

DVCS – Comparison of GK and KM20 in MILOU

- New beta version of MILOU with 3-dimensional (x , Q^2 , t) CFFs tables now available
 - Tables calculated using GK (in PARTONS) and KM20 (provided by K. Kumericki) models
 - T-slope no longer parametrized: we use 3D tables to generate the t-shape predicted by the models
- We want to compare the generation of purely DVCS events in MILOU with GK and KM20
- Generation parameters as follows:

BASES integration parameters

NCALL 10000

ITMX1 3

ITMX2 3

Number of x & Q^2 & t points in the amplitudes grid

NXGRID 60

NQGRID 60

NTGRID 60

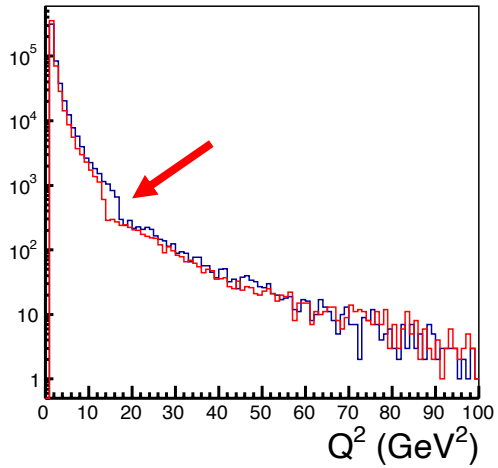
of Generated Events: 500k /configuration

Kinematical cuts at generation level

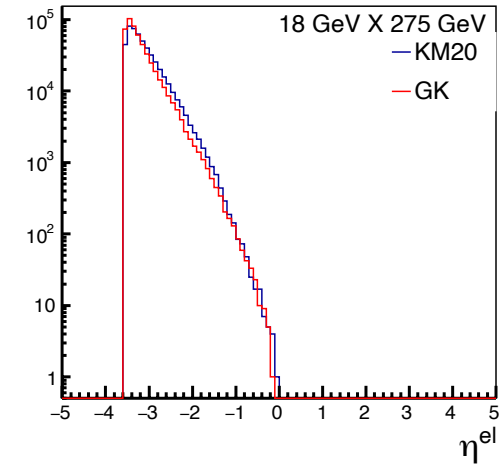
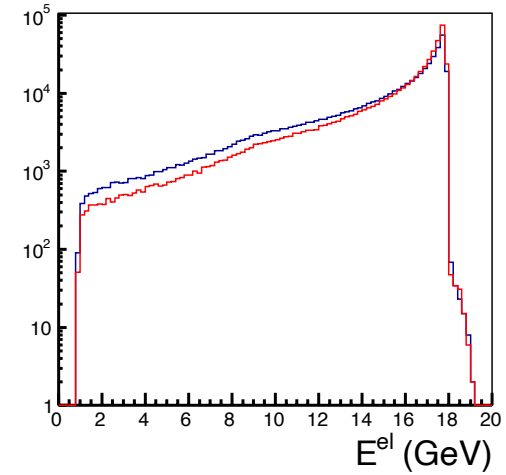
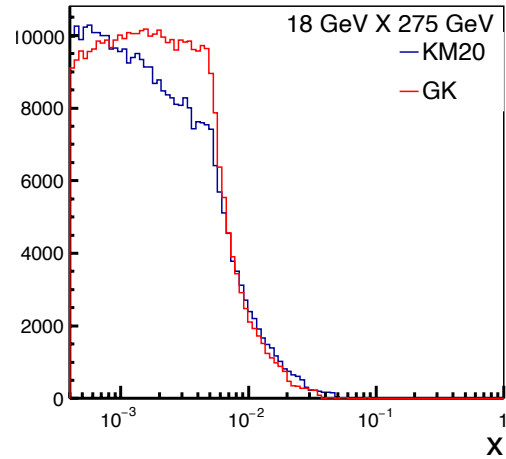
- $10^{-4} < x < 0.9$
- $1.0 < Q^2 < 100 \text{ GeV}^2$
- $0.01 < |t| < 1.6 \text{ GeV}^2$
- $0.01 < y < 0.95$ [inelasticity]
- $E_{\min}^{\text{el}} = 0.5 \text{ GeV}$

Comparison: (18 x 275) GeV

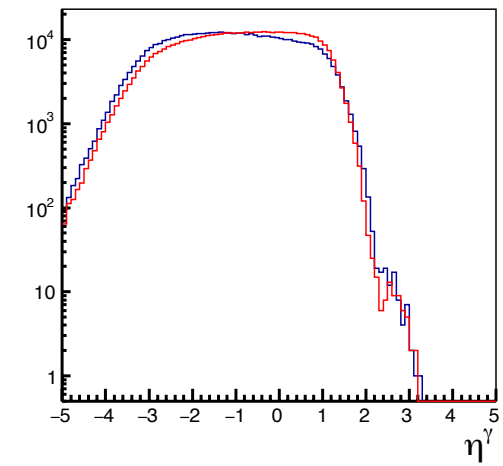
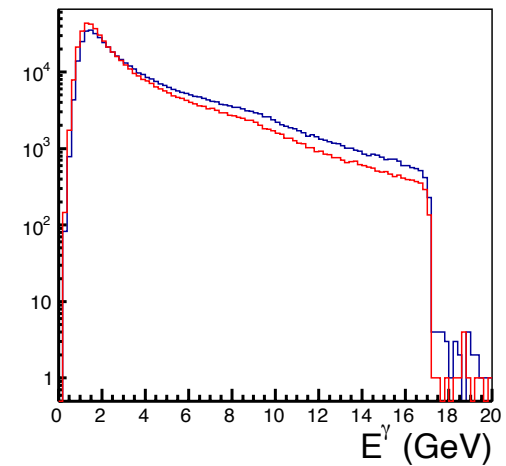
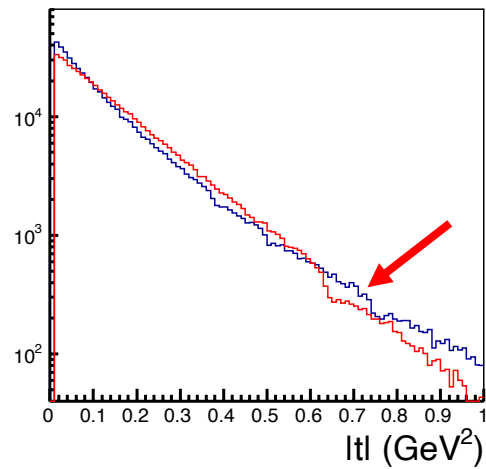
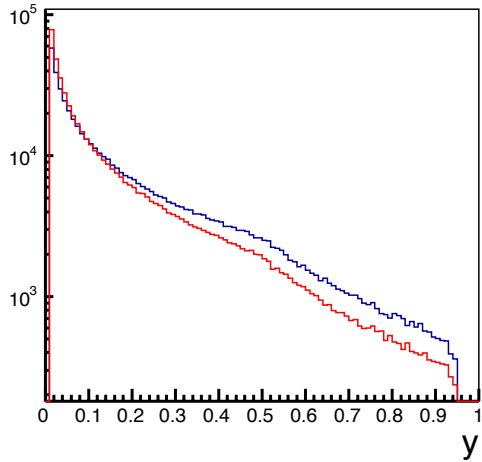
Photon virtuality



Bjorken's x



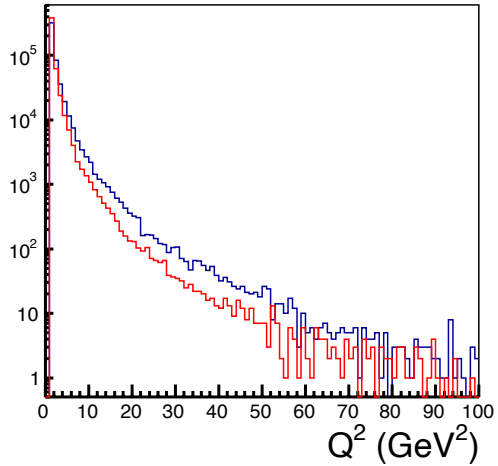
Inelasticity



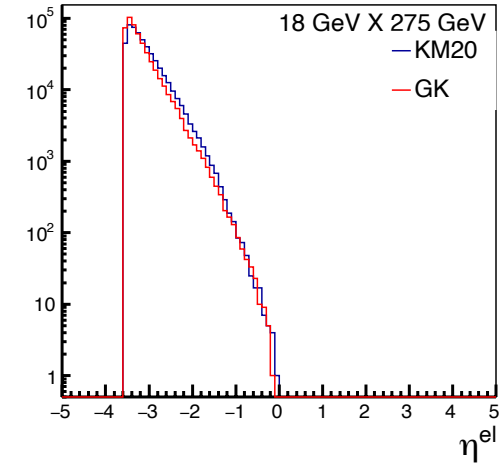
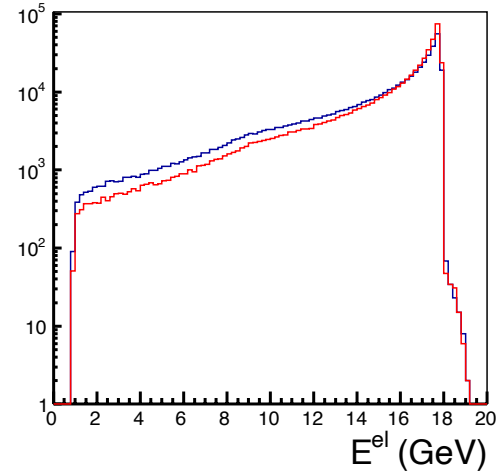
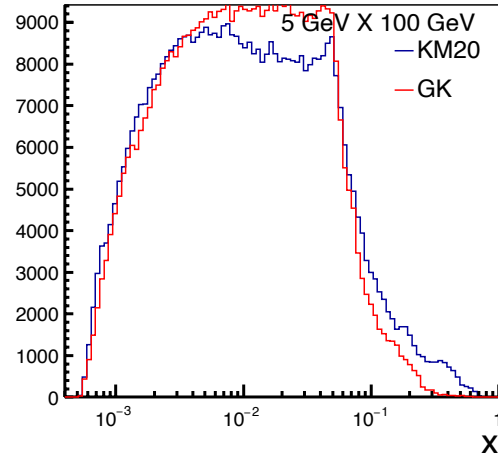
- **Deep in Q^2 and t distribution:** related to integration grid/parameters?
- **Different behavior vs Bjorken's x of GK and KM20**

Comparison: (5 x 100) GeV

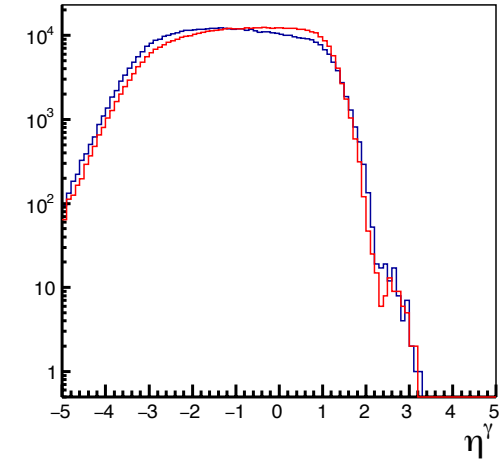
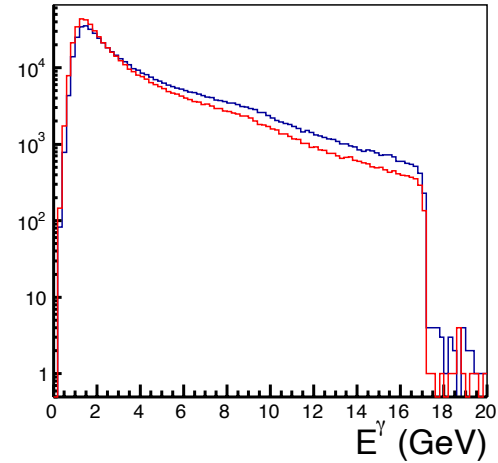
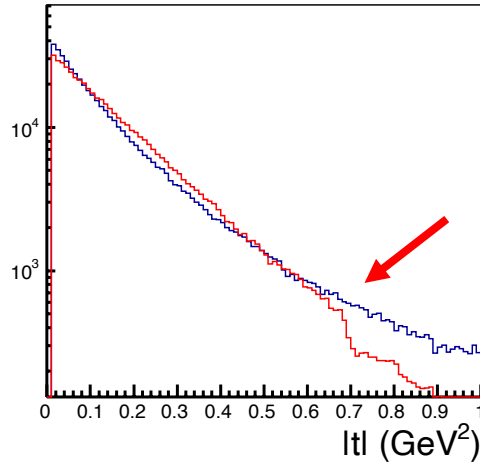
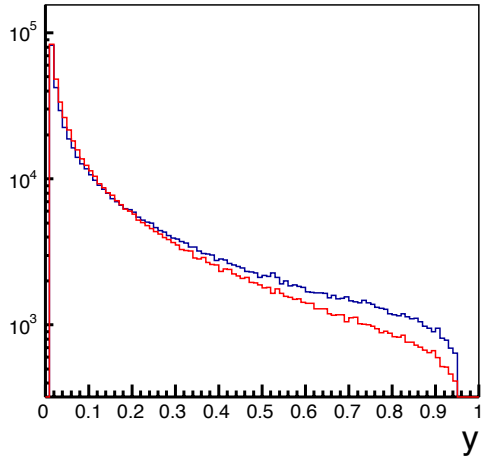
Photon virtuality



Bjorken's x



Inelasticity



- **Deep in Q^2 distribution disappears.**
- Very different t -dependences at large $|t| > 0.65 \text{ GeV}^2$ for GK (exponential) and KM20 (dipole-like)
- **Behavior vs Bjorken's x of GK and KM20 becomes more similar in the tails**

Outlook

- Generating 5x41 GeV
- Do we fully explain the differences of KM20 and GK vs Bjorken's x ?
 - ...and what drives the difference in shape at large $|t|$?
- Need to Better understand and tune integration parameters.
- Fluctuations in the t -distribution induced by integration grid seems an old issue with MILOU (private info by L. Favart)