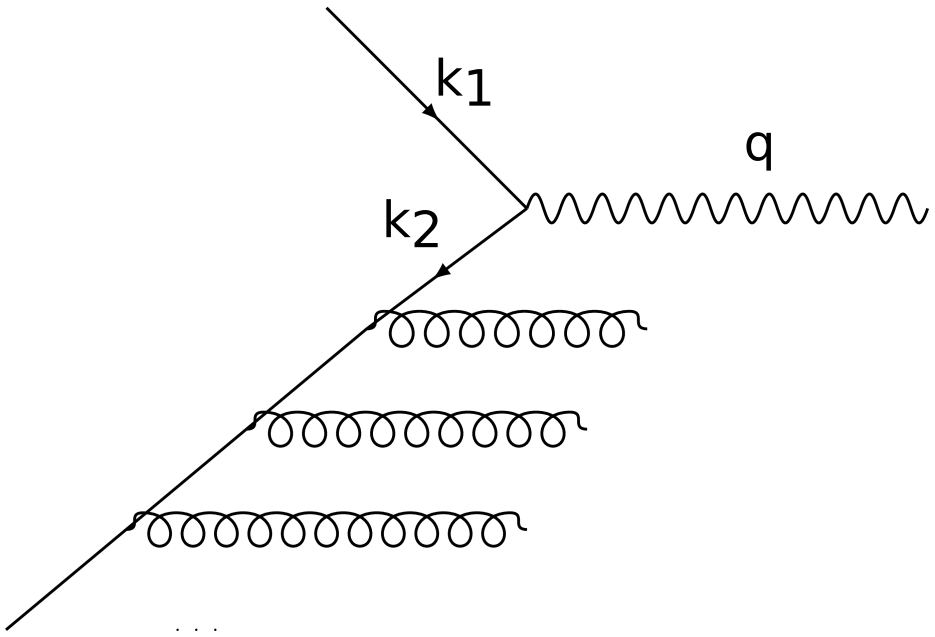
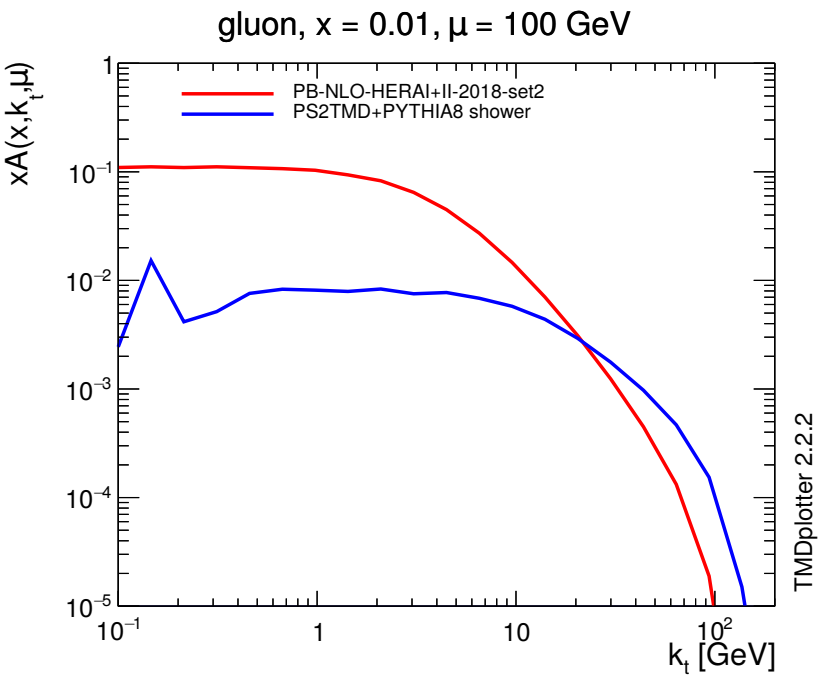
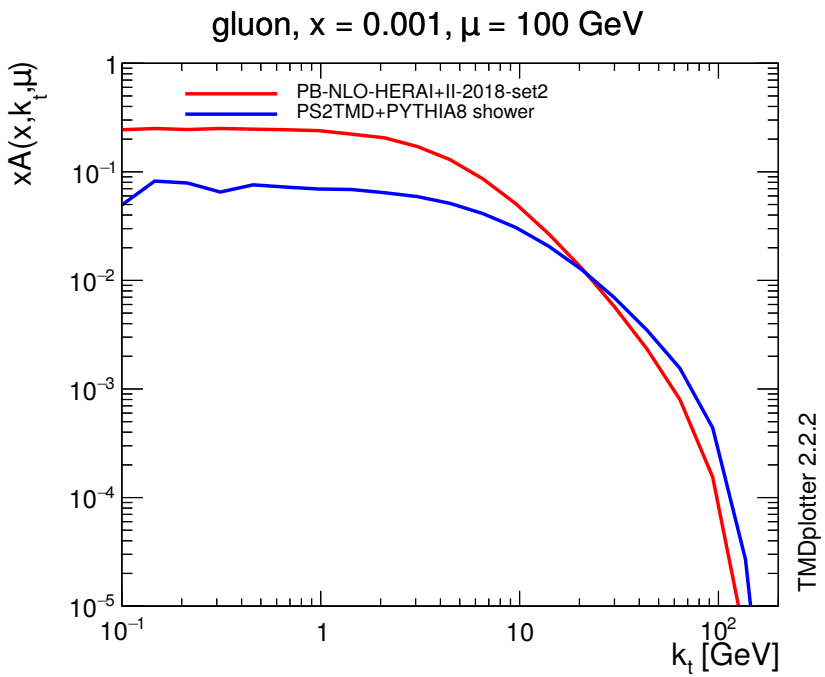
TMDs from the PYTHIA and HERWIG parton showers

PB TMDs Discussion Meeting



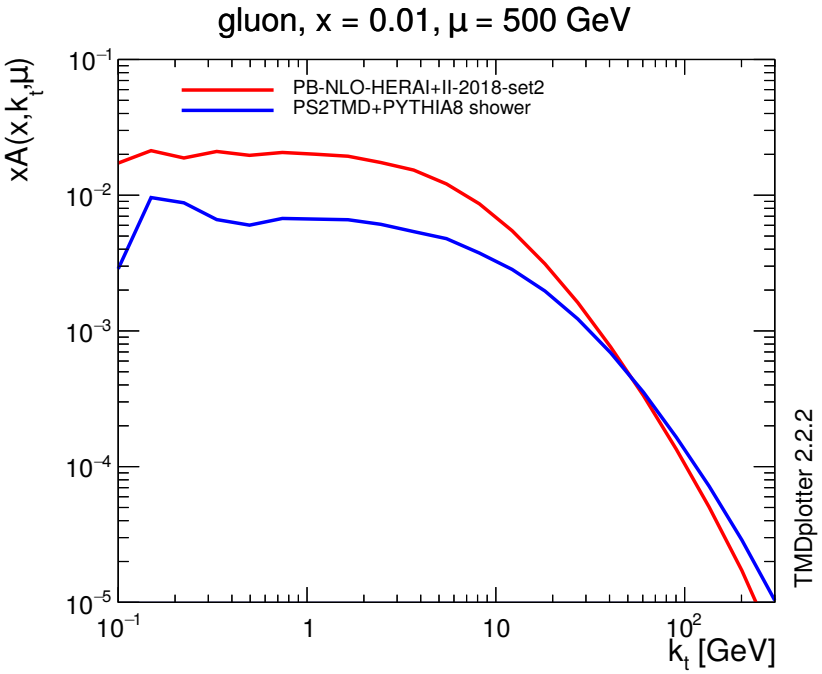
TMDs from the PYTHIA8 parton shower at 13 TeV

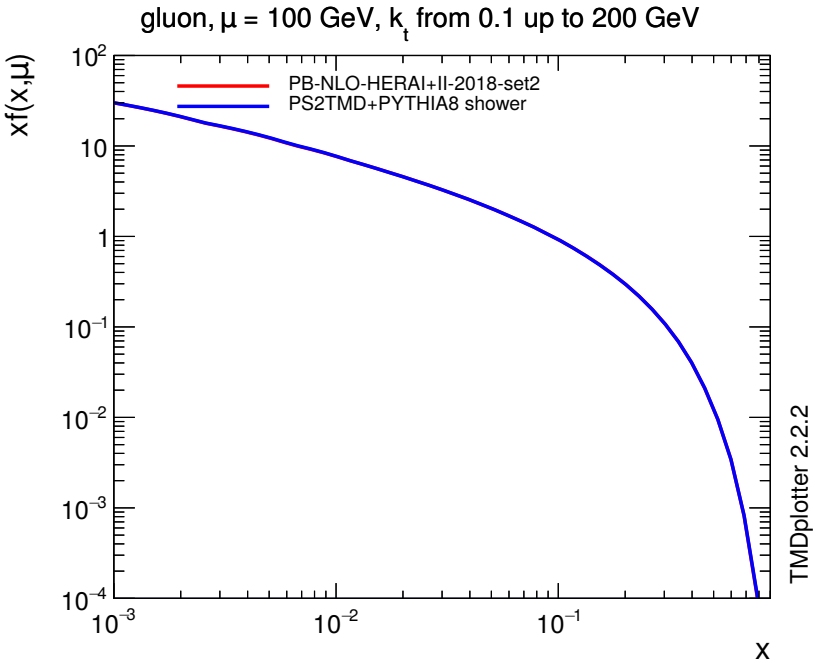




TMD parton density as a function of $k_\perp$ for gluons at $\mu = 100$ GeV obtained from final state events of the PYTHIA shower (blue curve) and obtained from the input TMD PB-Set2 (red curve). The collinear PDF PB-Set2 is used for the generation. Left: $x = 0.01$. Right: $x = 0.001$.

TMDs from the PYTHIA8 parton shower at 13 TeV

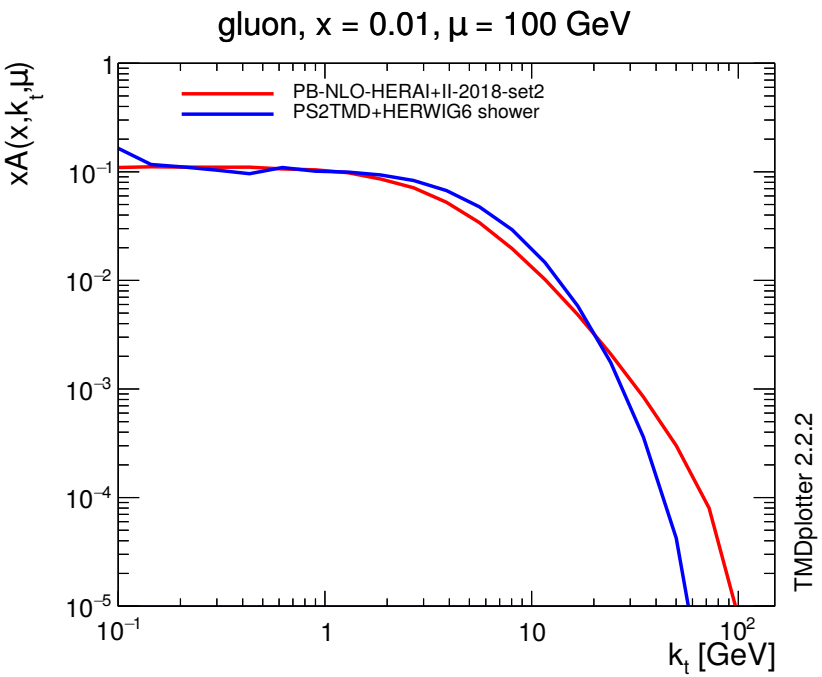


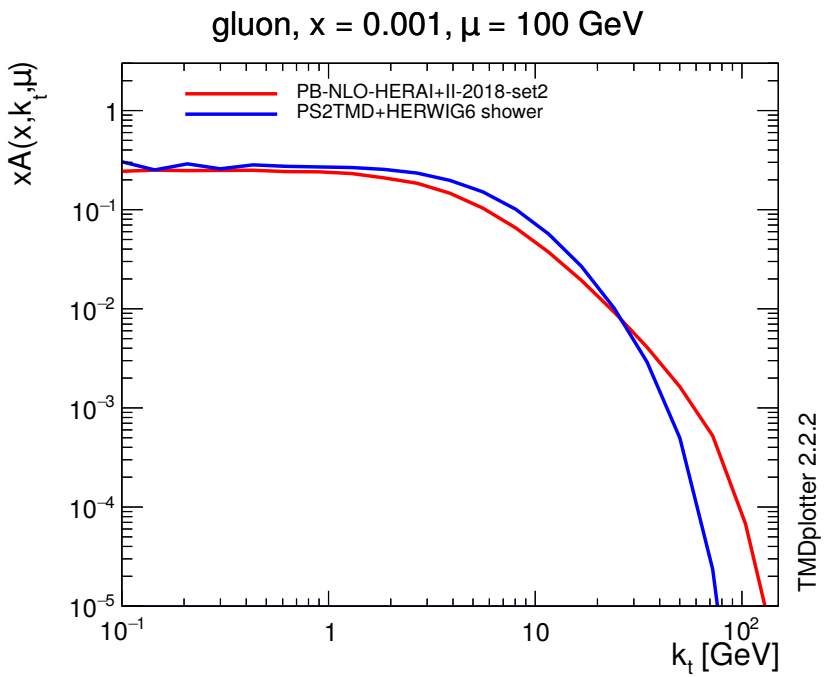


Left: TMD parton density as a function of $k_\perp$ for gluons at $\mu = 500$ GeV at $x = 0.01$ obtained from final state events of the PYTHIA shower (blue curve) and obtained from the input TMD PB-Set2 (red curve). The collinear PDF PB-Set2 is used for the generation.

Right: Integrated TMD parton density as a function of x at $\mu = 100$ GeV integrated over $k_\perp$ from 0.1 up to 200 GeV.

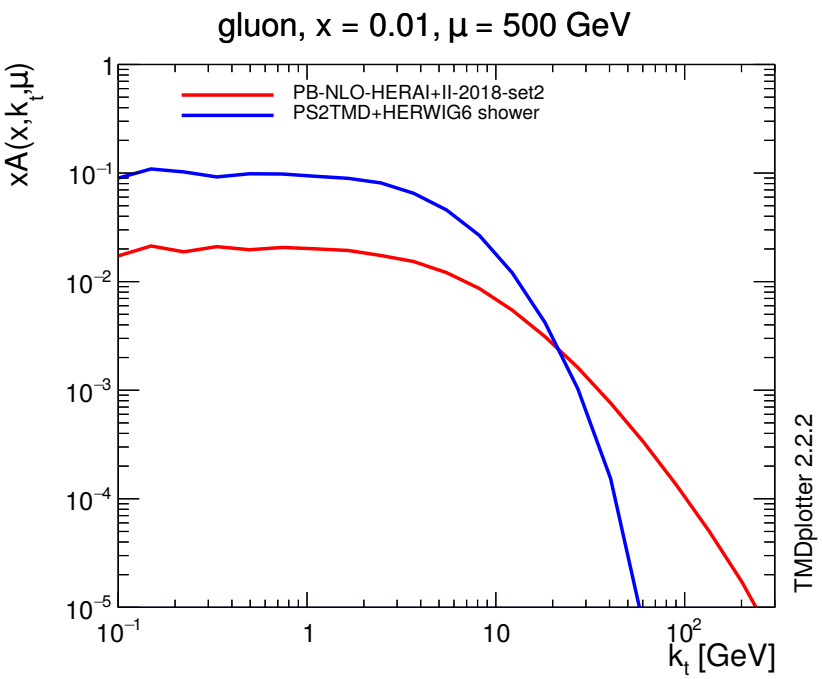
TMDs from the HERWIG6 parton shower at 13 TeV

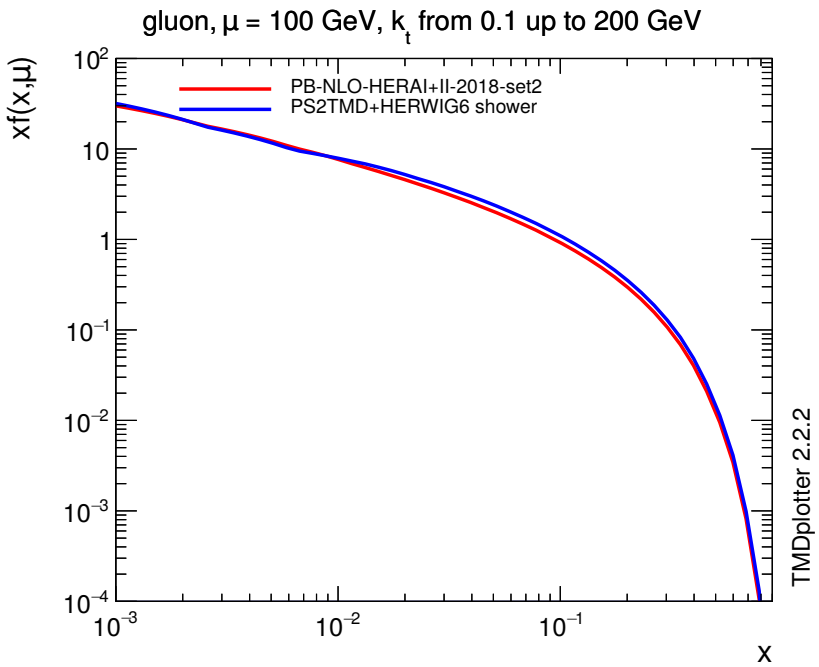




TMD parton density as a function of $k_\perp$ for gluons at $\mu = 100$ GeV obtained from final state events of the HERWIG shower (blue curve) and obtained from the input TMD PB-Set2 (red curve). The collinear PDF PB-Set2 is used for the generation. Left: $x = 0.01$. Right: $x = 0.001$.

TMDs from the HERWIG6 parton shower at 13 TeV

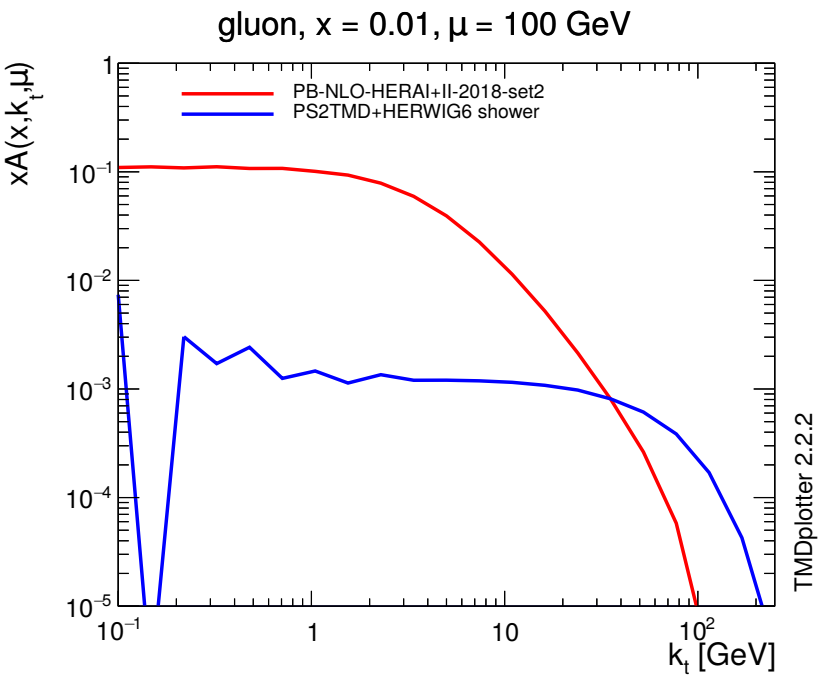


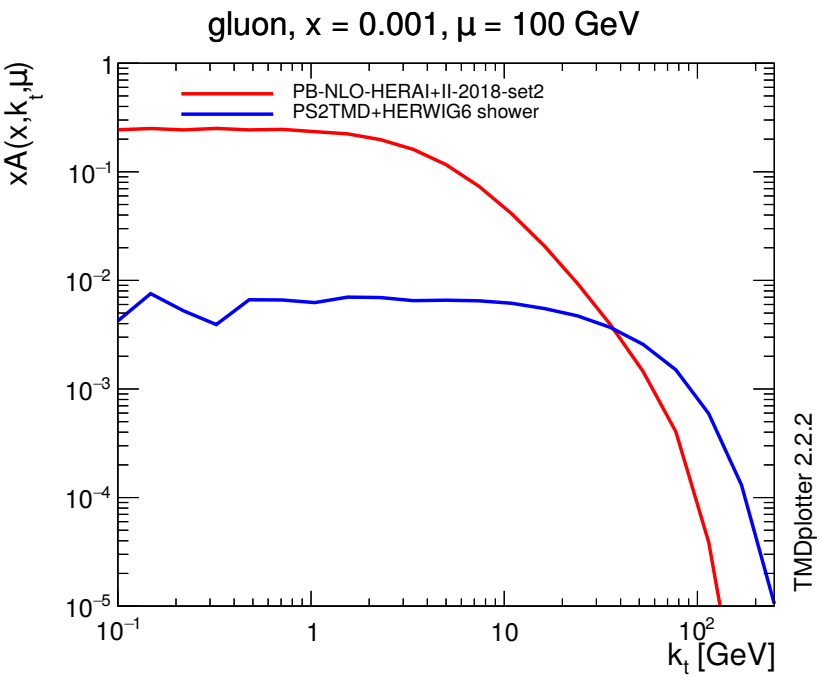


Left: TMD parton density as a function of $k_\perp$ for gluons at $\mu = 500$ GeV at $x = 0.01$ obtained from final state events of the HERWIG shower (blue curve) and obtained from the input TMD PB-Set2 (red curve). The collinear PDF PB-Set2 is used for the generation.

Right: Integrated TMD parton density as a function of x at $\mu = 100$ GeV integrated over $k_\perp$ from 0.1 up to 200 GeV.

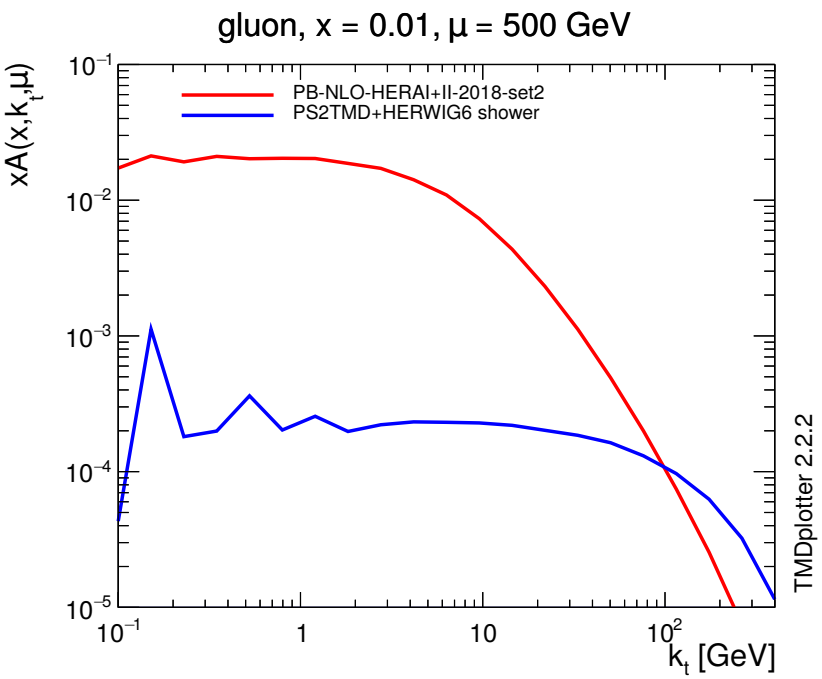
TMDs from the HERWIG6 parton shower at 1000 TeV

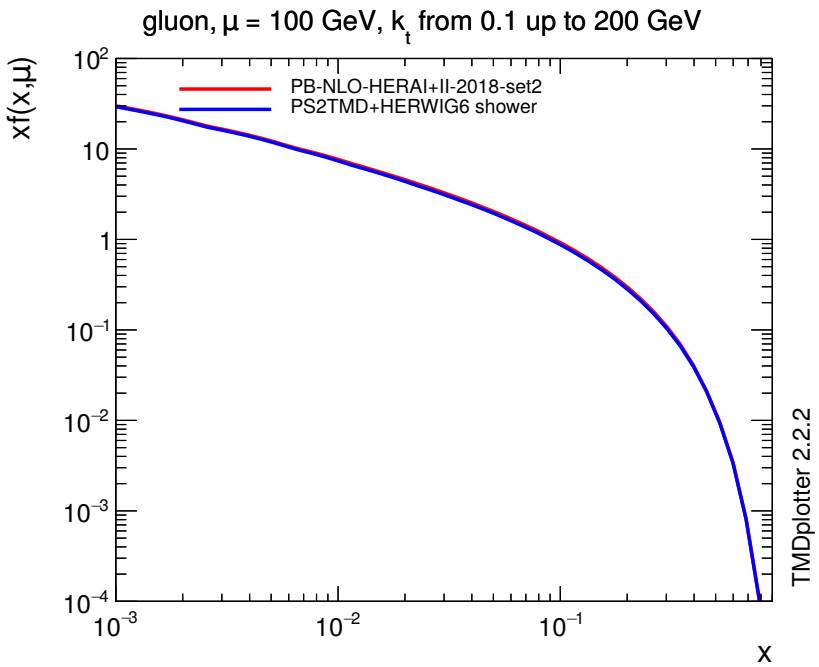




TMD parton density as a function of $k_\perp$ for gluons at $\mu = 100$ GeV obtained from final state events of the HERWIG shower (blue curve) and obtained from the input TMD PB-Set2 (red curve). The collinear PDF PB-Set2 is used for the generation. Left: $x = 0.01$. Right: $x = 0.001$.

TMDs from the HERWIG6 parton shower at 1000 TeV





Left: TMD parton density as a function of $k_\perp$ for gluons at $\mu = 500$ GeV at $x = 0.01$ obtained from final state events of the HERWIG shower (blue curve) and obtained from the input TMD PB-Set2 (red curve). The collinear PDF PB-Set2 is used for the generation.

Right: Integrated TMD parton density as a function of x at $\mu = 100$ GeV integrated over $k_\perp$ from 0.1 up to 200 GeV.