

Latest plots

18/02/2026

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Roadmap

- Reproduced plots from Pheno Paper (1TeV)
 - side-by-side comparison (vs fixed vs running scales)
 - OBS: b_{jx} , Q^2 , E_h , E_l , θ_l
 - MISSING: y (inel), \dimuon
- Higher Es: 10, 100 Tev, 1, 10 PeV
 - 10-100TeV fixed vs running
 - Same obs, same missing

1 TeV

*Showing only proton collisions

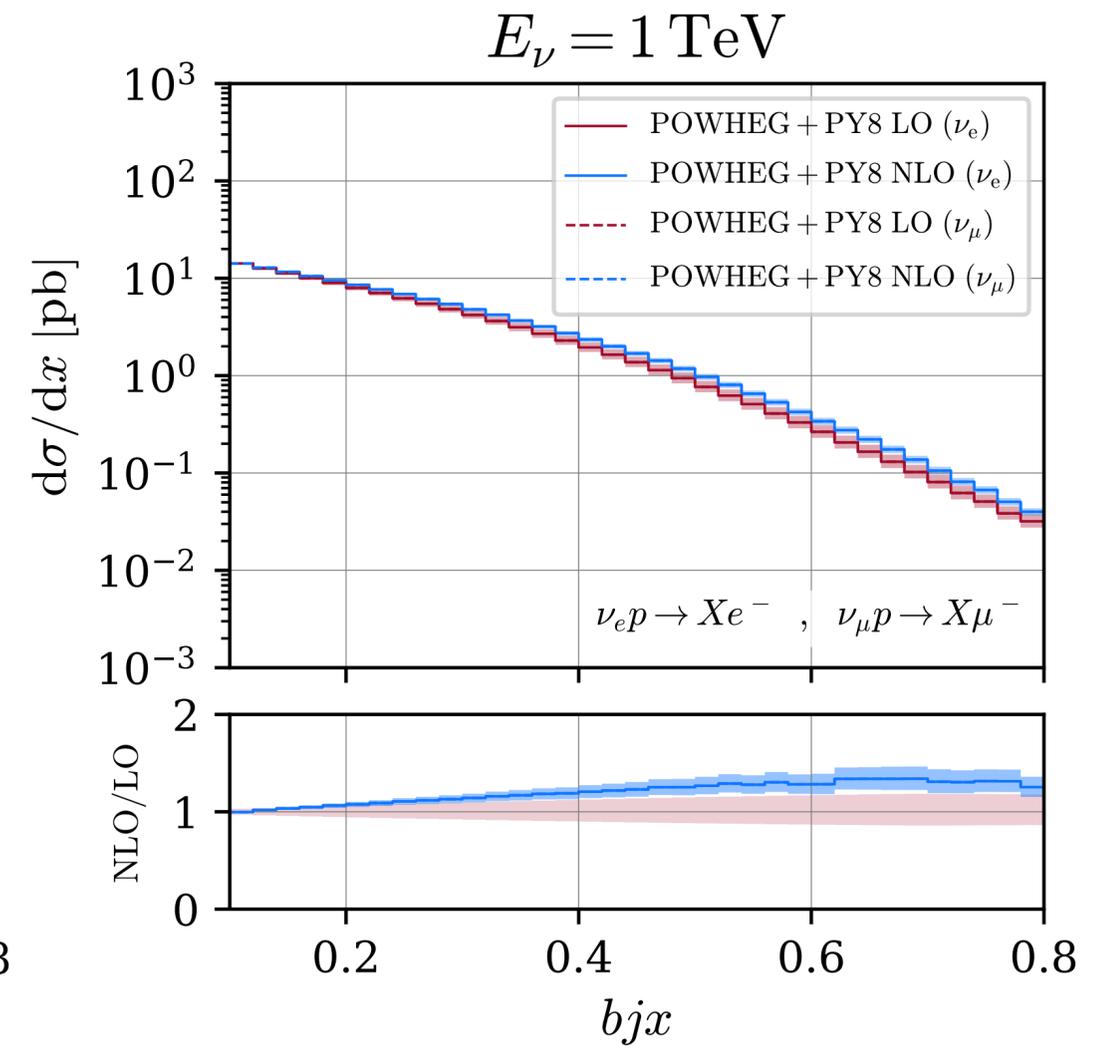
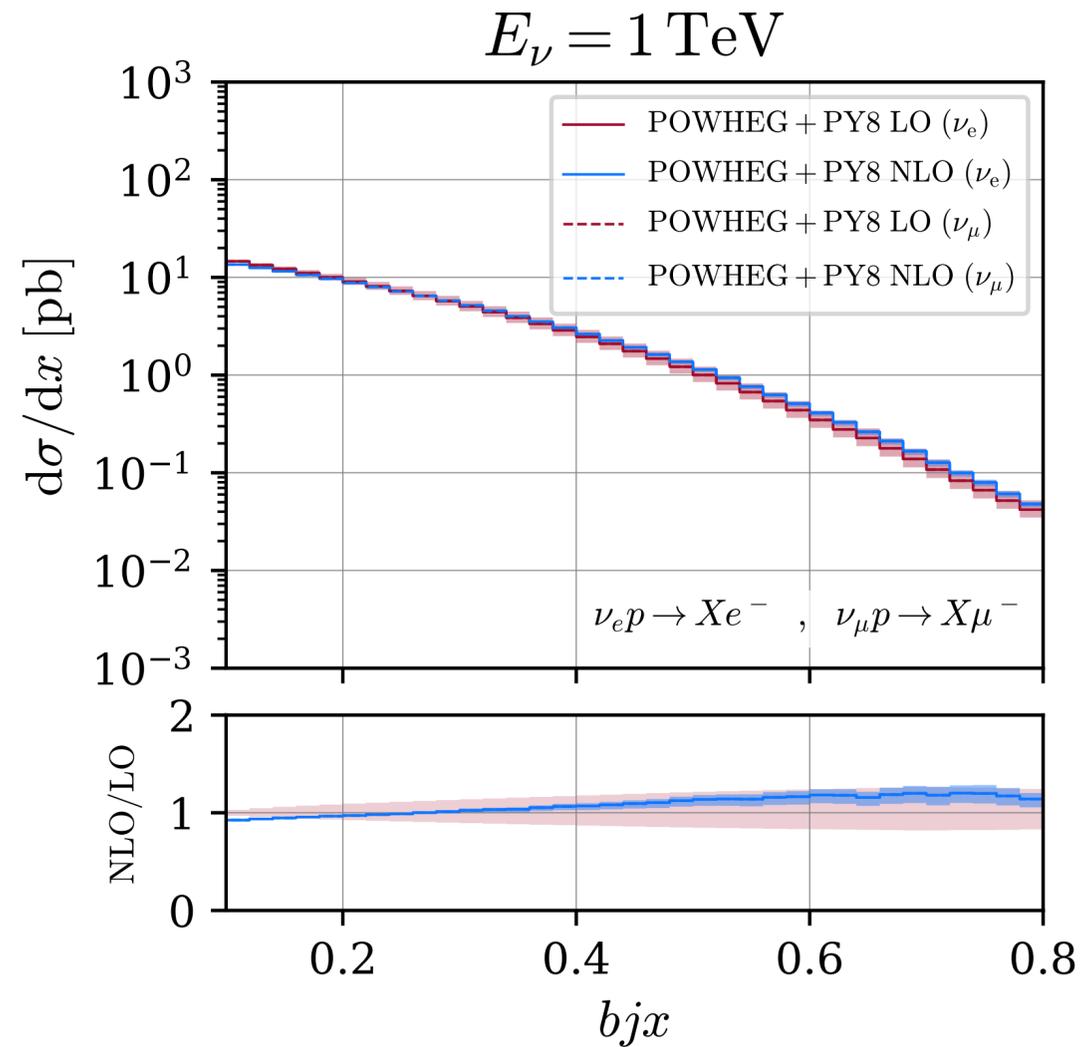
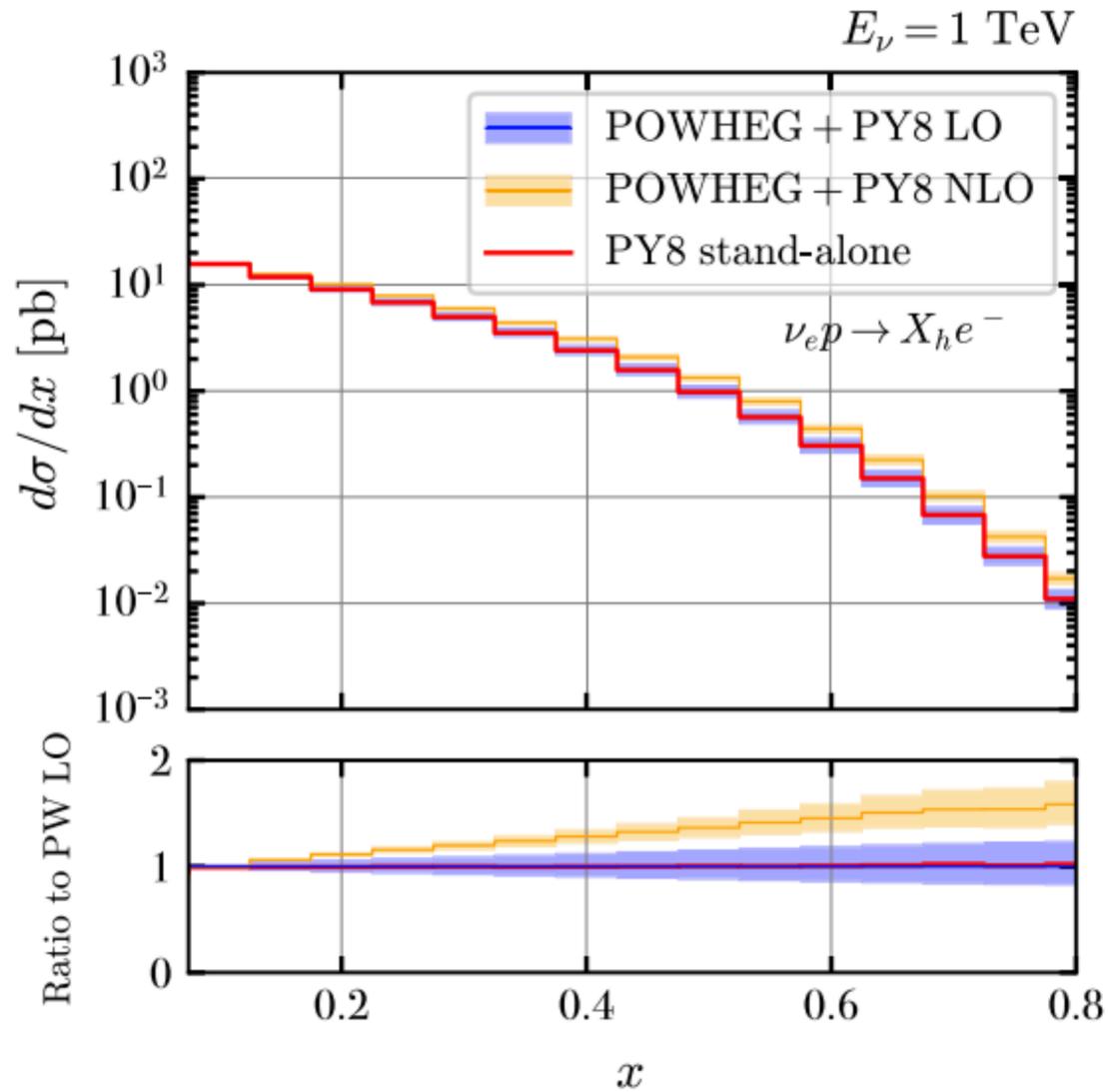
I have neutron fits as well, but then we'd be here forever

1 TeV/10M/nue+numu-p (bjx)

Pheno paper

vs running scales

vs fixed scales



1 TeV/10M/nue+numu-p (E_h)

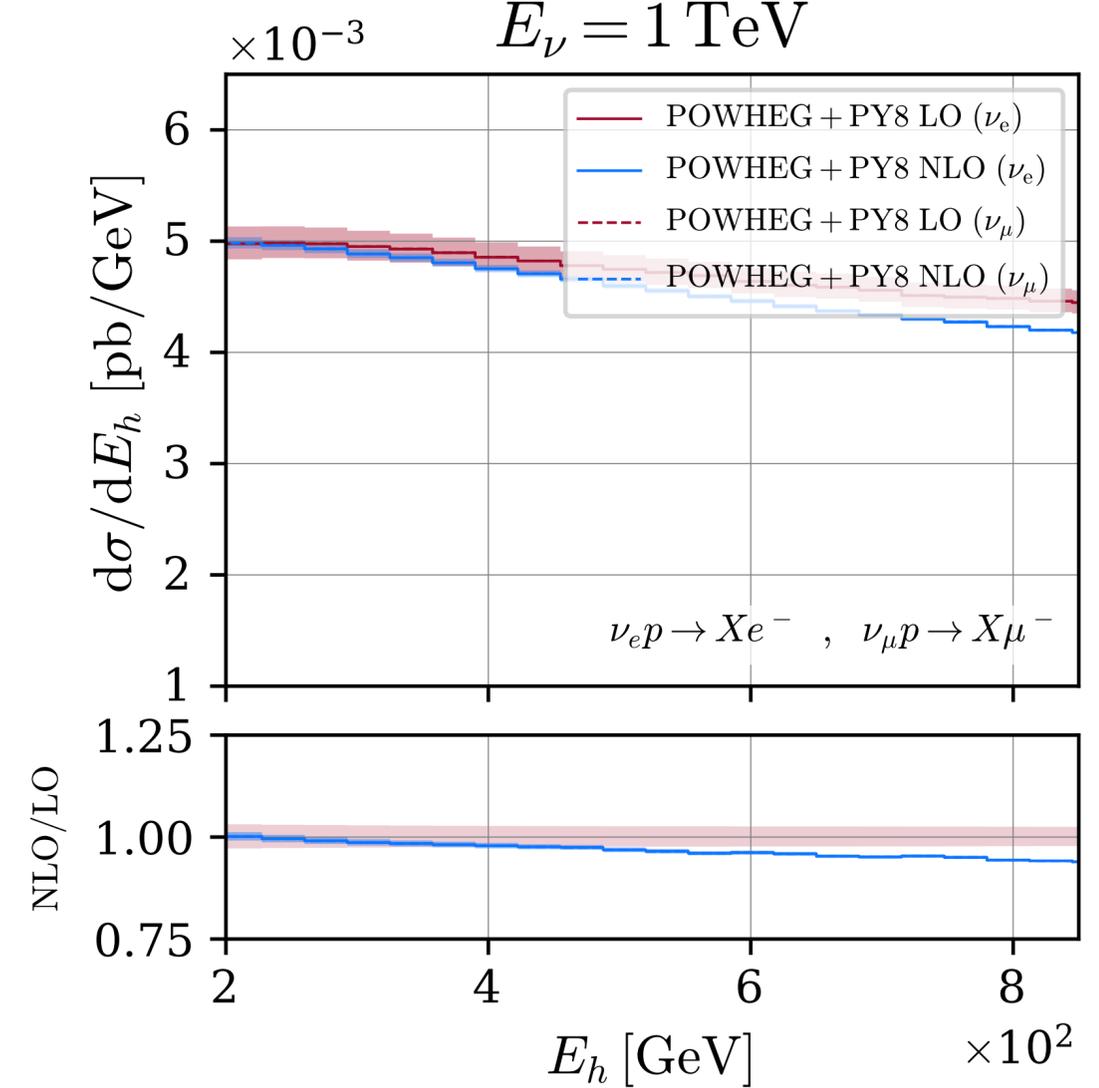
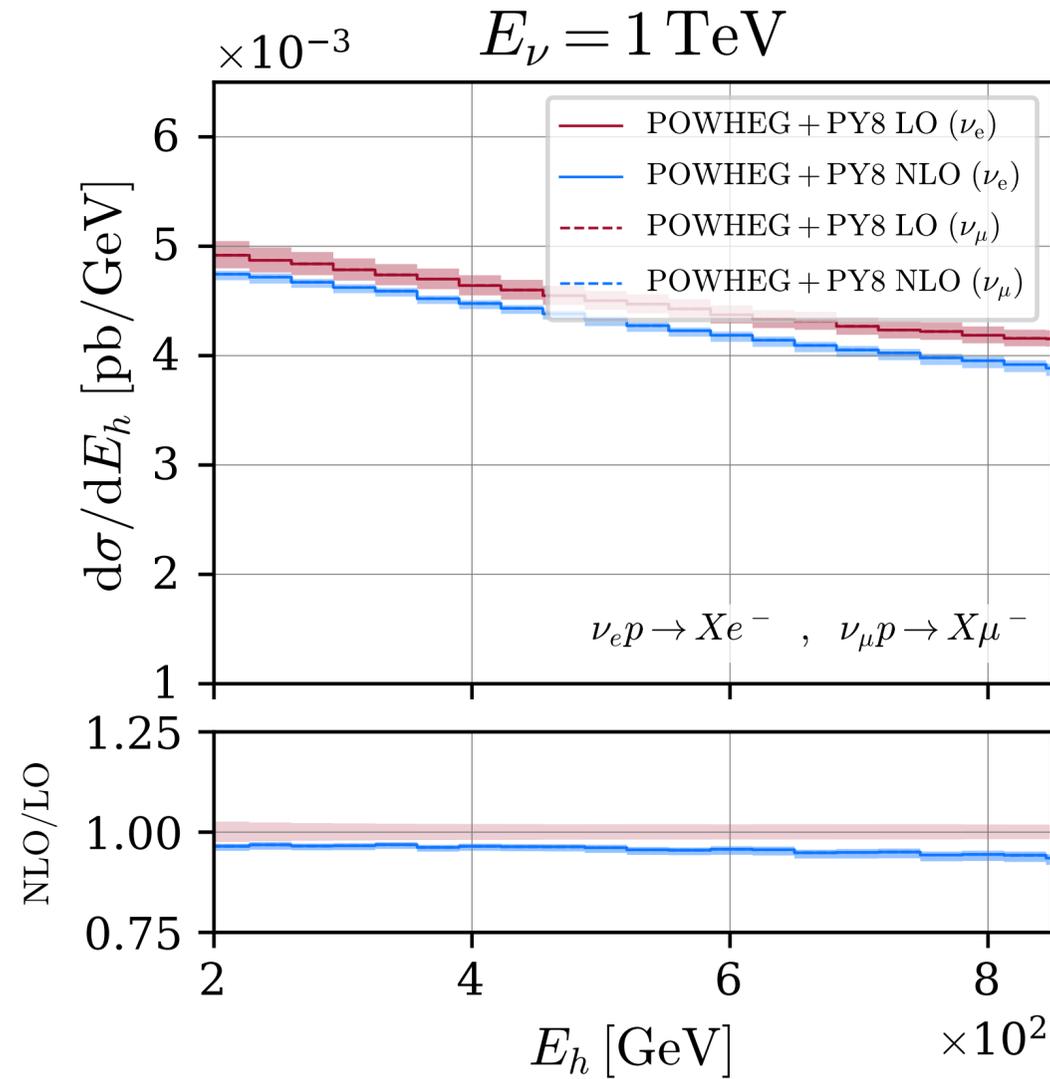
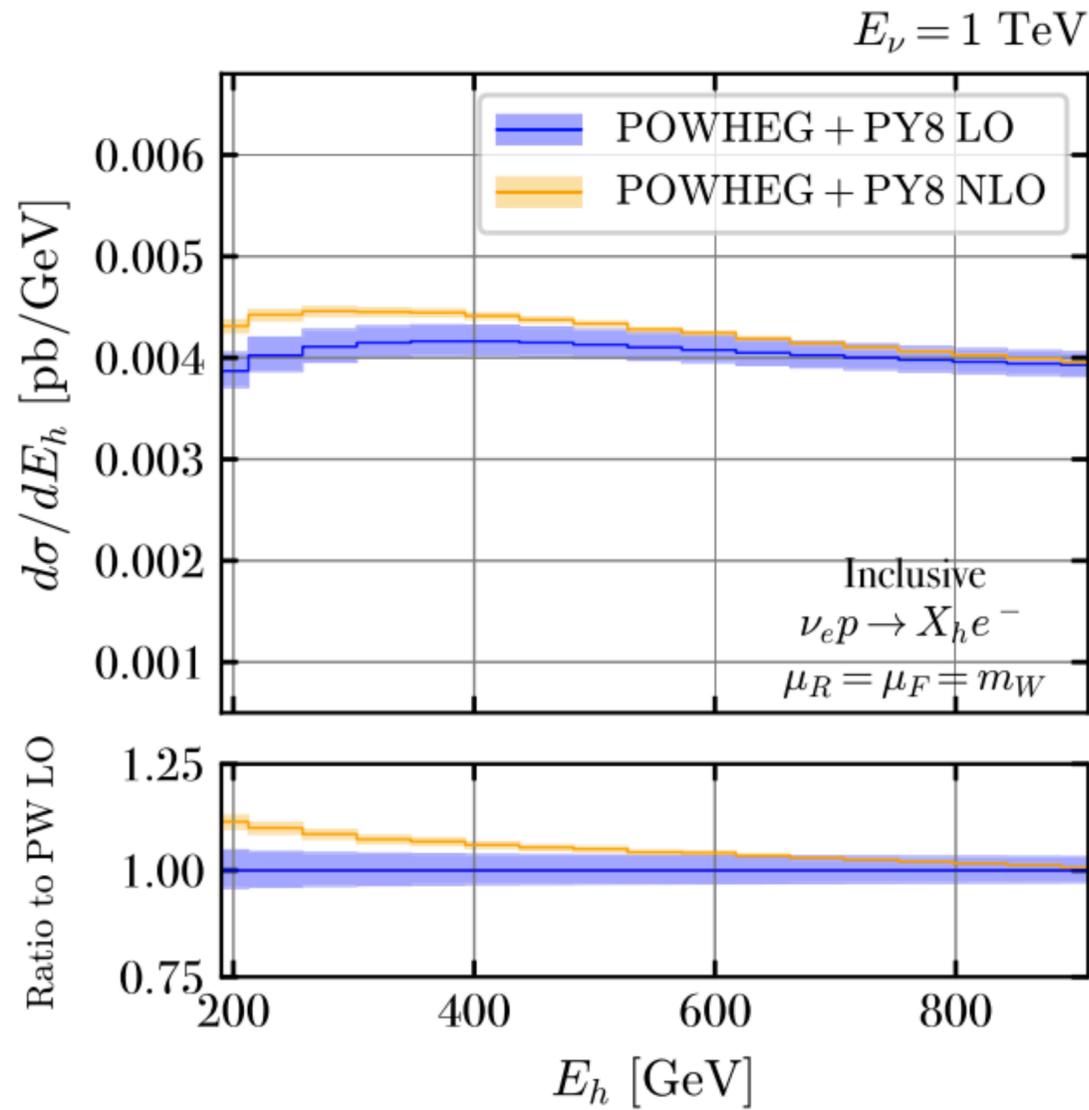
Pheno paper

vs

running scales

vs

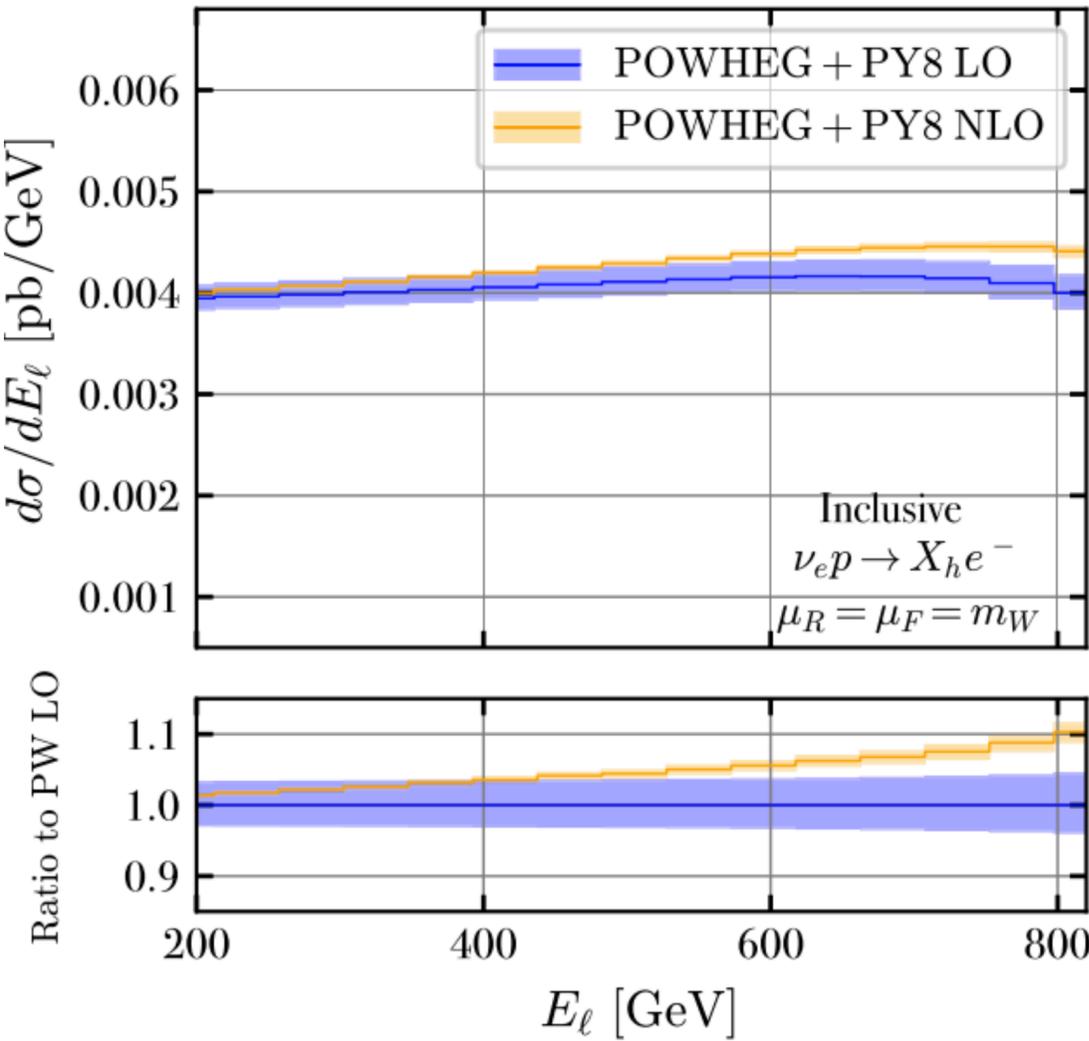
fixed scales



1 TeV/10M/nue+numu-p (E_l)

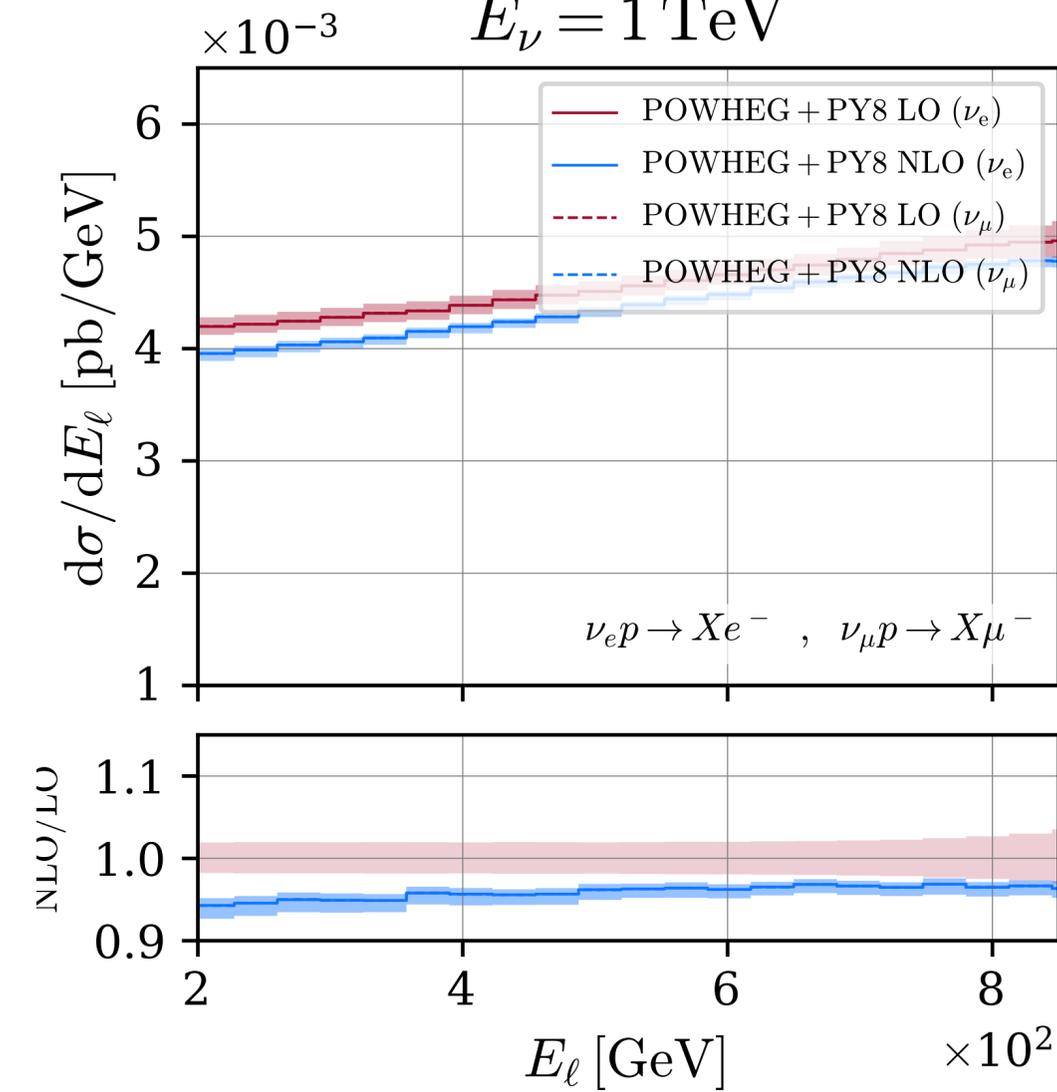
Pheno paper

$E_\nu = 1 \text{ TeV}$



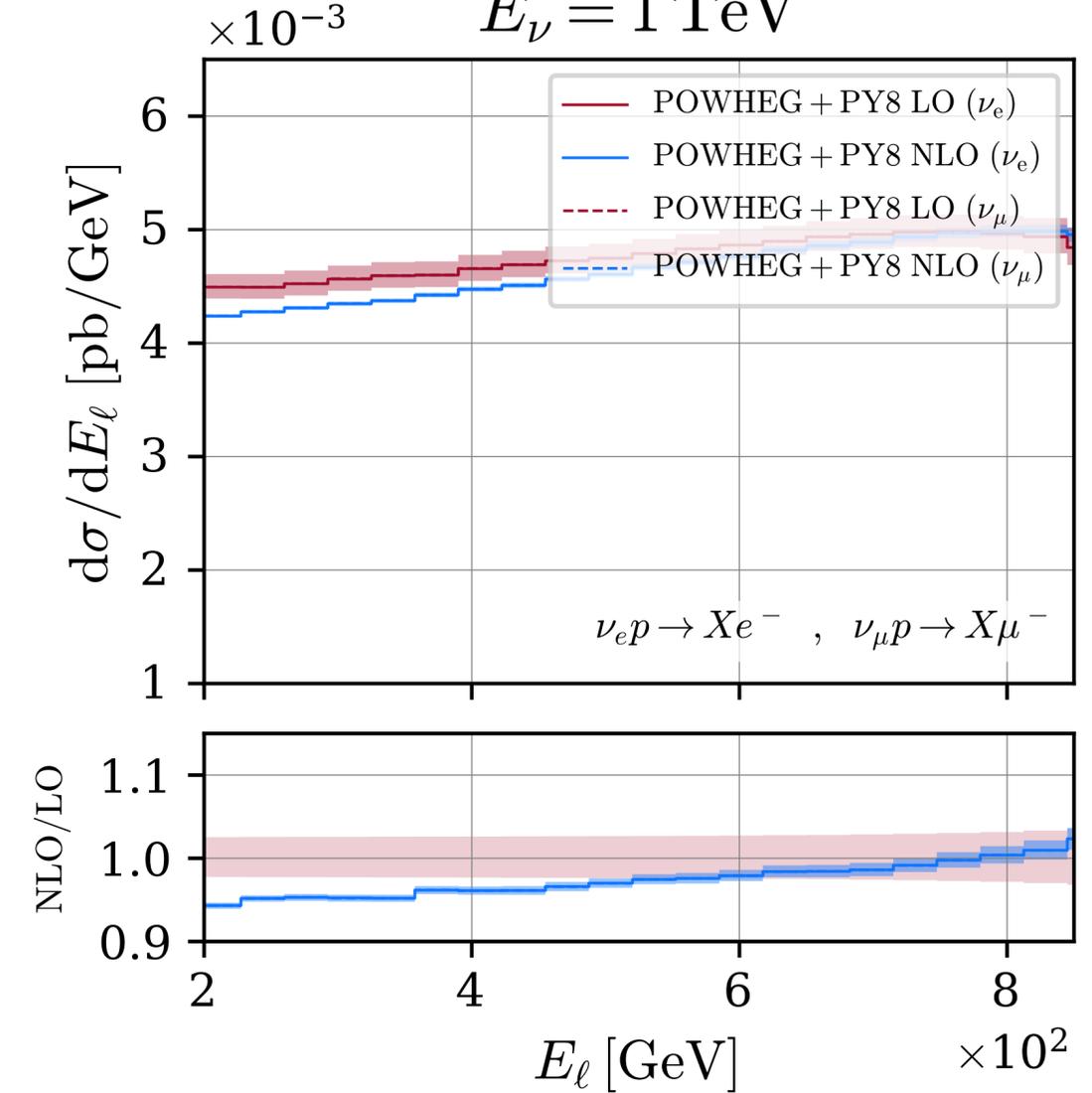
vs running scales

$E_\nu = 1 \text{ TeV}$



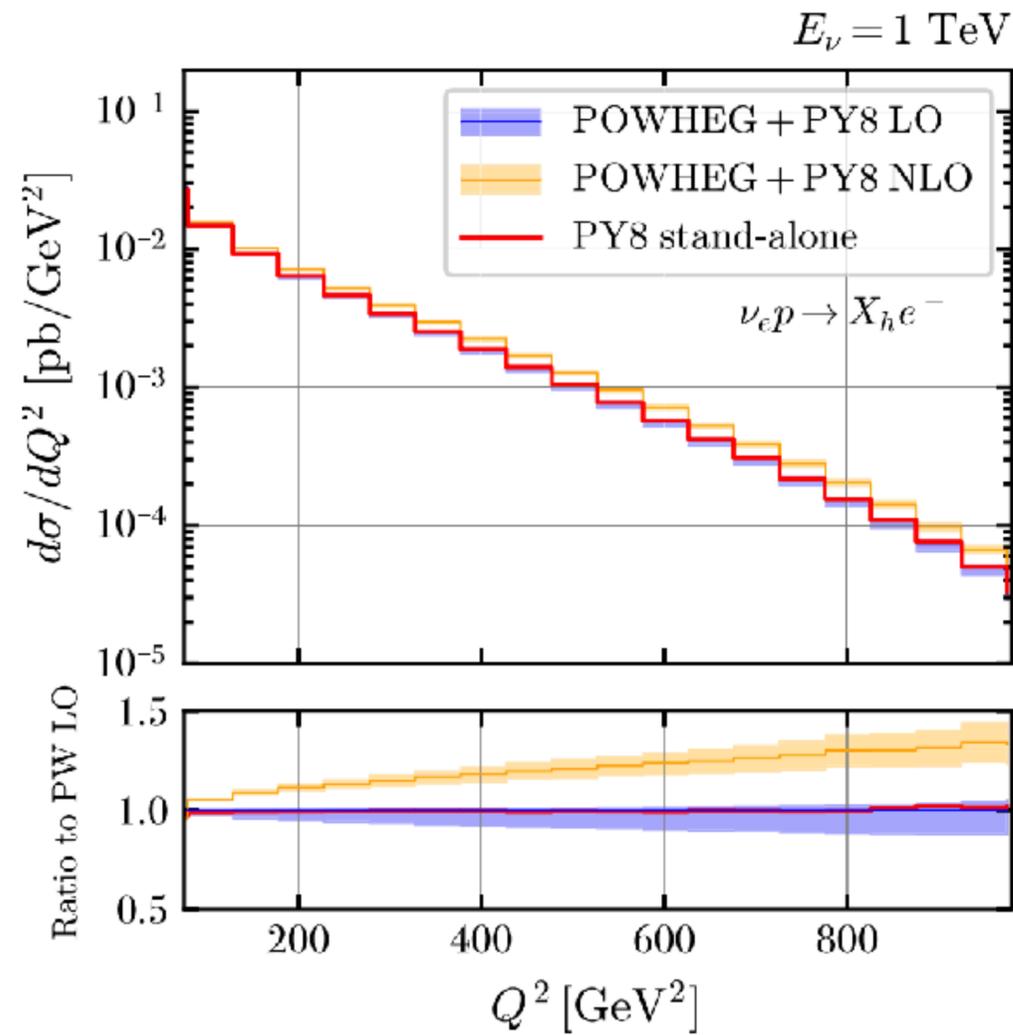
vs fixed scales

$E_\nu = 1 \text{ TeV}$

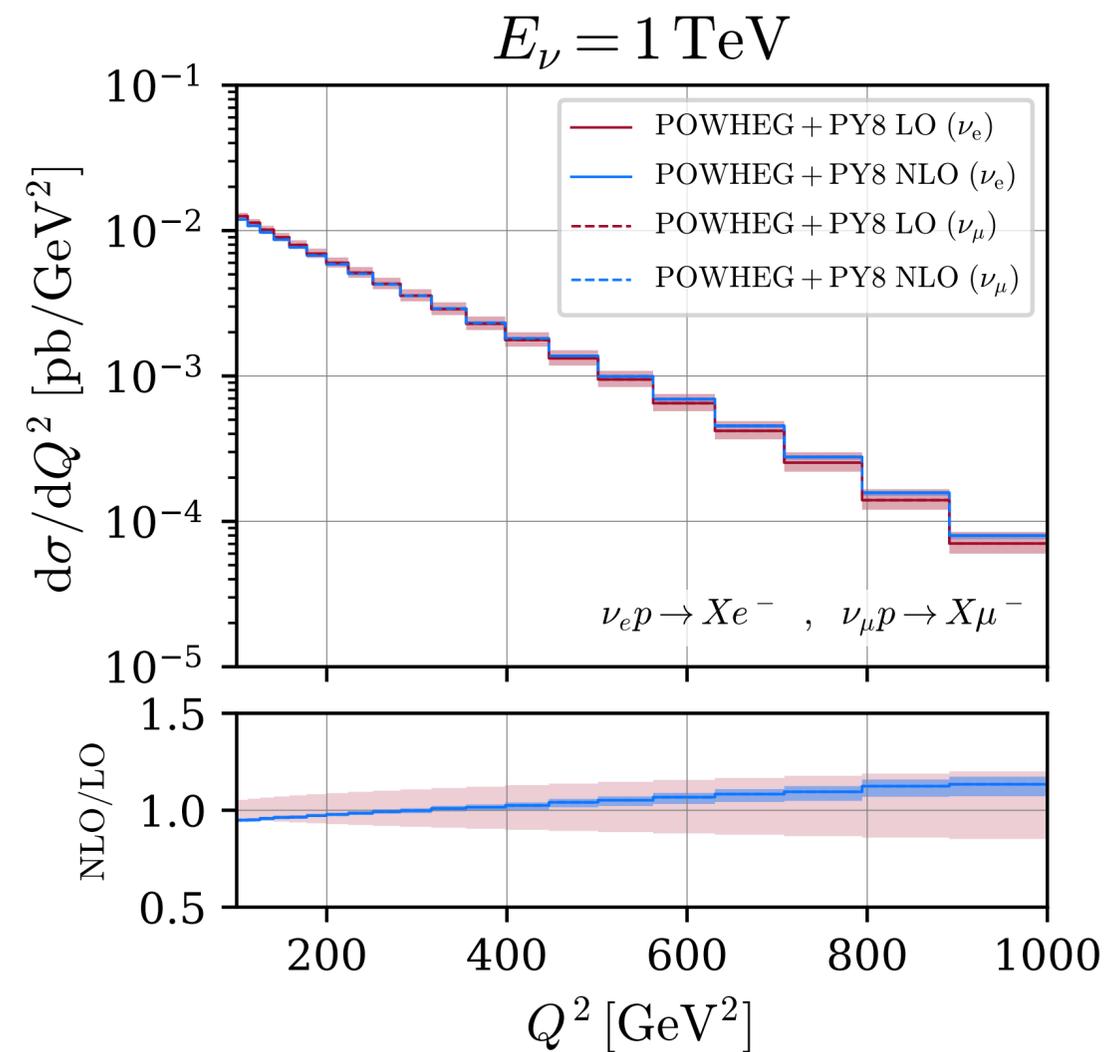


1 TeV/10M/nue+numu-p (Q2)

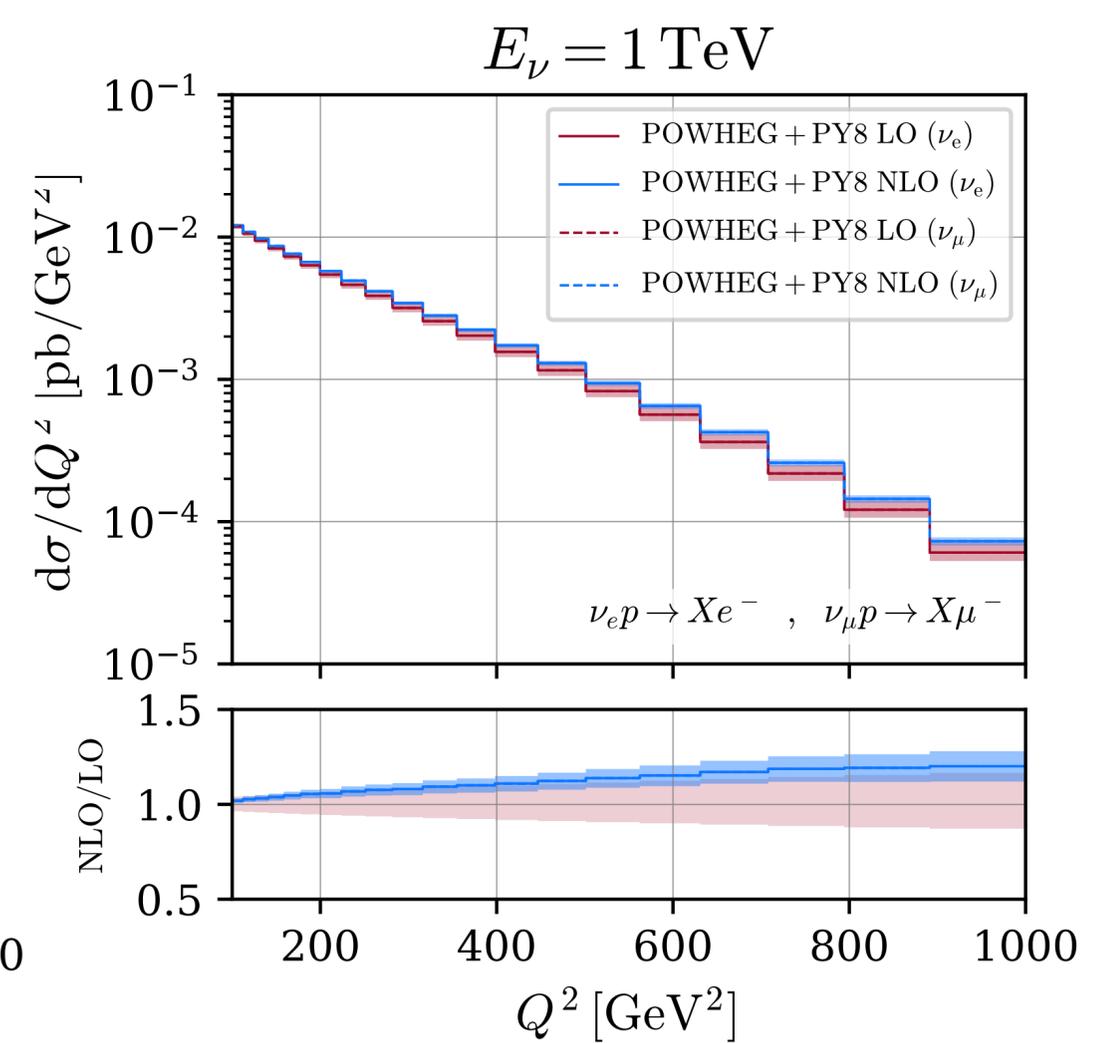
Pheno paper



vs running scales



vs fixed scales

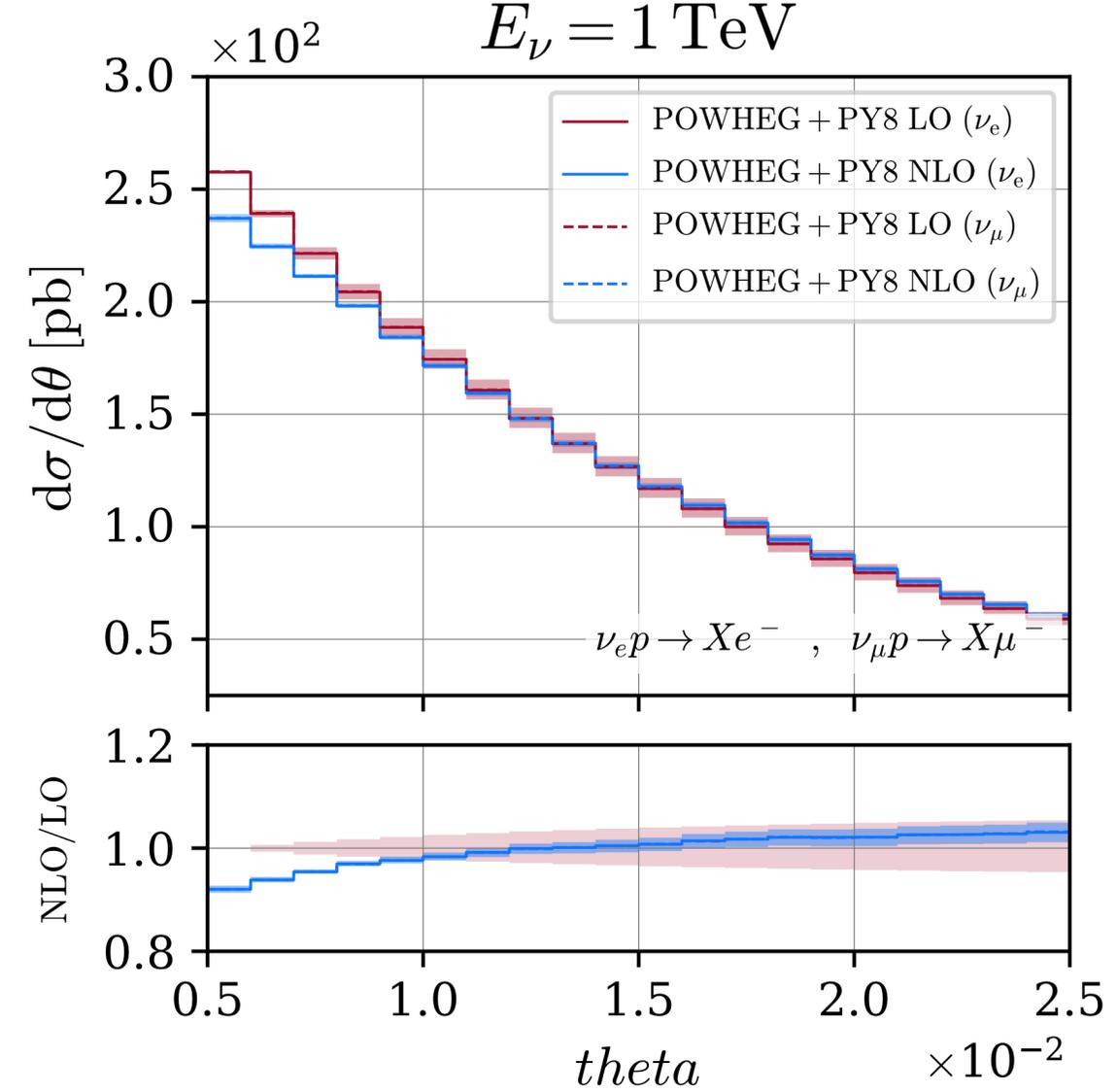
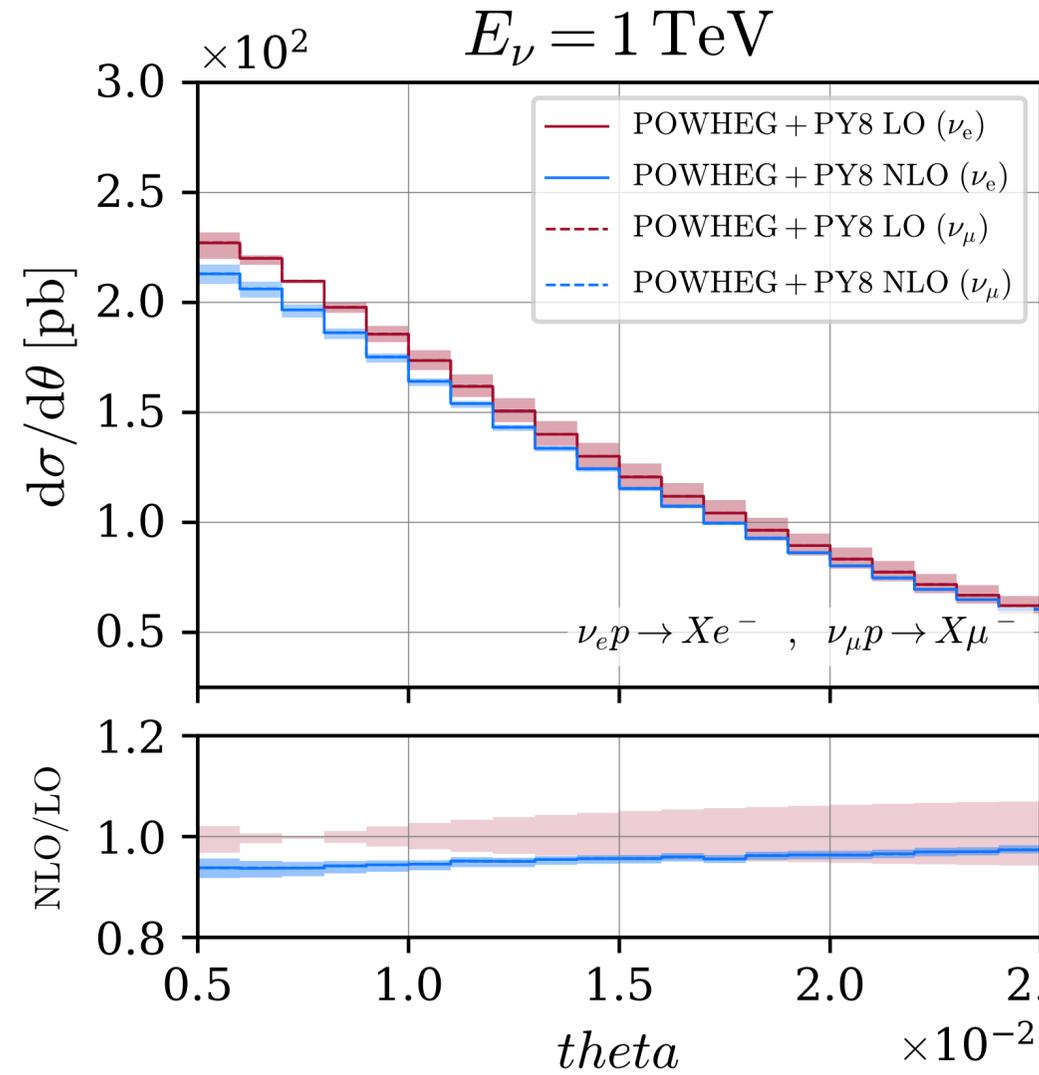
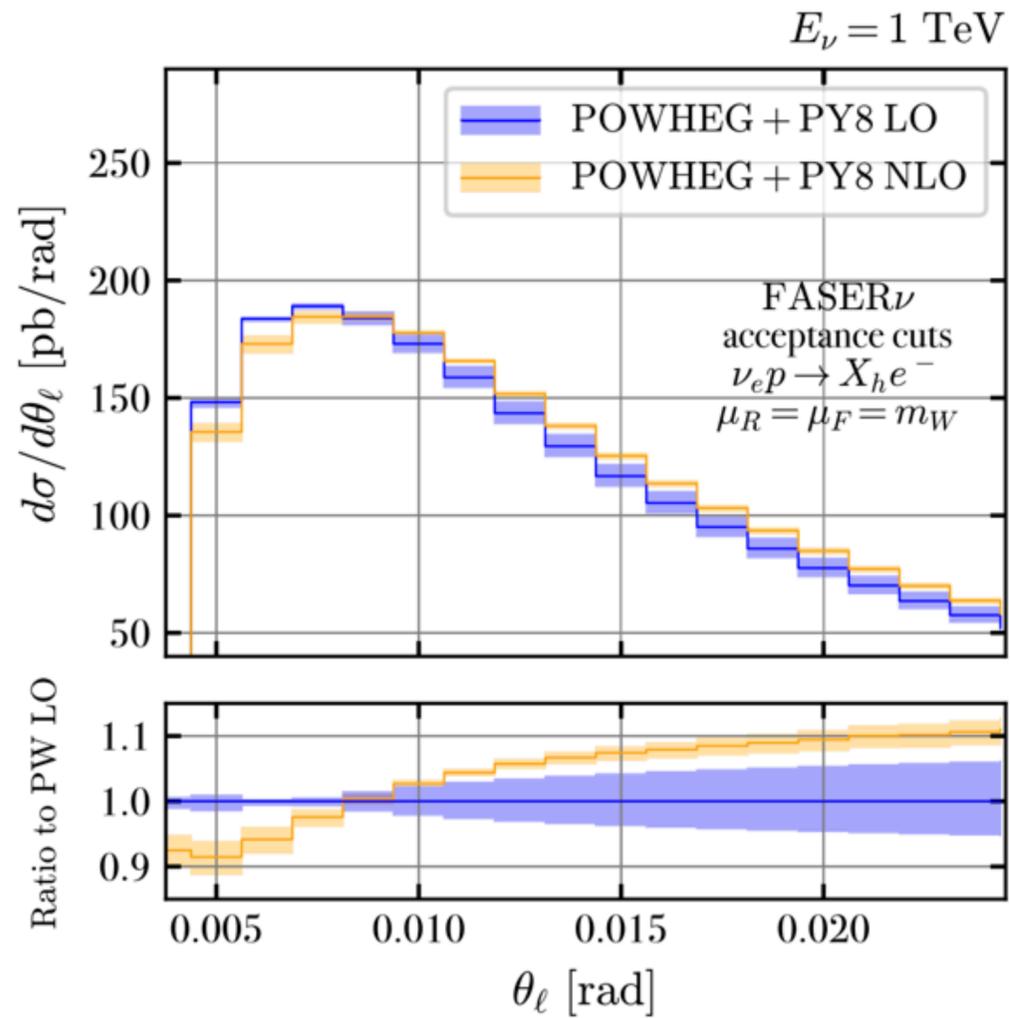


1 TeV/10M/nue+numu-p (theta)

Pheno paper

vs running scales

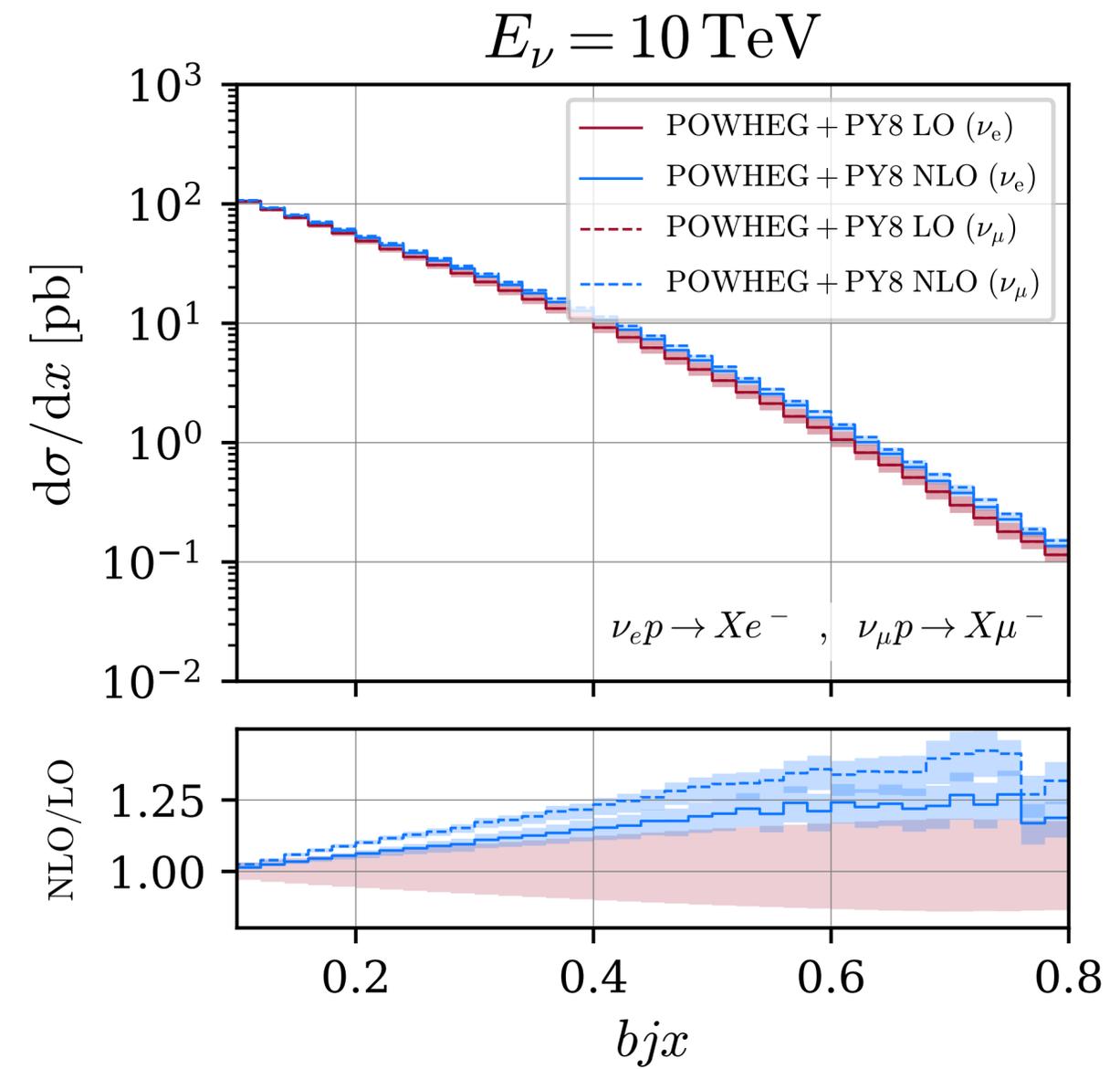
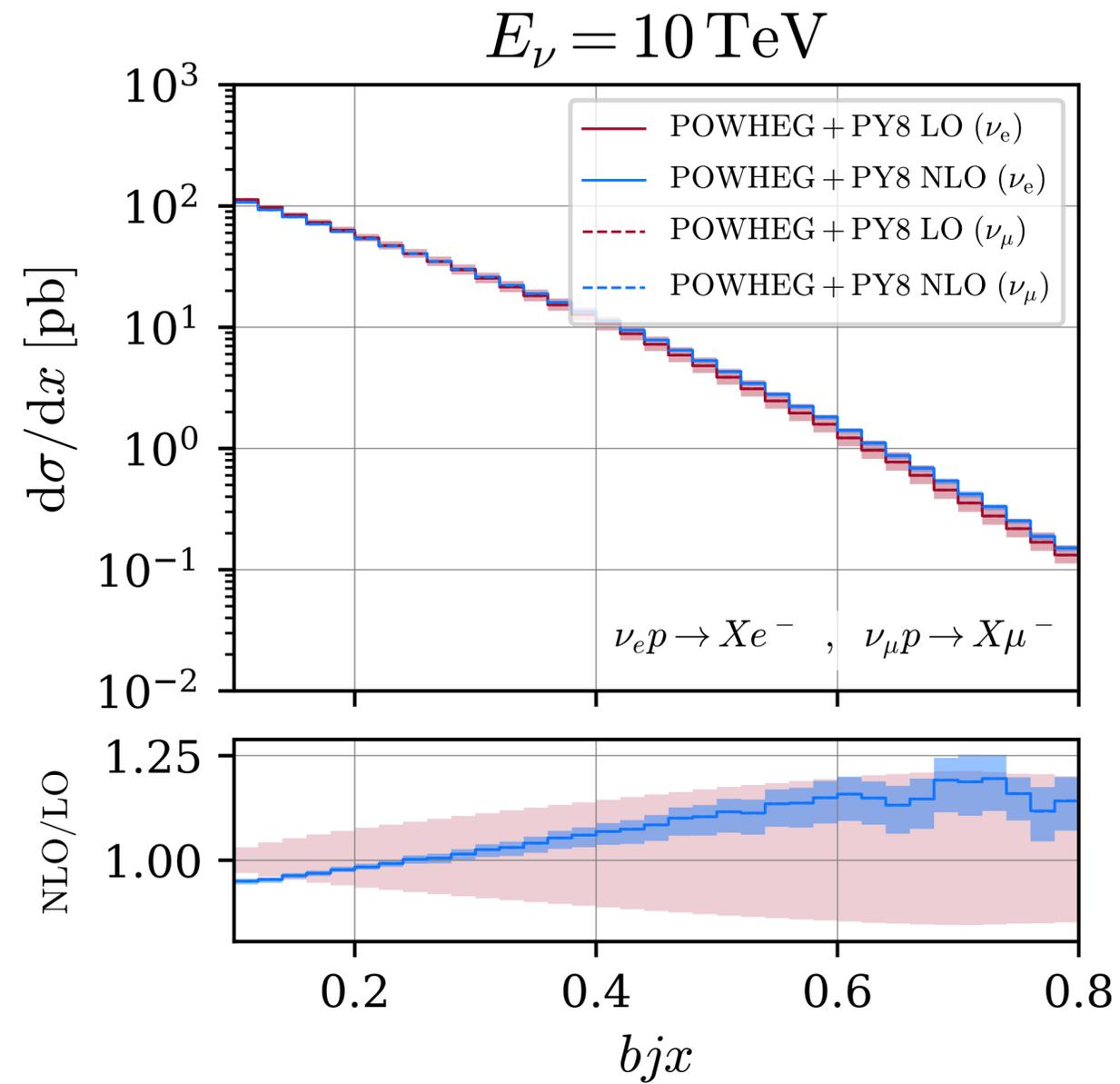
vs fixed scales



10TeV

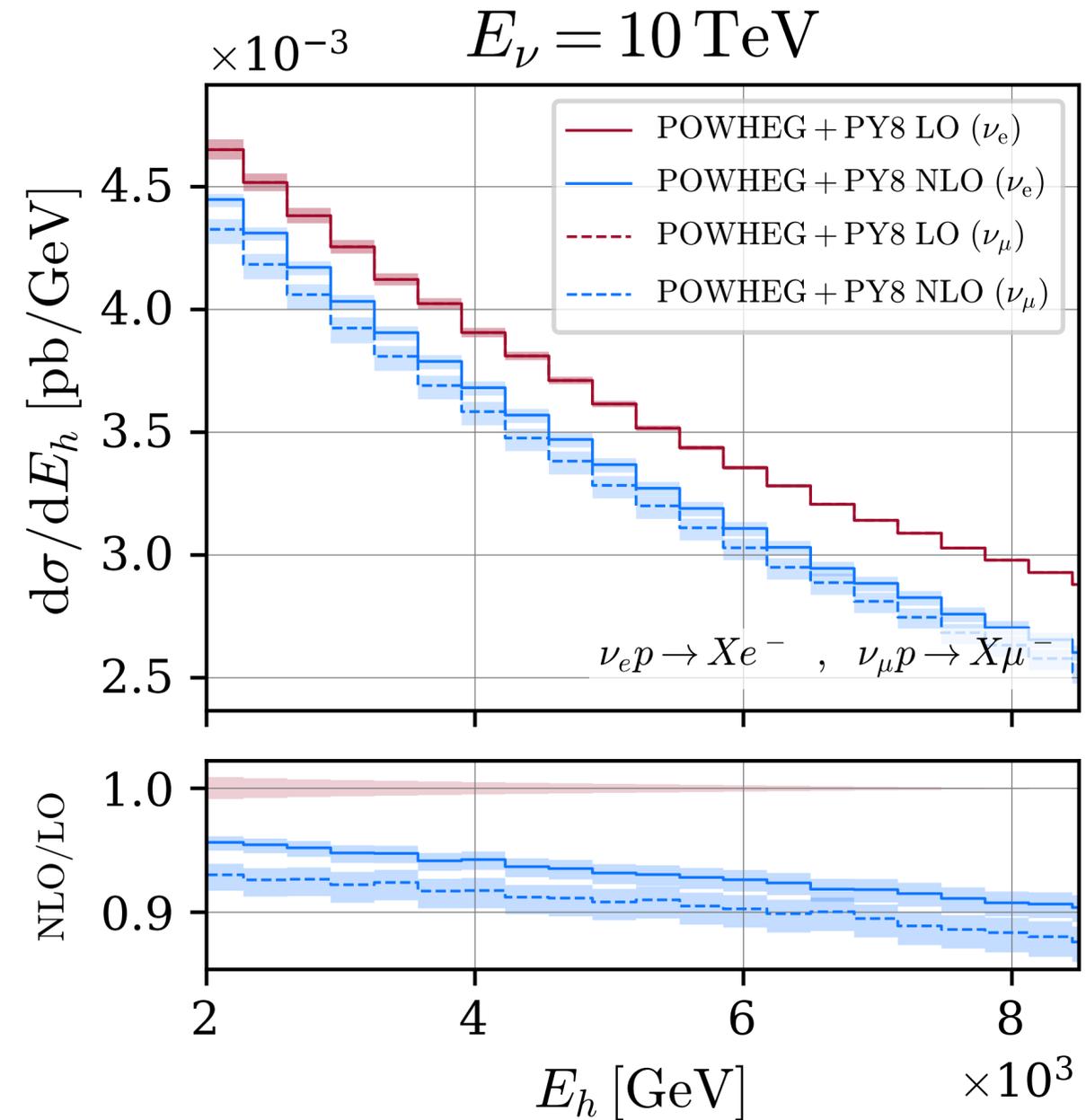
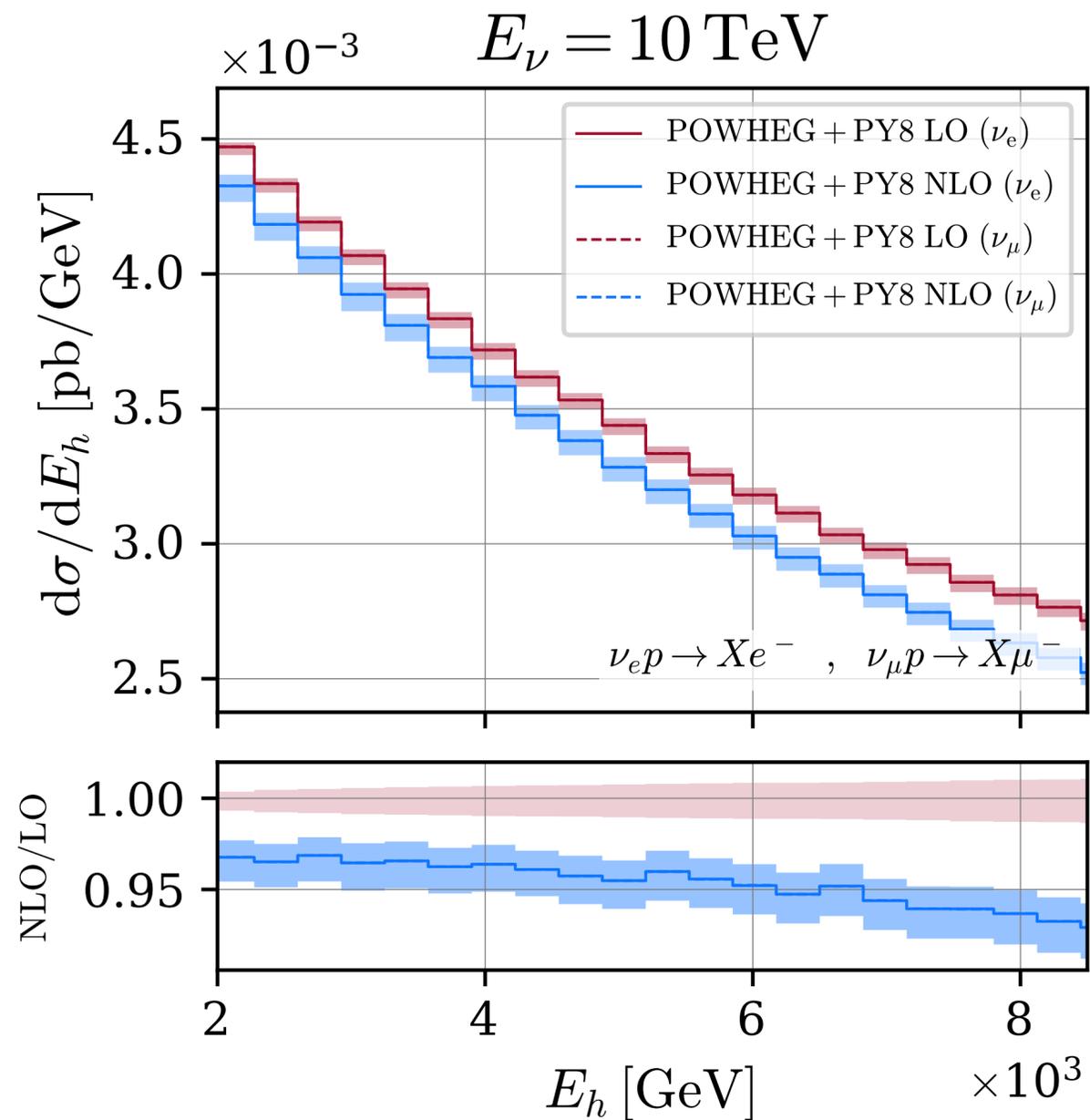
10TeV/10M/nue+numu-p (bjx)

running scales vs fixed scales



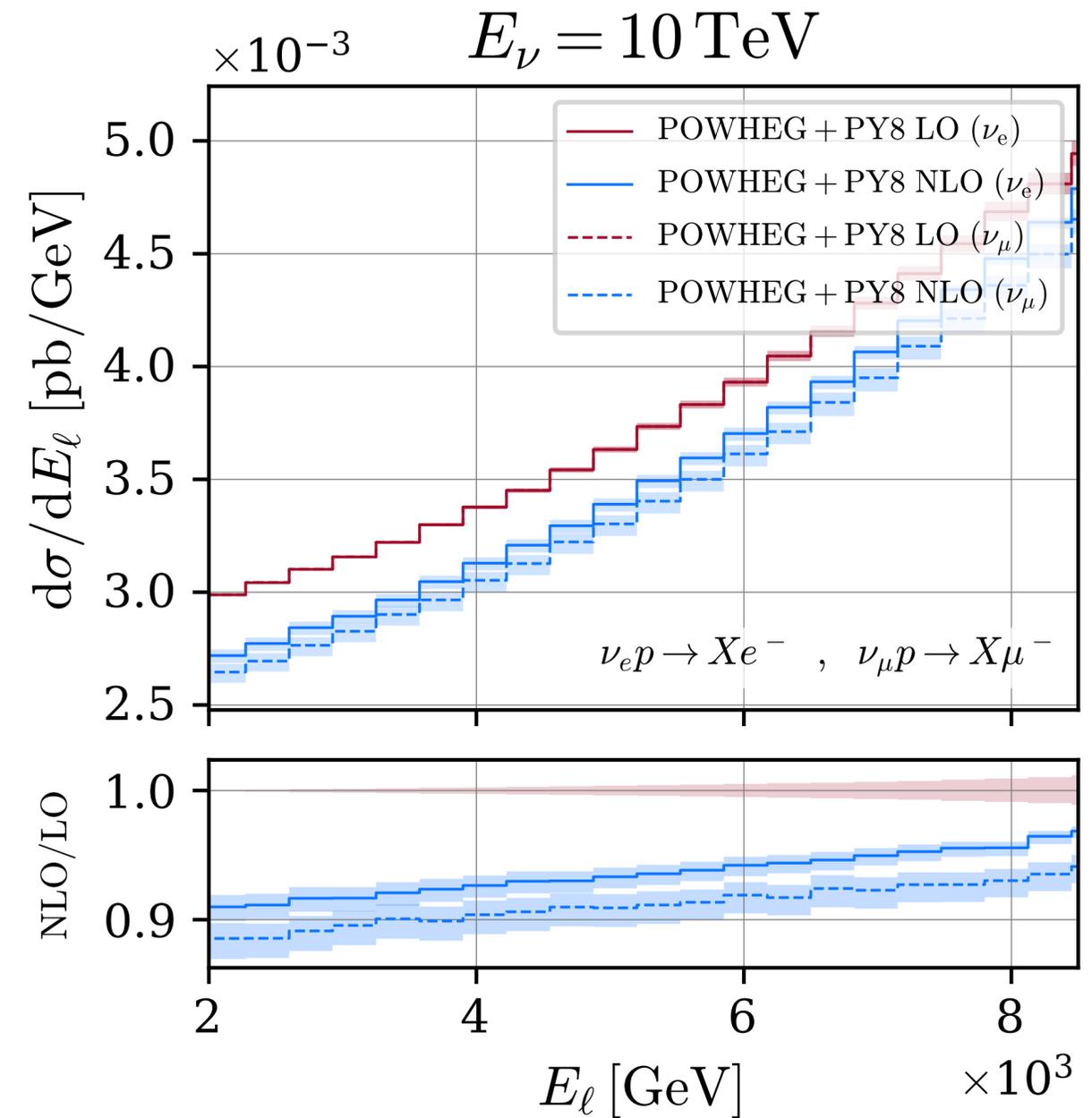
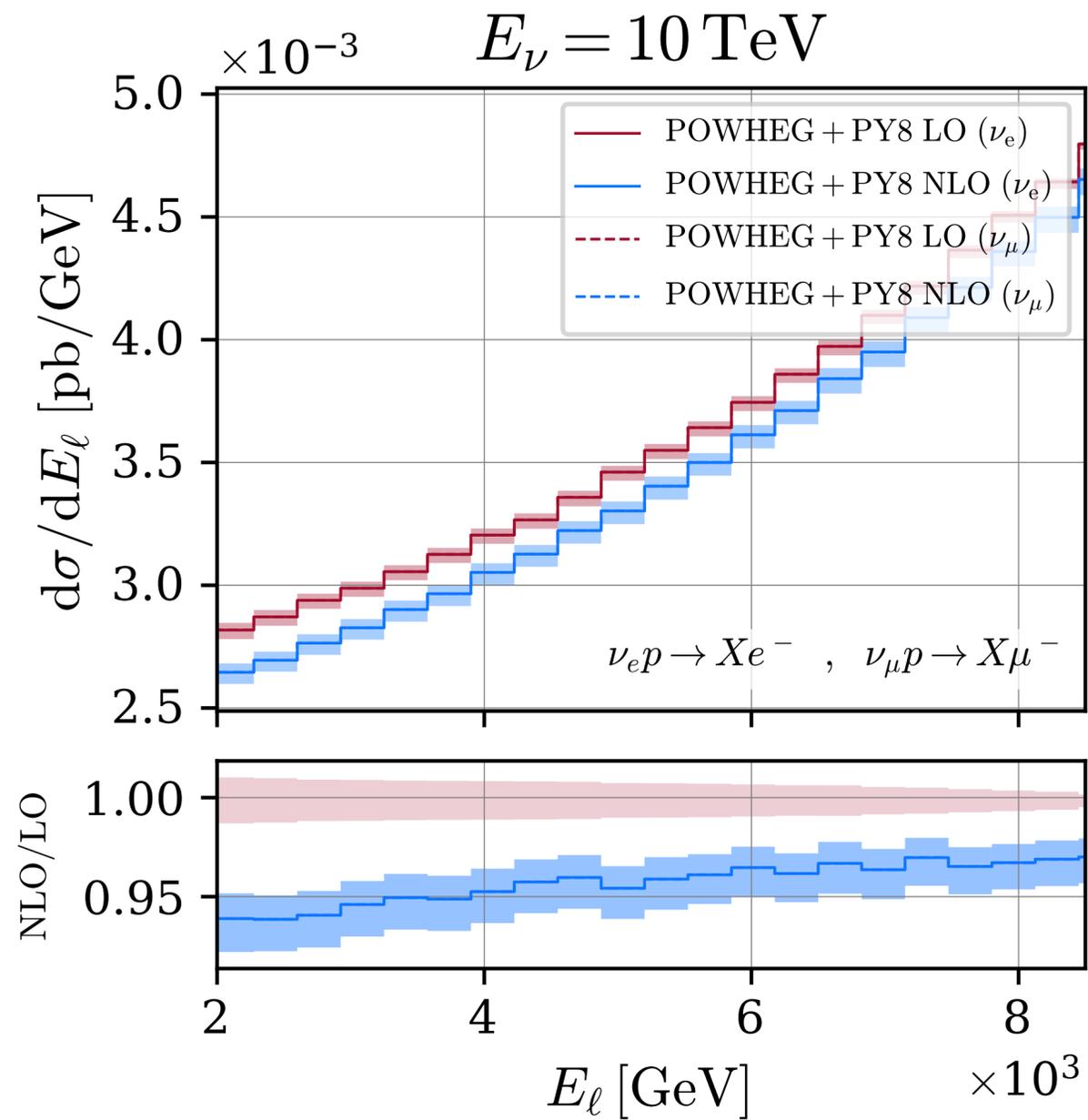
10TeV/10M/nue+numu-p (E_h)

running scales vs fixed scales



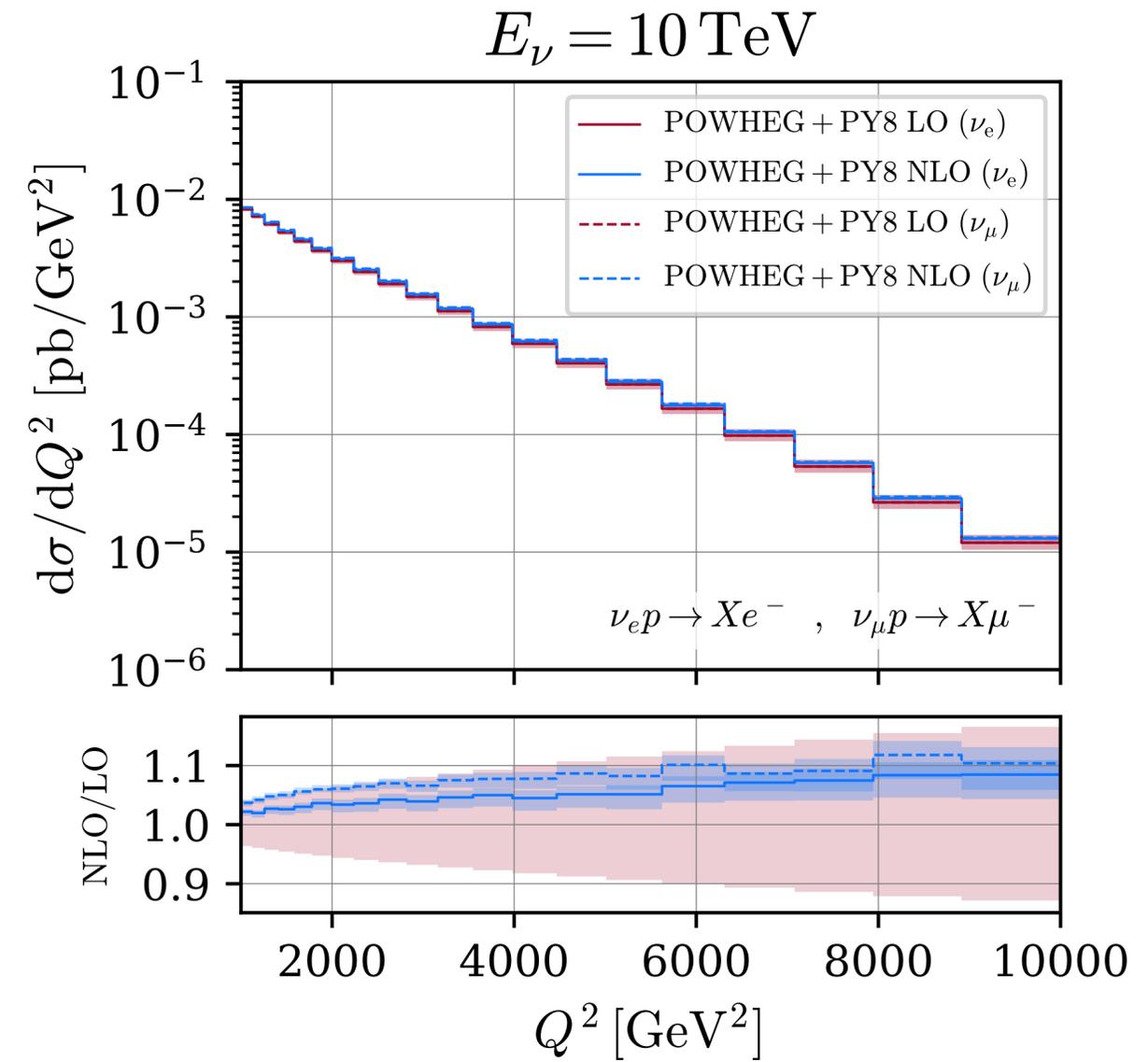
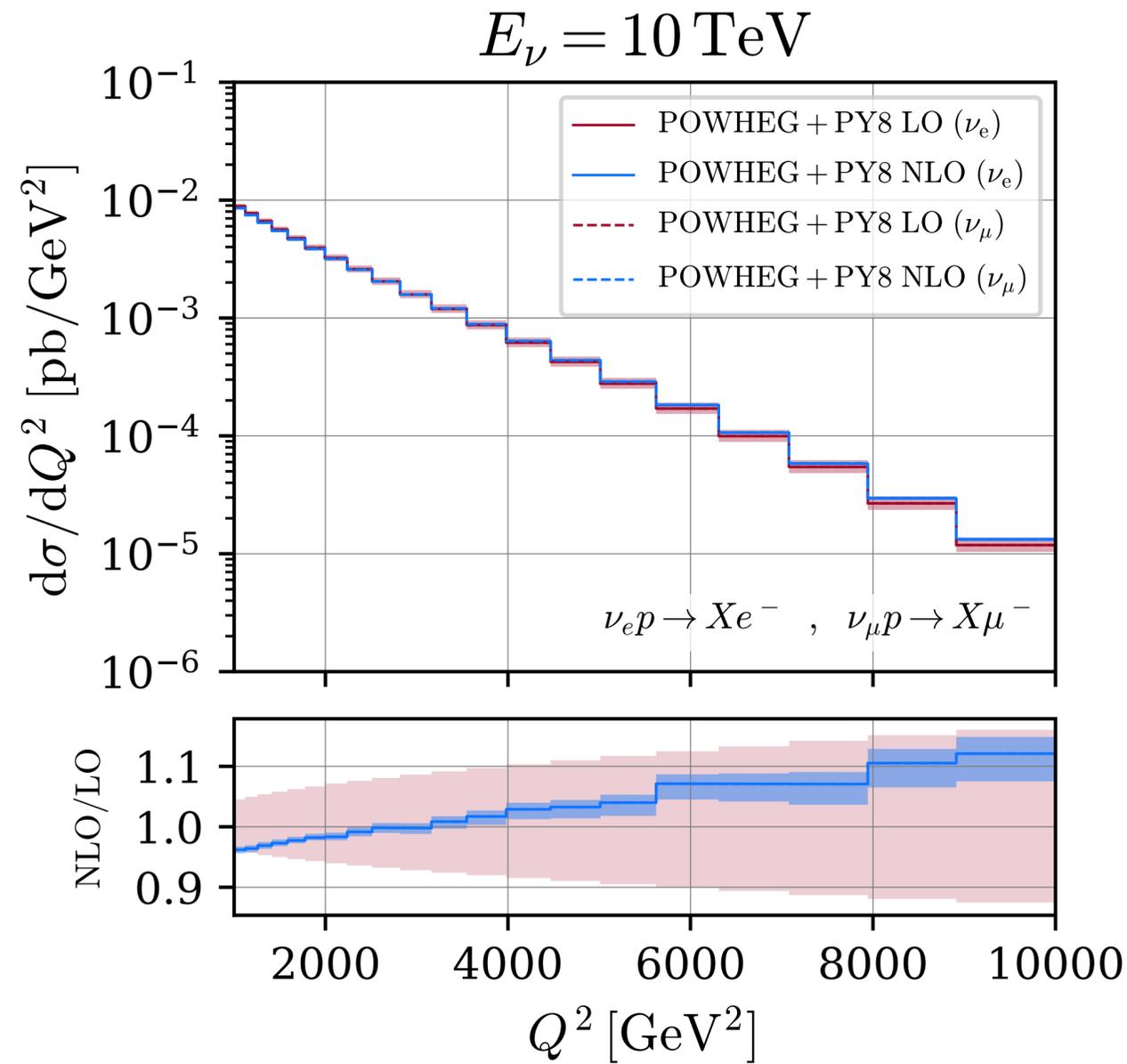
10TeV/10M/nue+numu-p (E_l)

running scales vs fixed scales

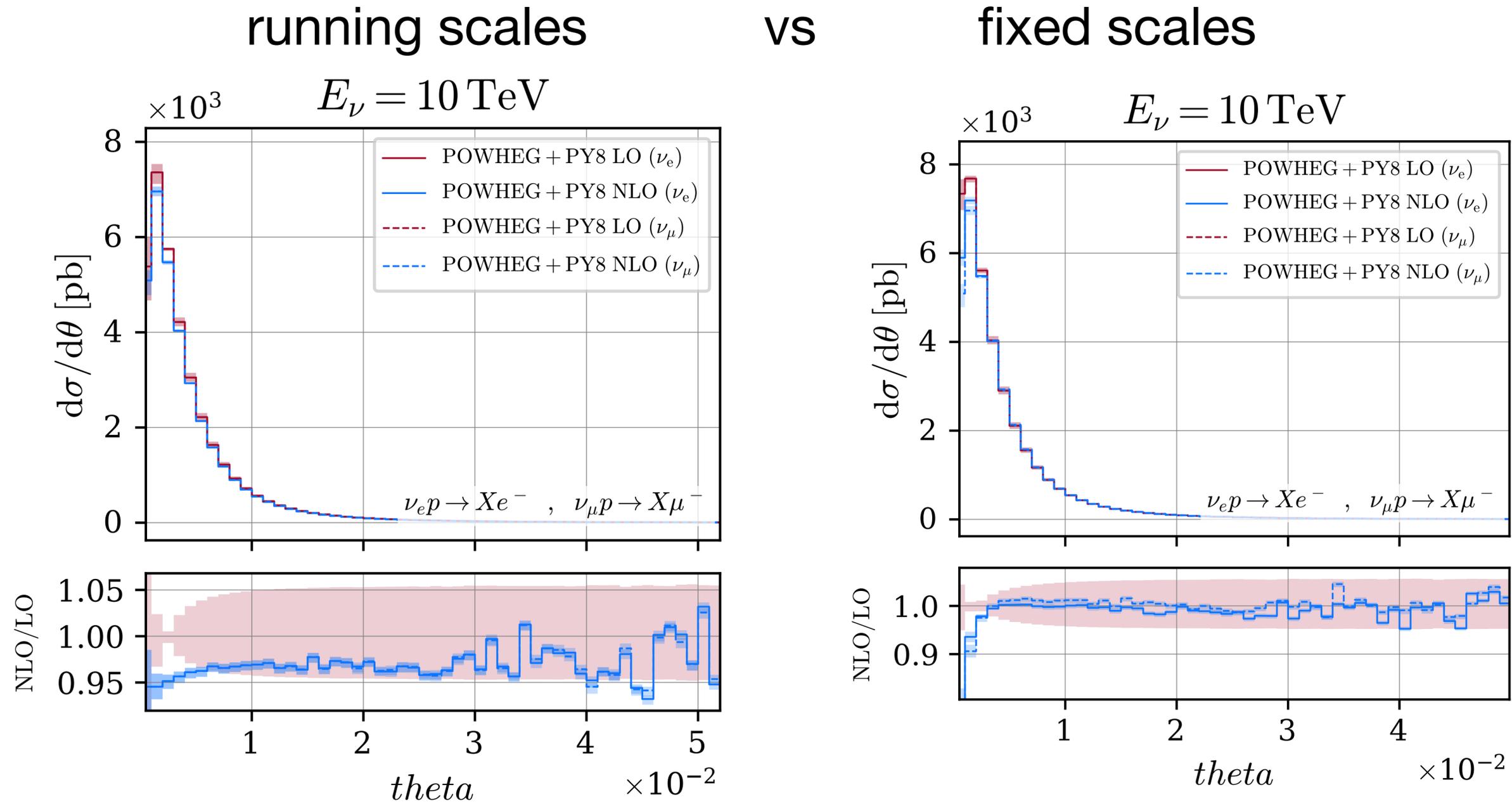


10TeV/10M/nue+numu-p (Q2)

running scales vs fixed scales



10TeV/10M/nue+numu-p (theta)

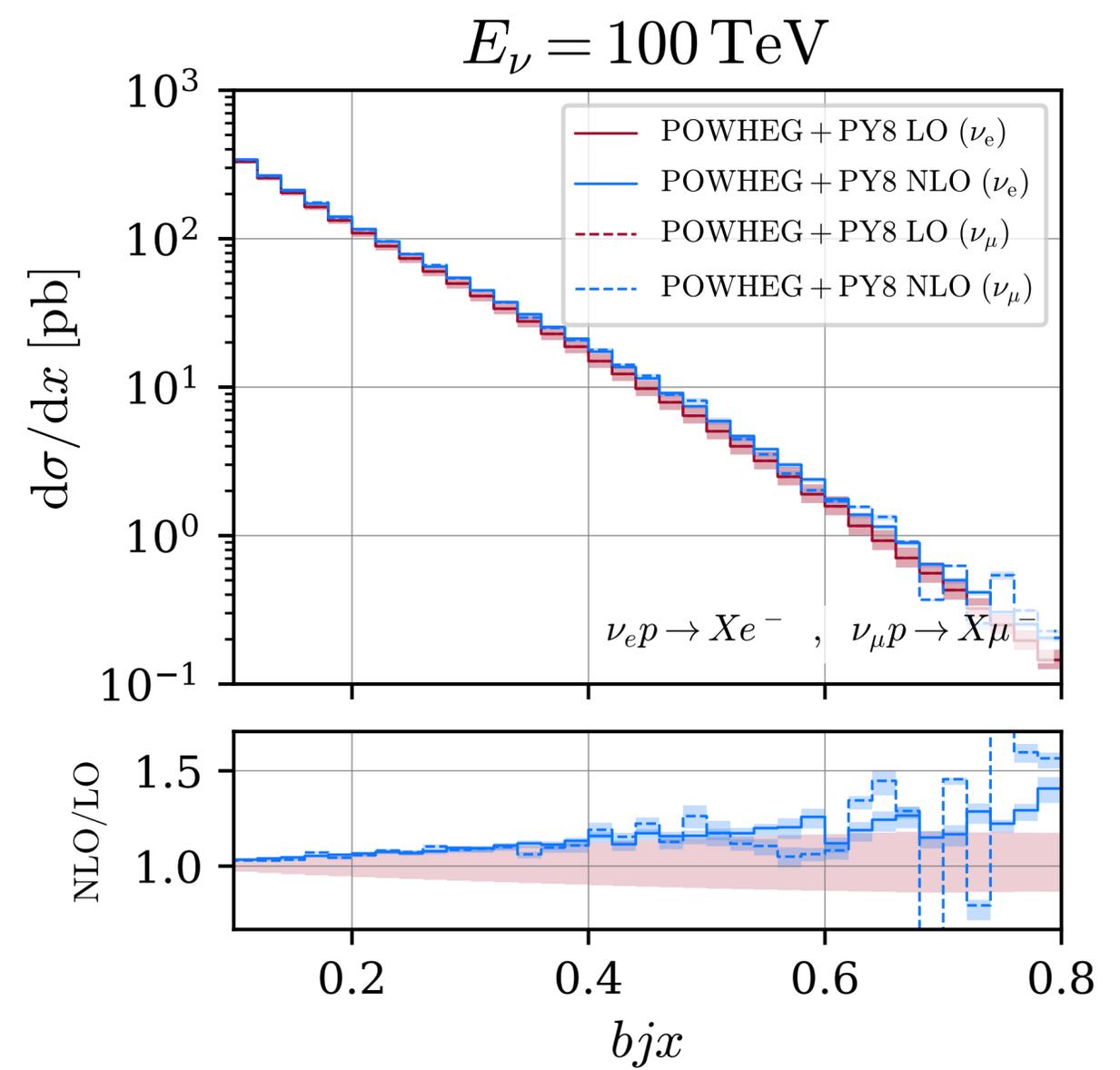
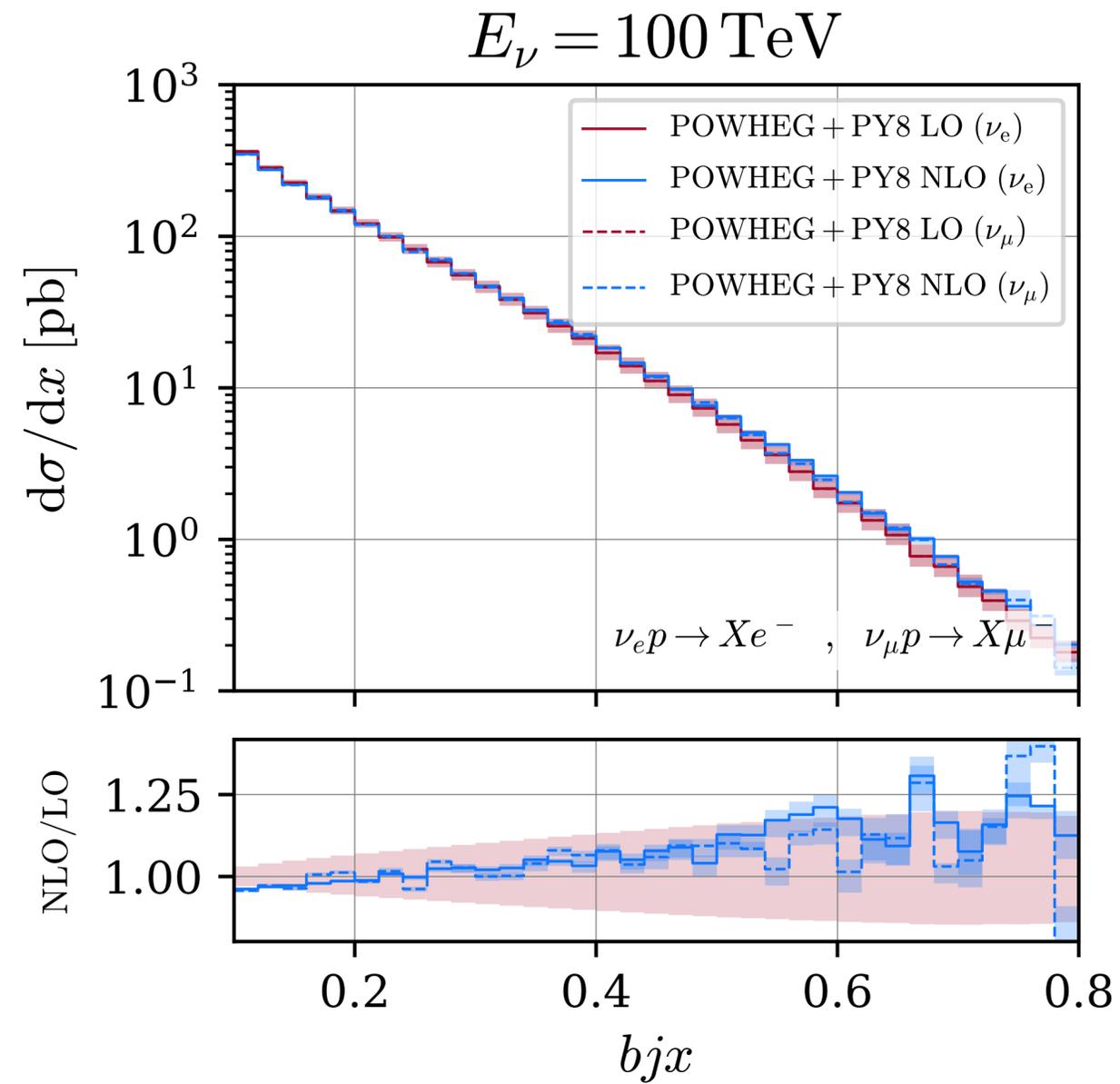


*Rerunning now with better binning (also for higher Es)

100TeV

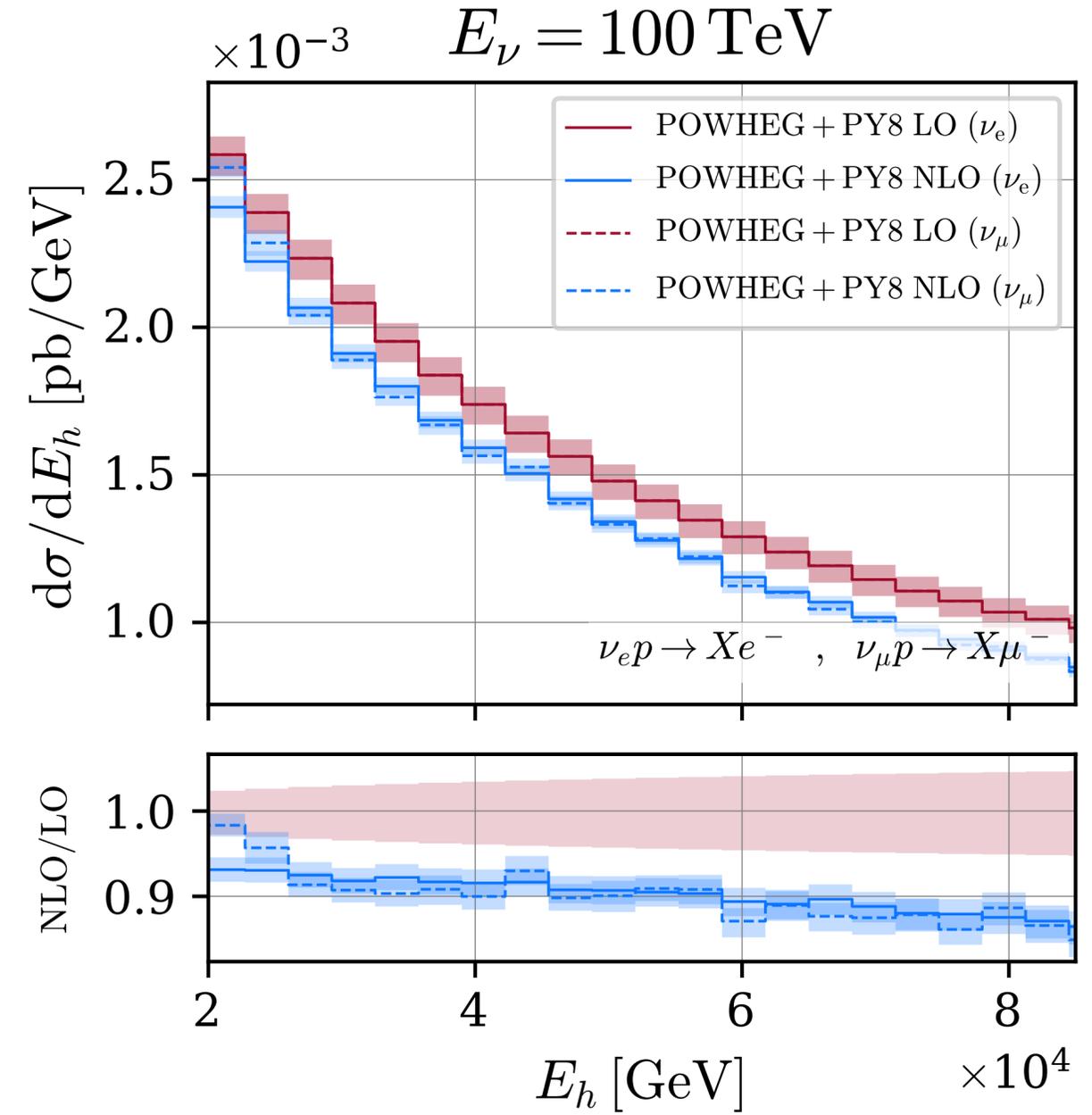
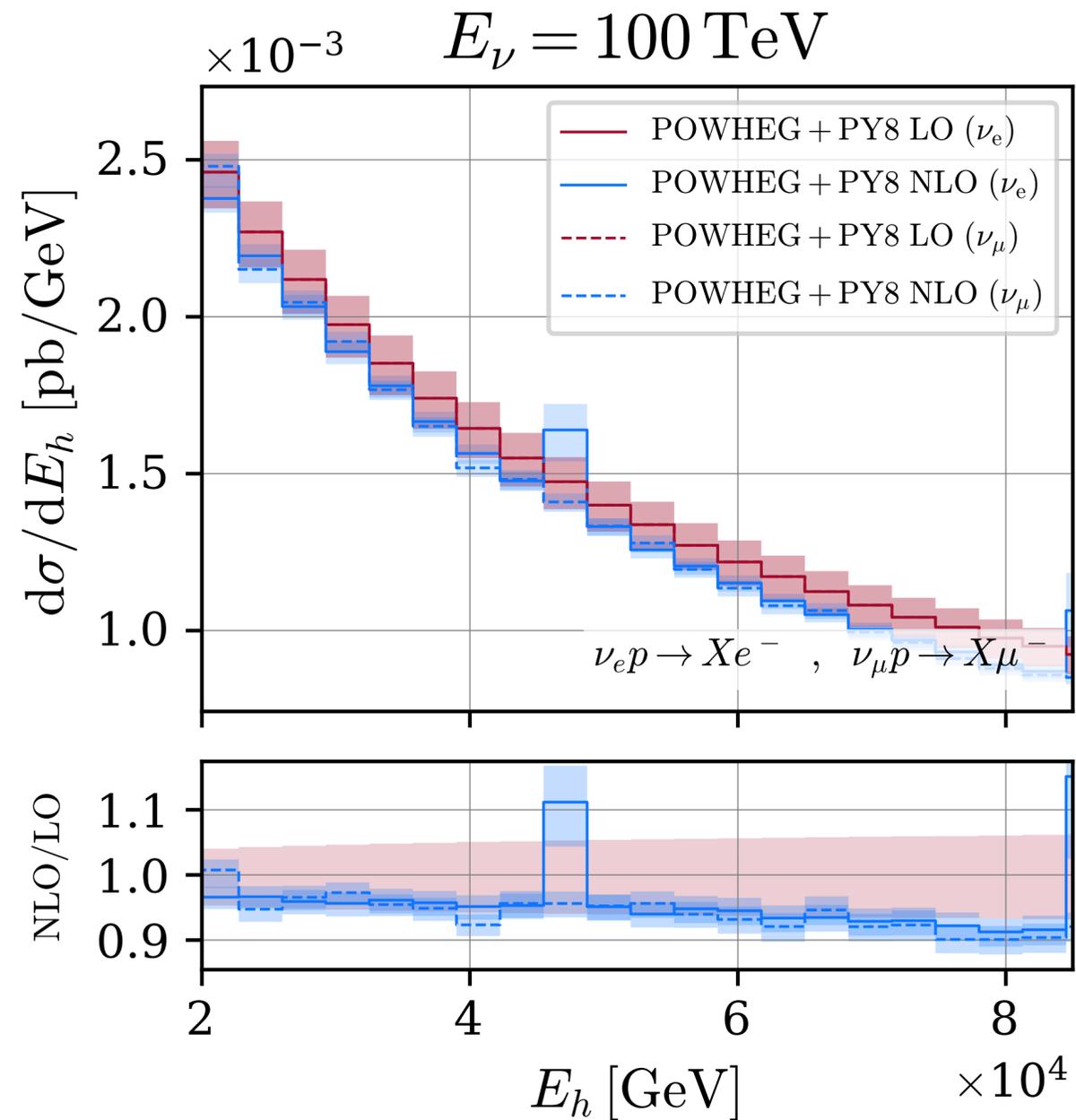
100TeV/10M/nue+numu-p (bjx)

running scales vs fixed scales



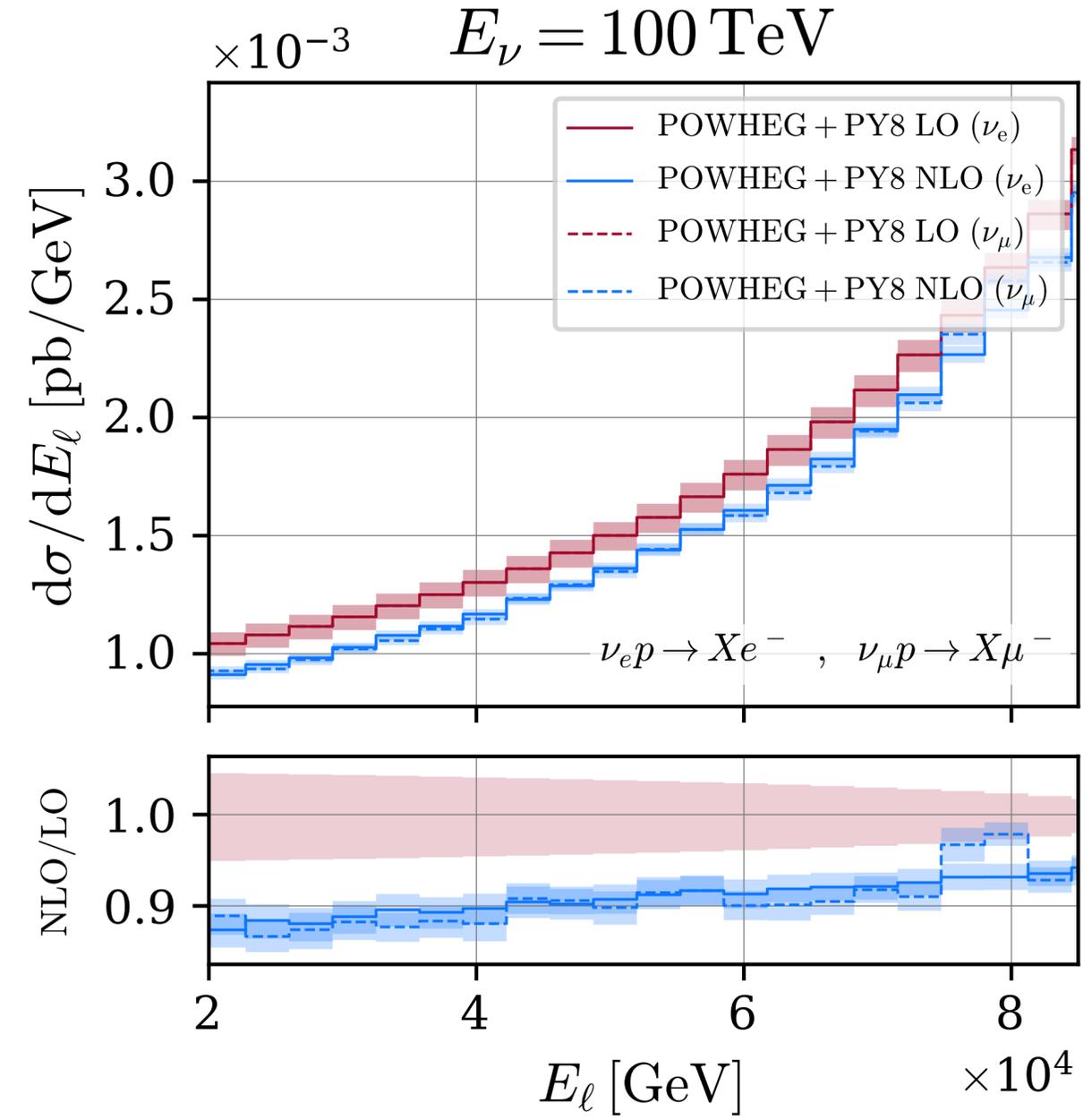
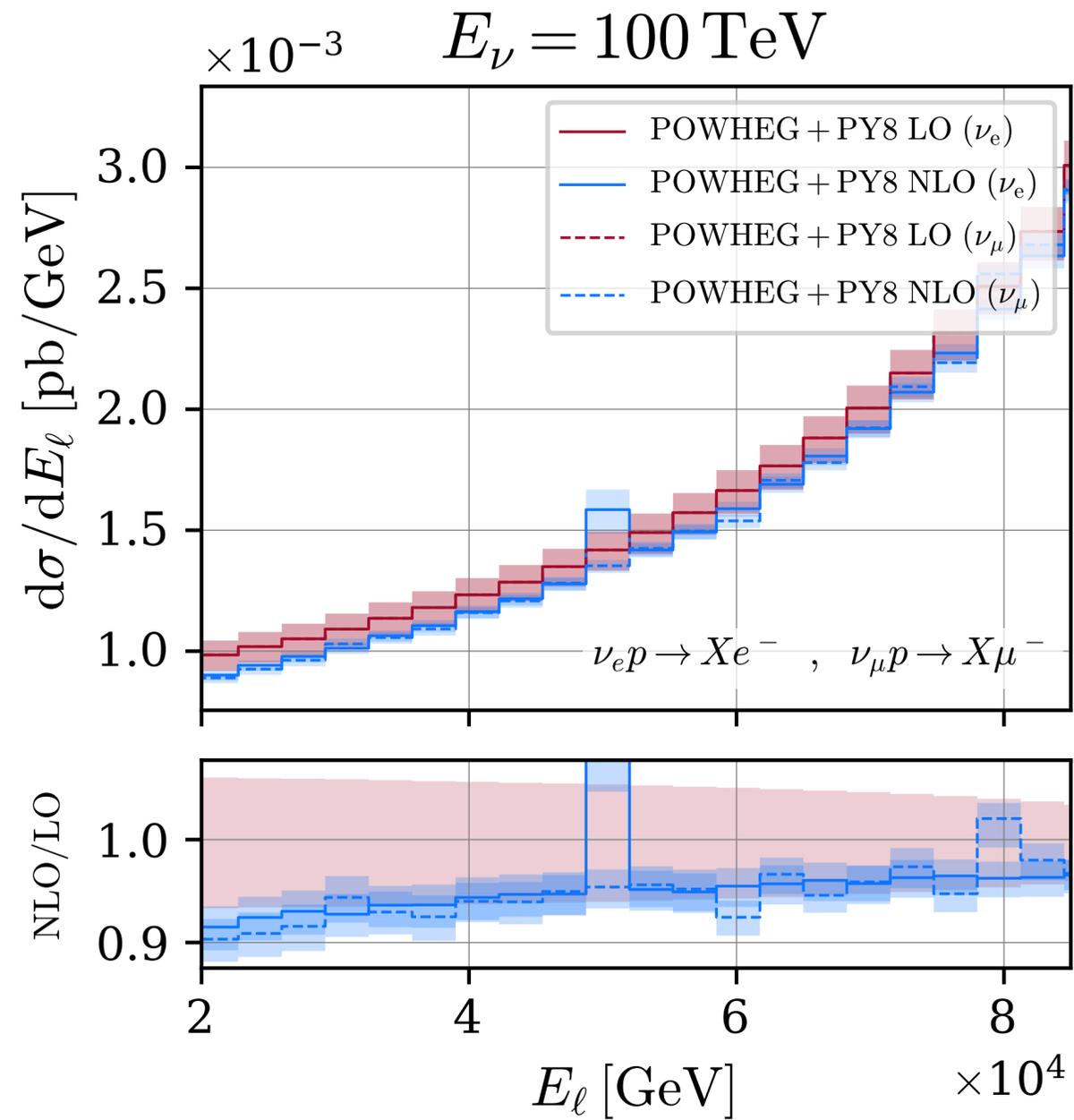
100TeV/10M/nue+numu-p (E_h)

running scales vs fixed scales



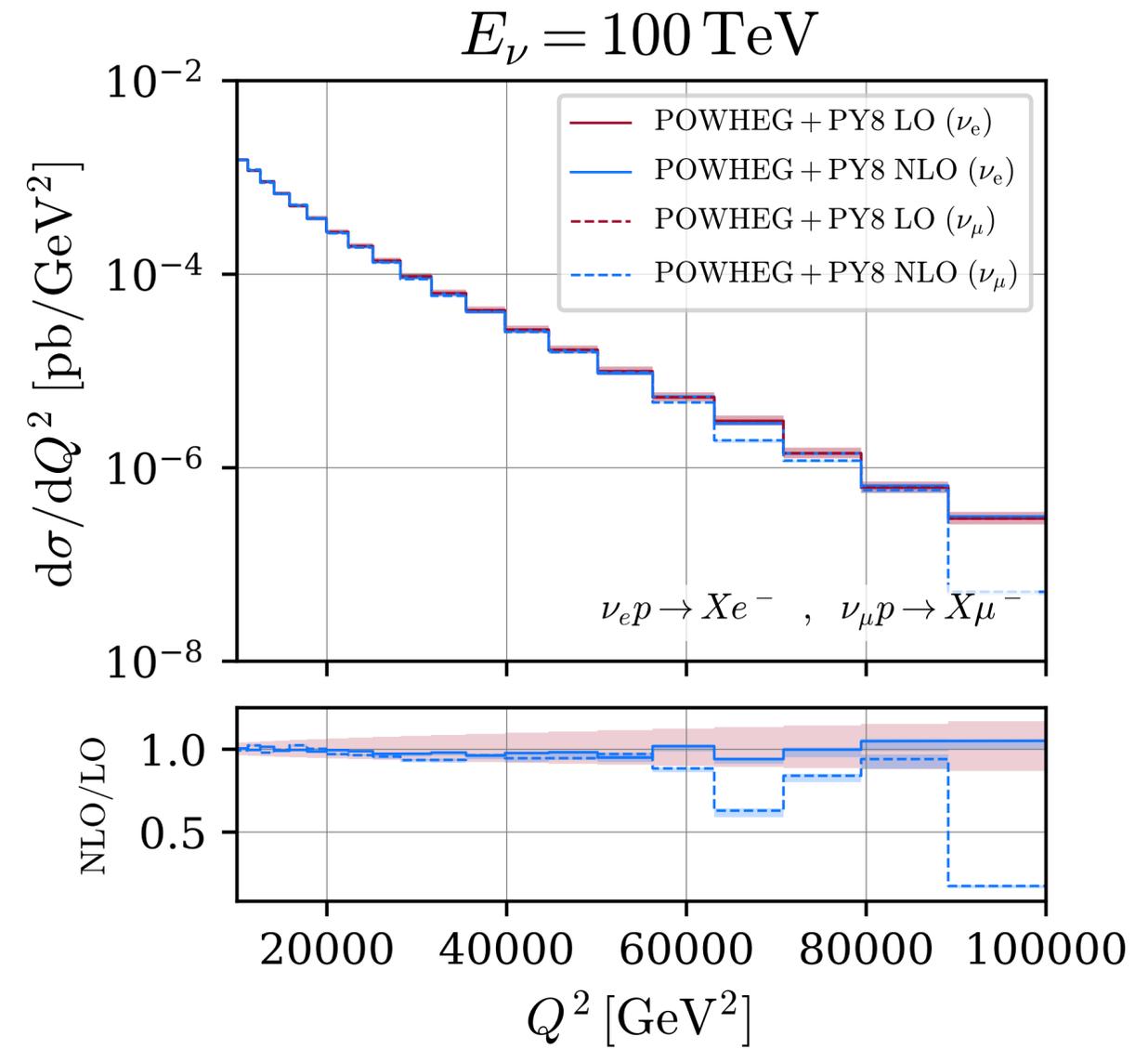
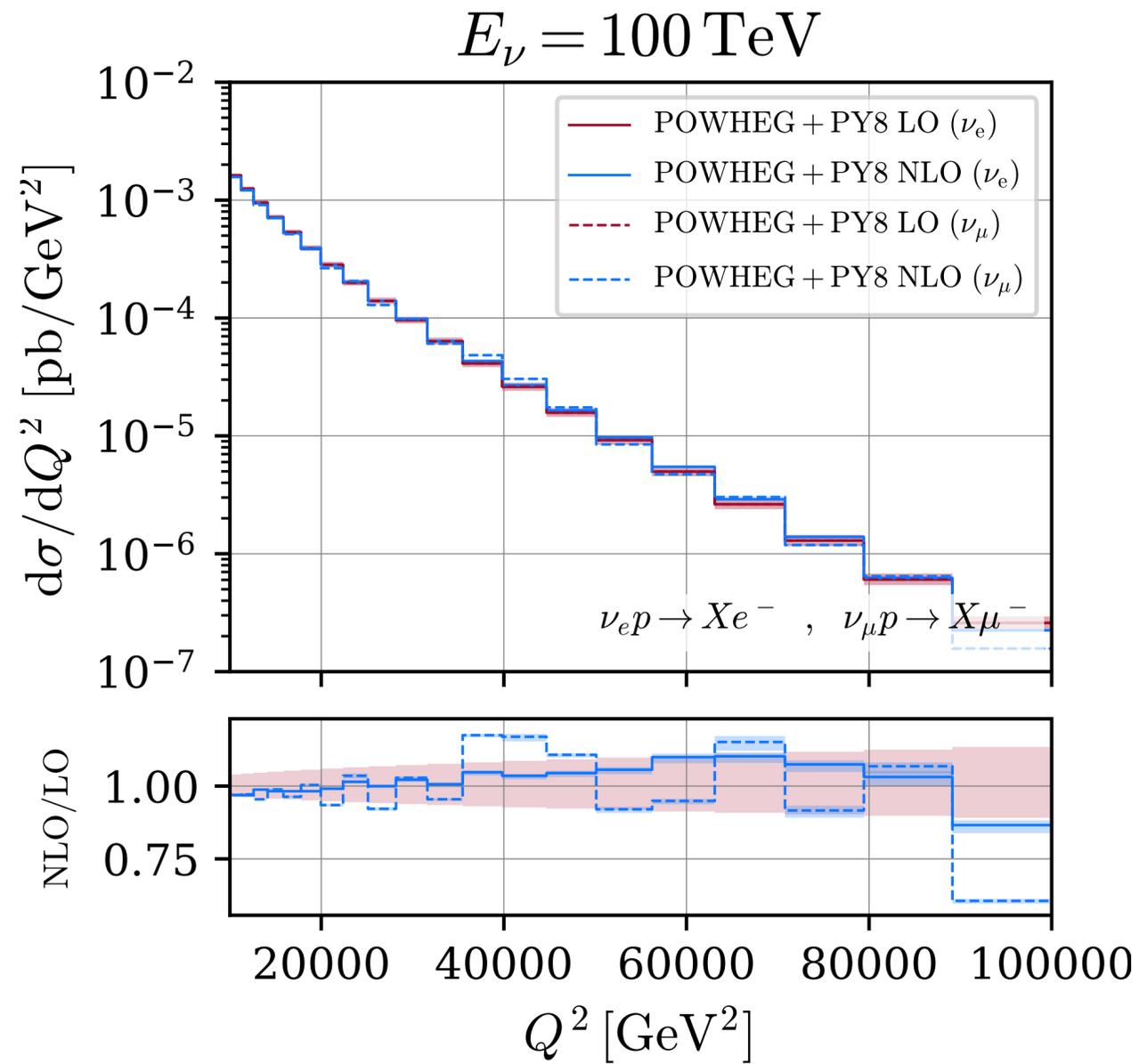
100TeV/10M/nue+numu-p (E_l)

running scales vs fixed scales

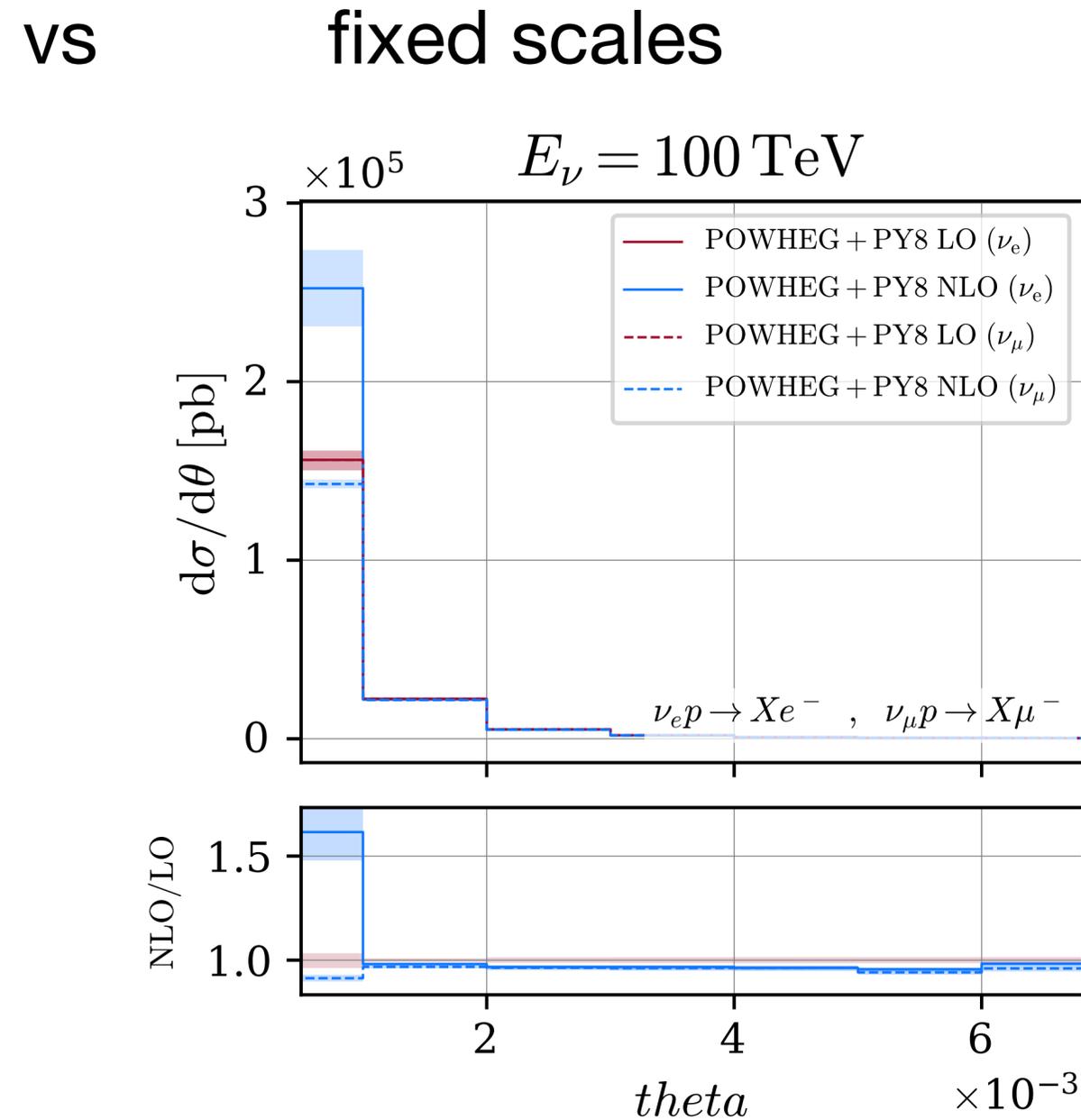
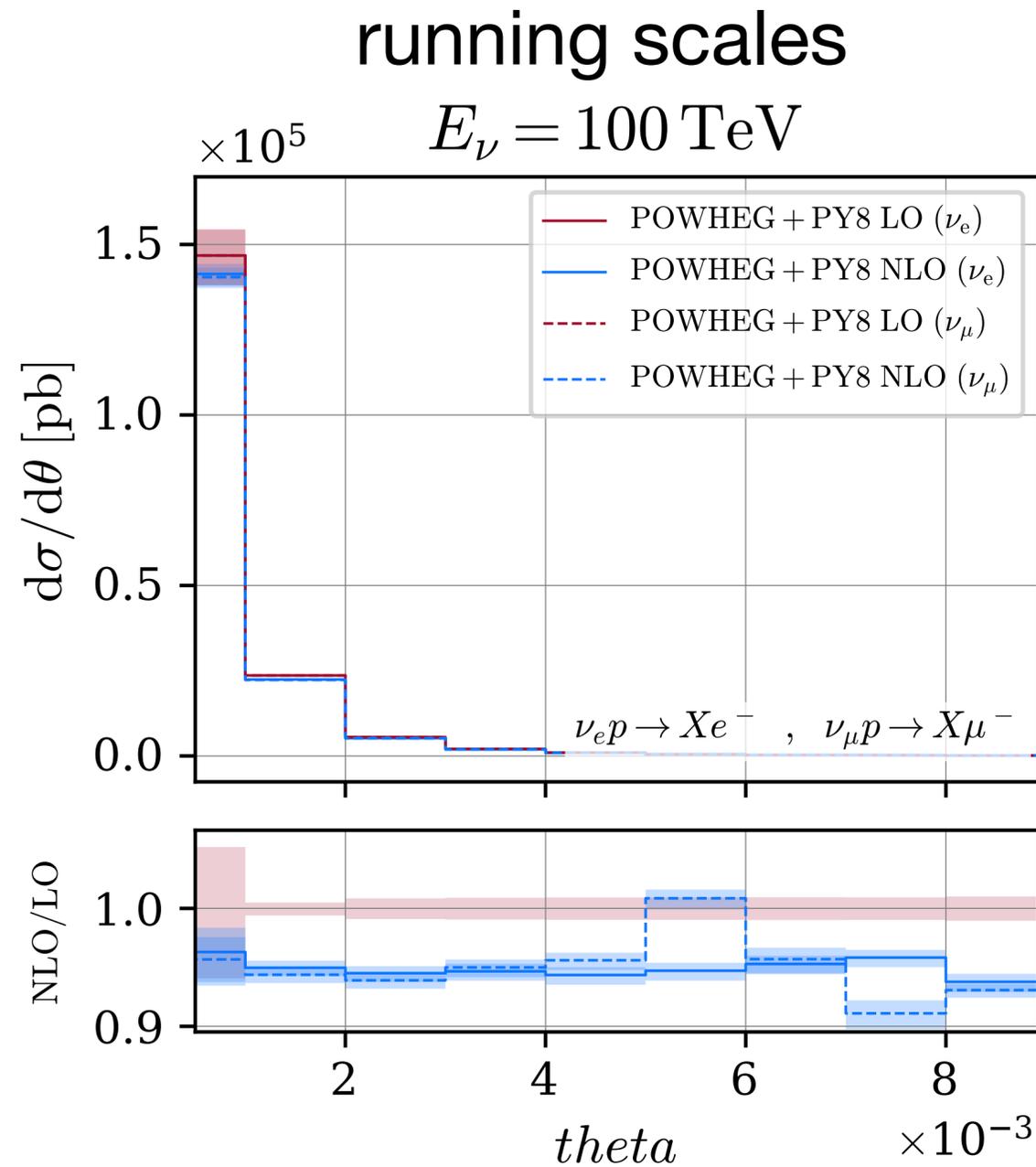


100TeV/10M/nue+numu-p (Q2)

running scales vs fixed scales



100TeV/10M/nue+numu-p (theta)



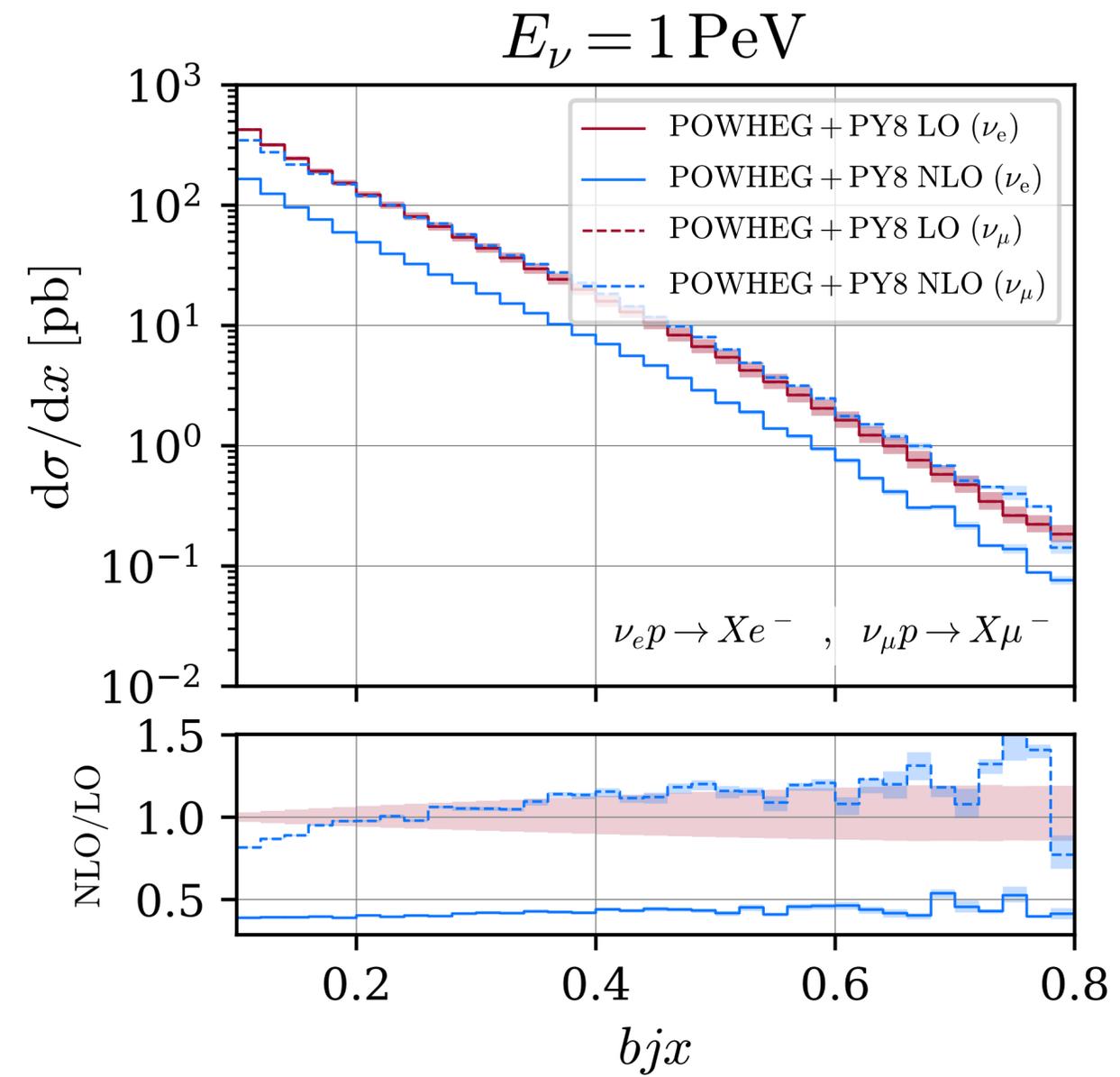
*Rerunning now with better binning (also for higher Es)

1 PeV

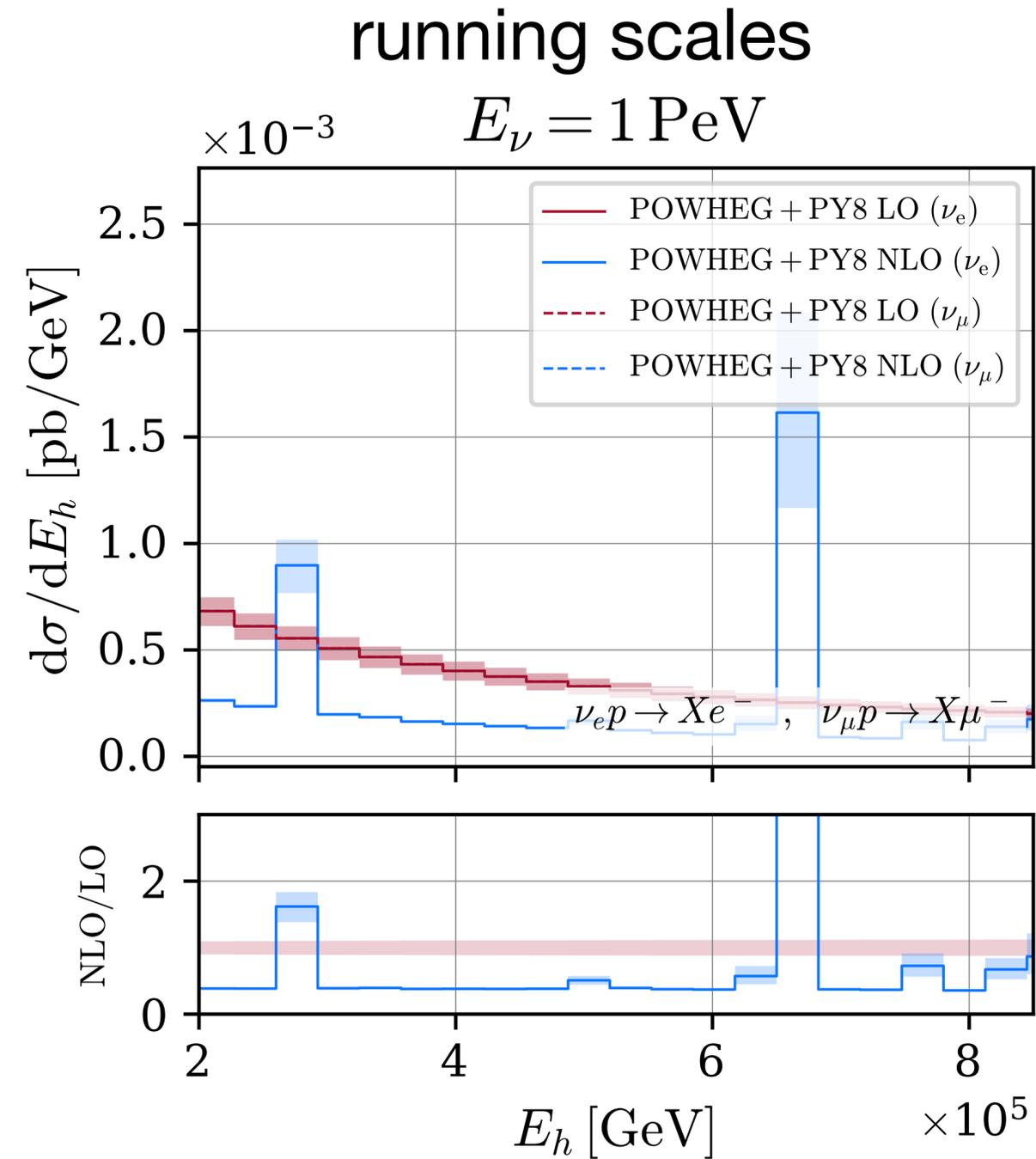
From here on I only ran the sims with running scales

1 PeV/10M/nue+numu-p (bjx)

running scales

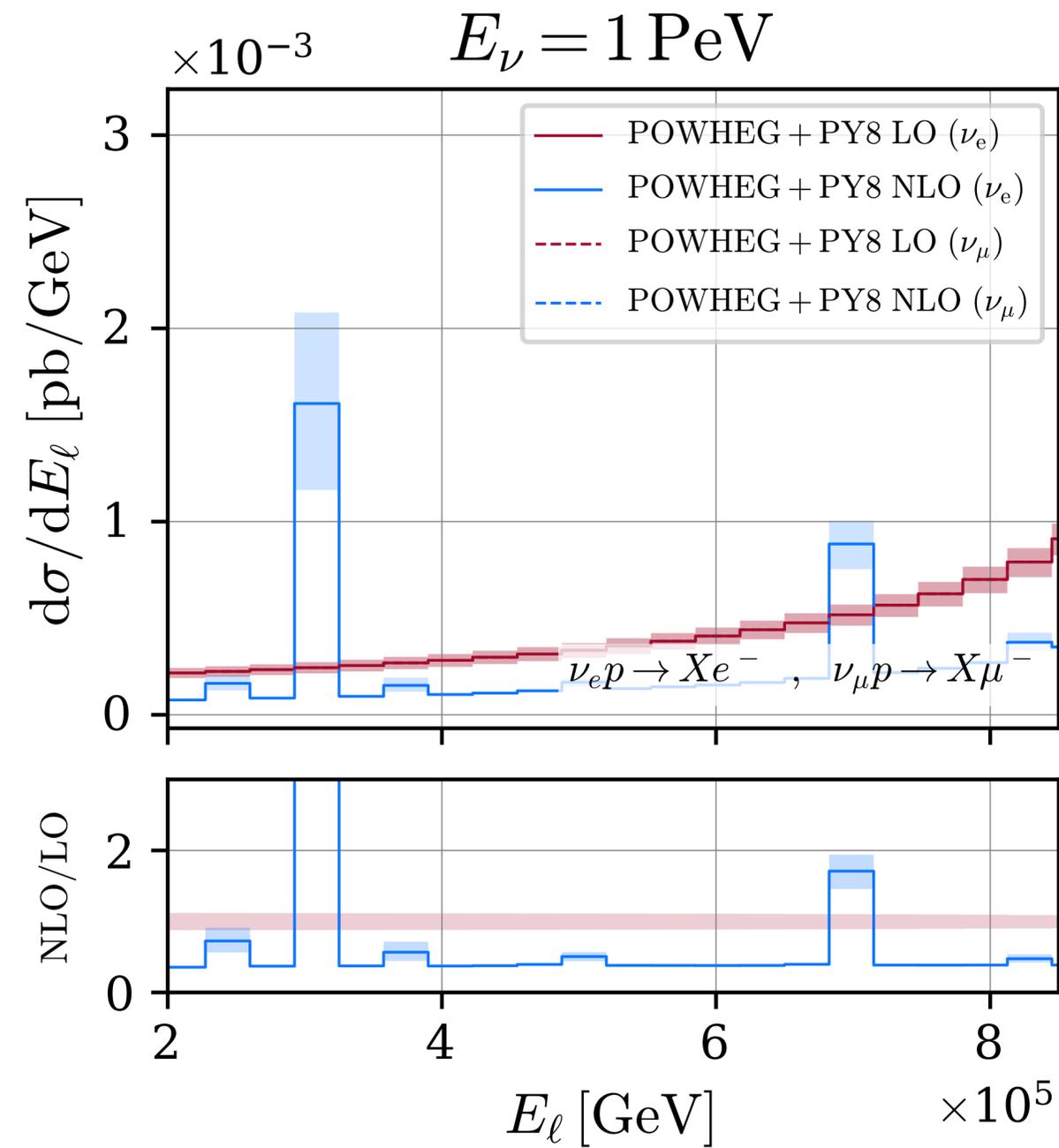


1 PeV/10M/nue+numu-p (E_h)



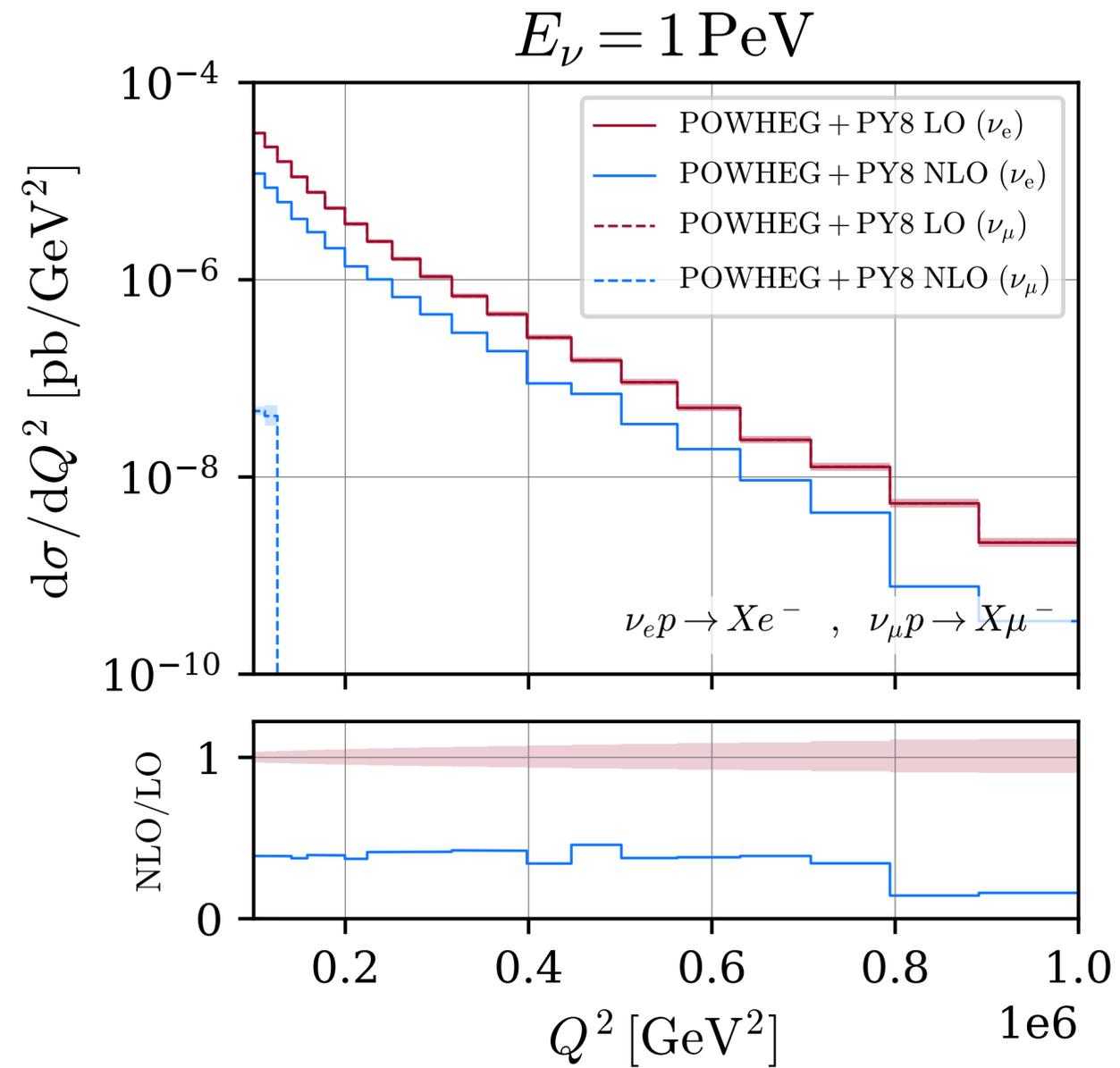
1 PeV/10M/nue+numu-p (E_l)

running scales



1 PeV/10M/nue+numu-p (Q2)

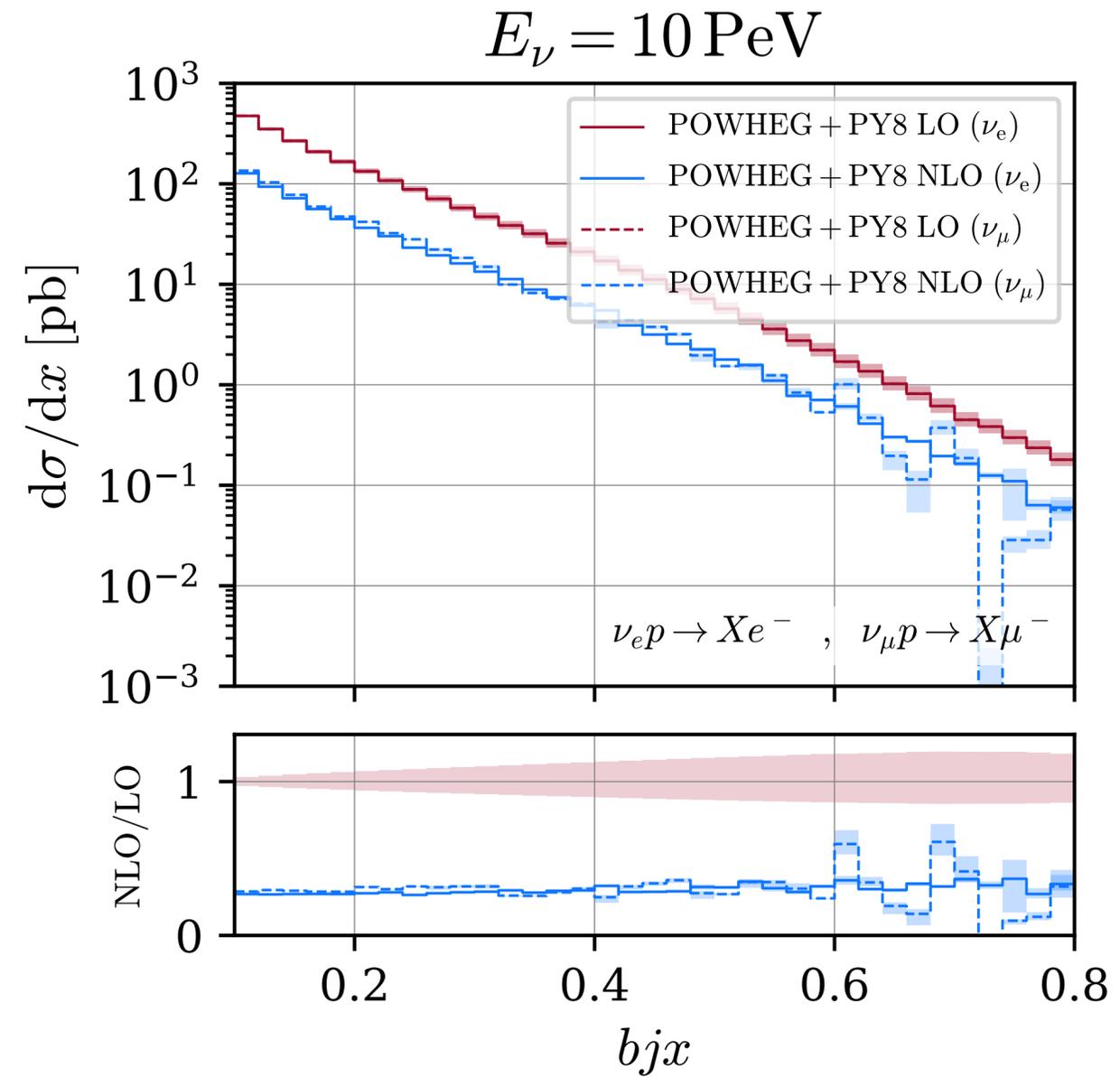
running scales



10 PeV

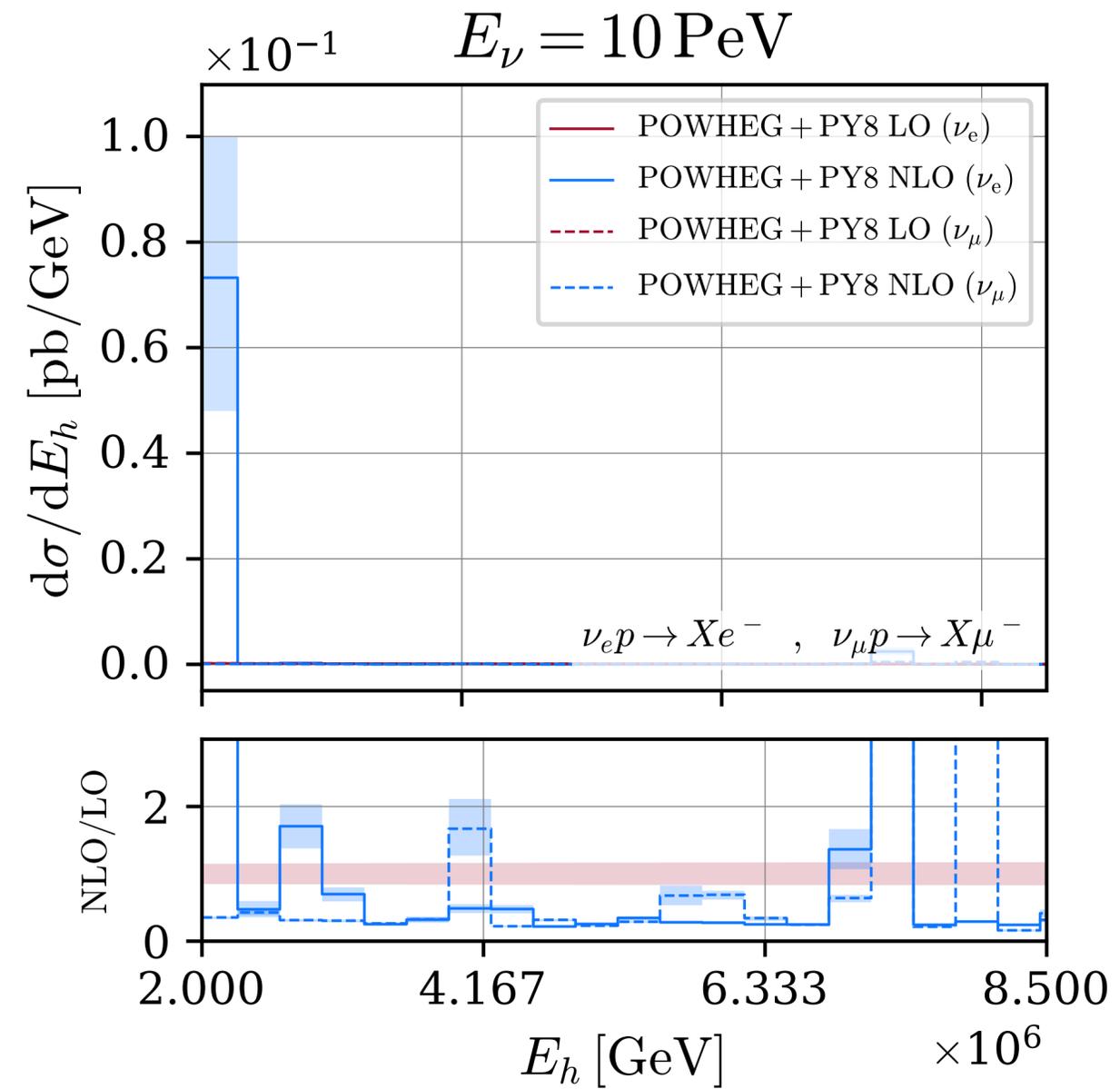
10PeV/10M/nue+numu-p (bjx)

running scales



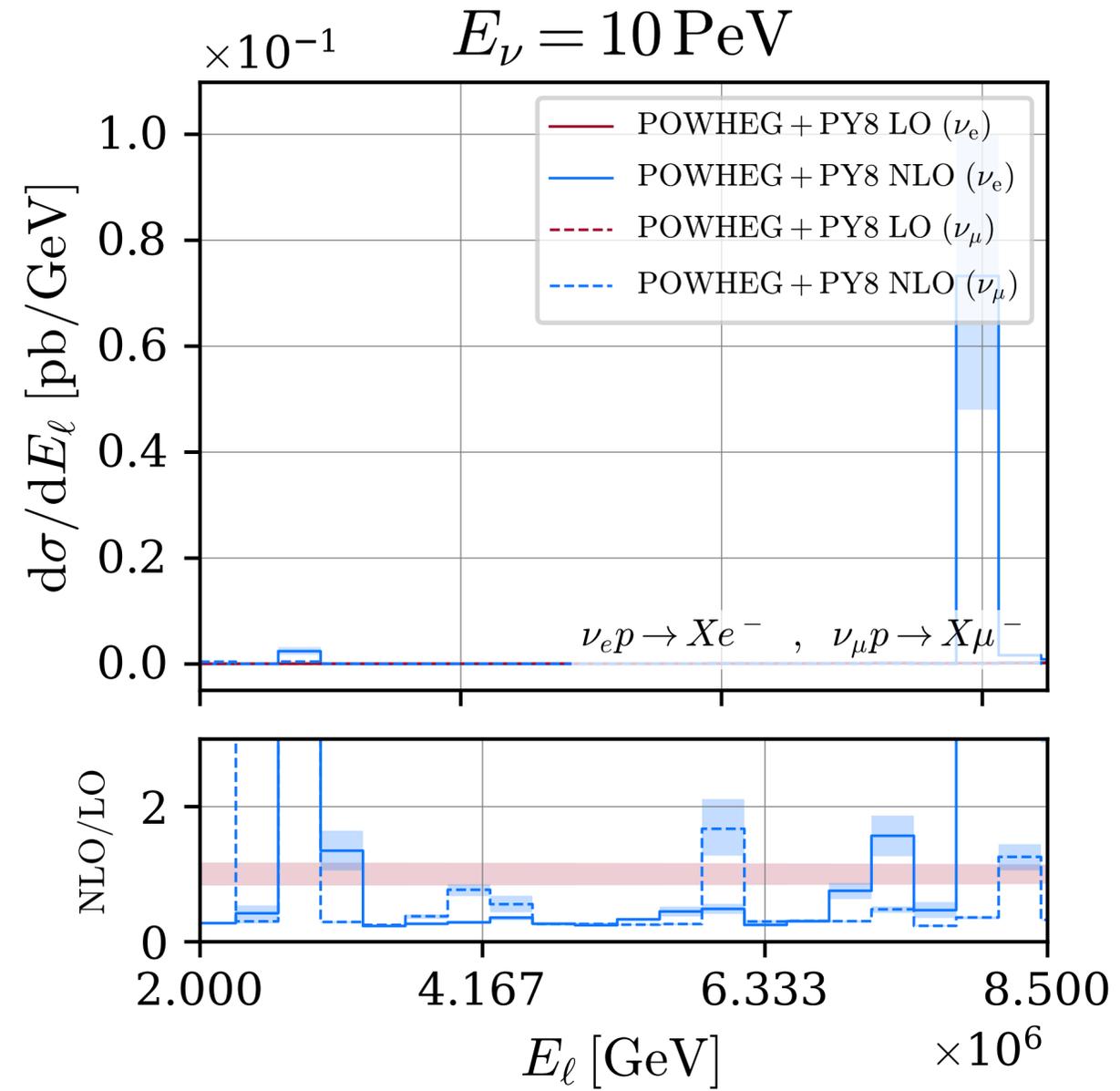
10PeV/10M/nue+numu-p (E_h)

running scales



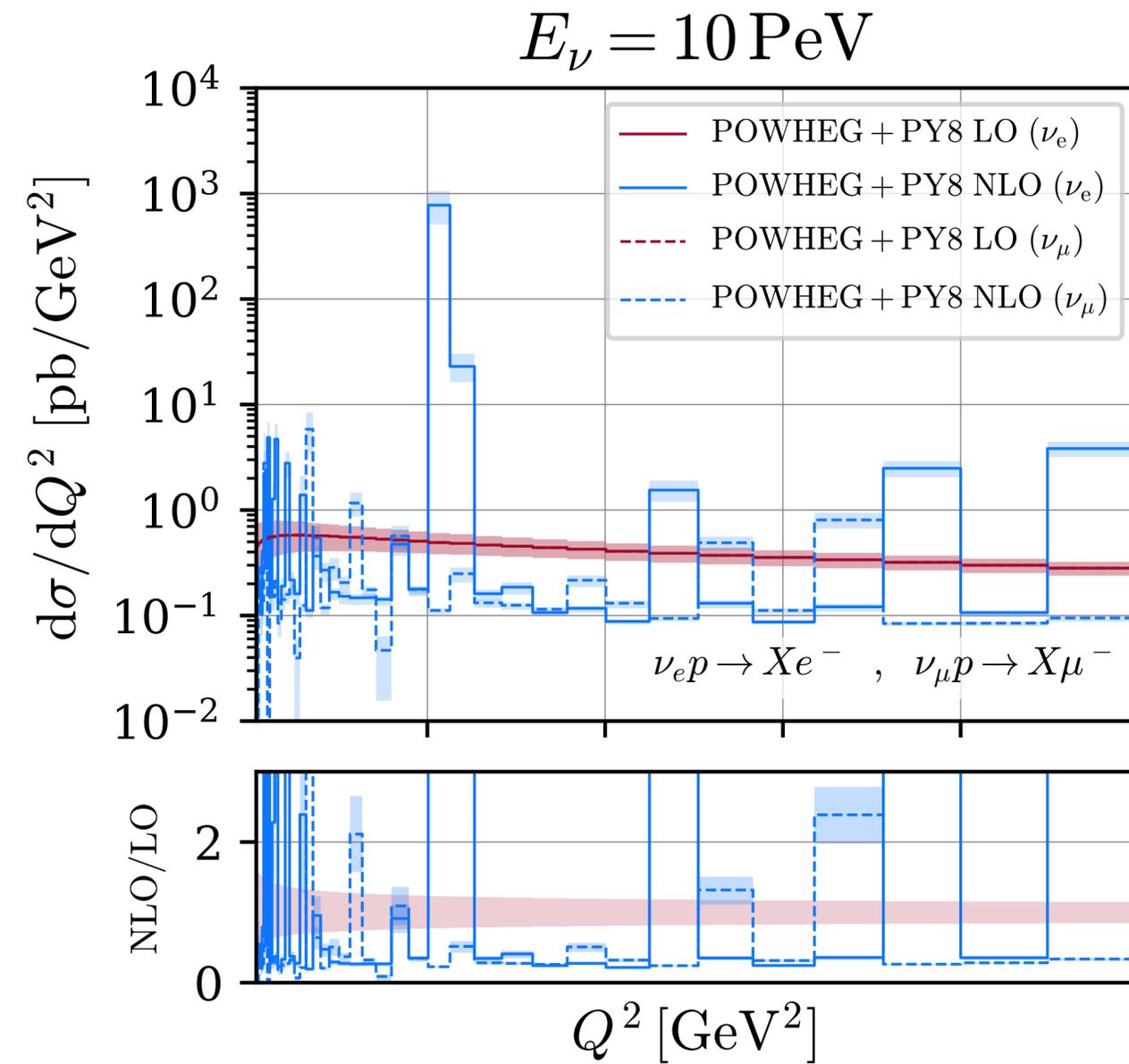
10PeV/10M/nue+numu-p (E_l)

running scales



10PeV/10M/nue+numu-p (Q2)

running scales



Summary

- Plots from Pheno Paper (1TeV)
 - Paper vs fixed vs running scales
 - OBS: b_{jx} , Q^2 , E_h , E_l , θ_l
 - **MISSING: y (inel), $d_{\mu\mu}$ + appropriate binning $\theta < \dots$ — currently working**
- Higher Es: 10, 100 TeV, 1, 10 PeV
 - 10-100TeV fixed vs running
 - 1-10 PeV things falling apart
 - **Keep pushing it? Change something in binning?**