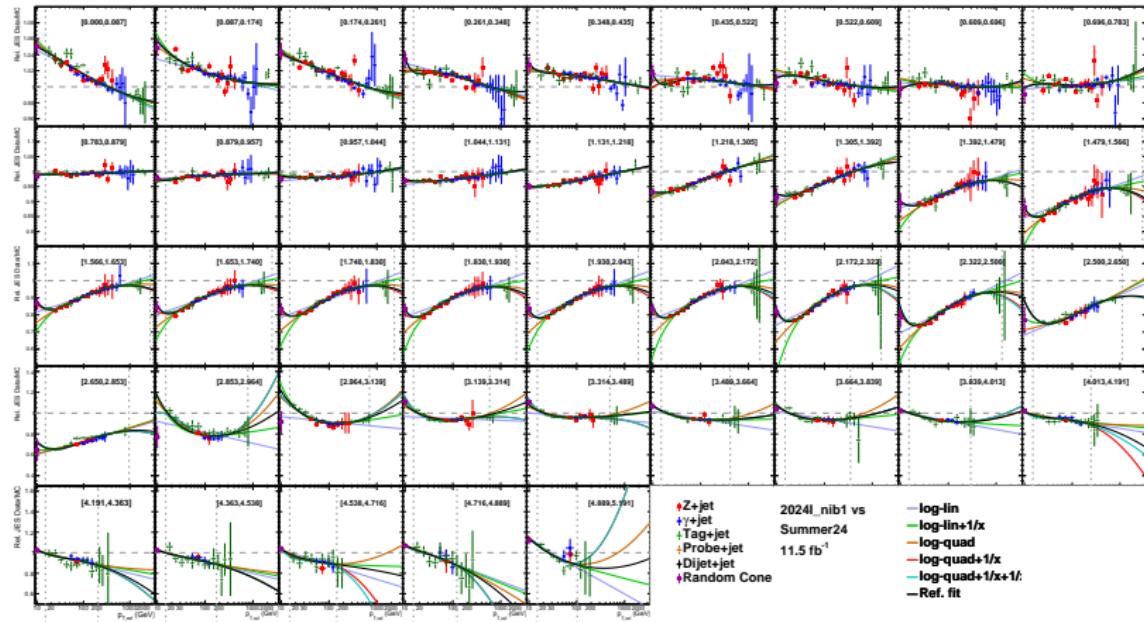
JES L2Res fits (ReReco24_V9M): 2024H_nib1



JES L2Res fits (V8M): 2024H_nib1



JES L2Res fits (ReReco24_V9M): 2024I_nib1



JES L2Res fits (V8M): 2024I_nib1

