



Programy finansowane  
z Funduszy Strukturalnych



# Forward physics and high energy factorization

Krzysztof Kutak

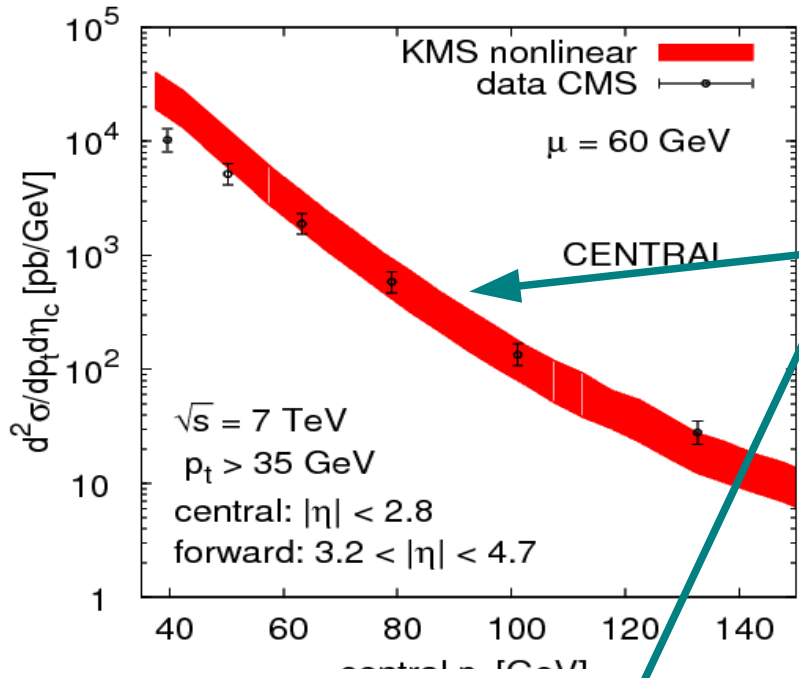


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# Pt of forward - central jets at CMS

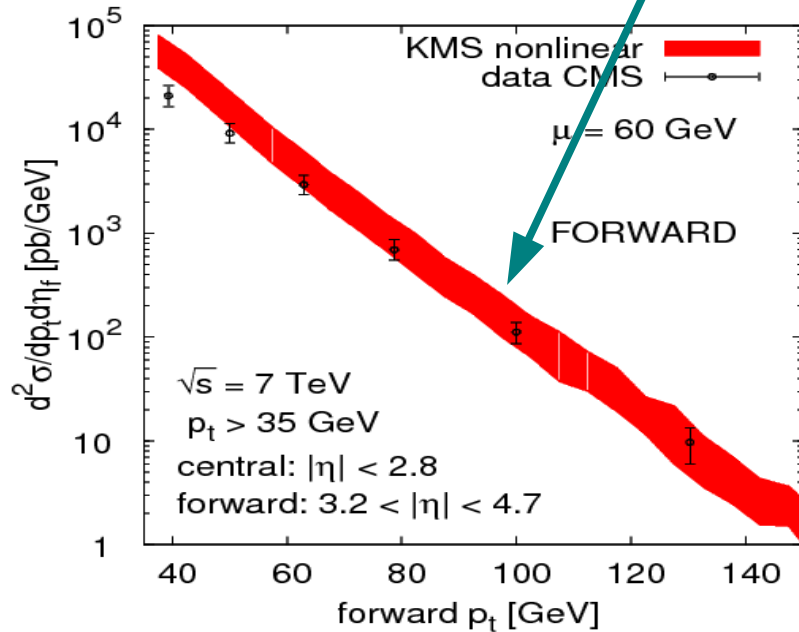
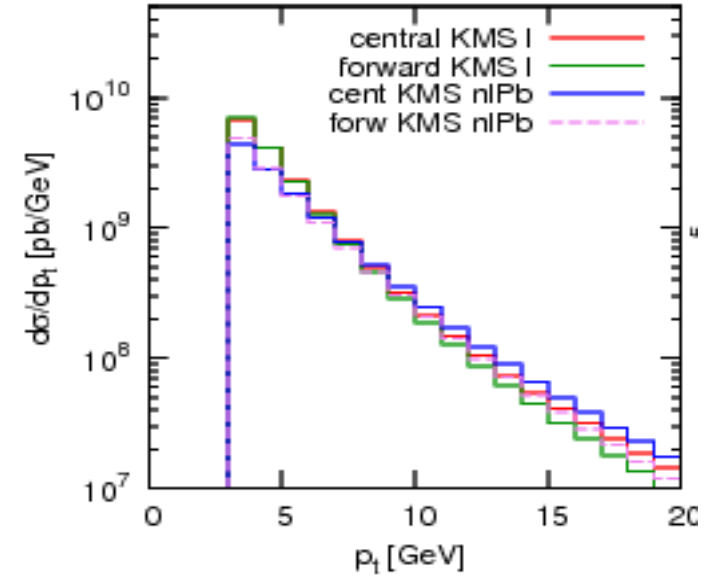
KK, Sebastian Sapeta

Gluon density on low x side obtained from Kwiecinsk, Kutak [Eur.Phys.J.C29:521,2003](#)  
BK equation with kernel supplemented with higher orders in  $\ln 1/x$

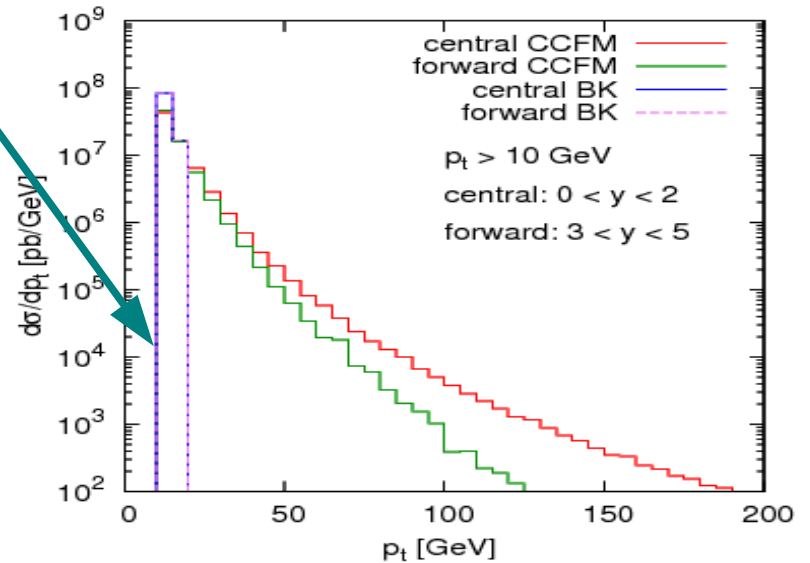


Prediction for  $p_t$  in p-Pb

Huge effects  
Of higher orders  
In LL1/x

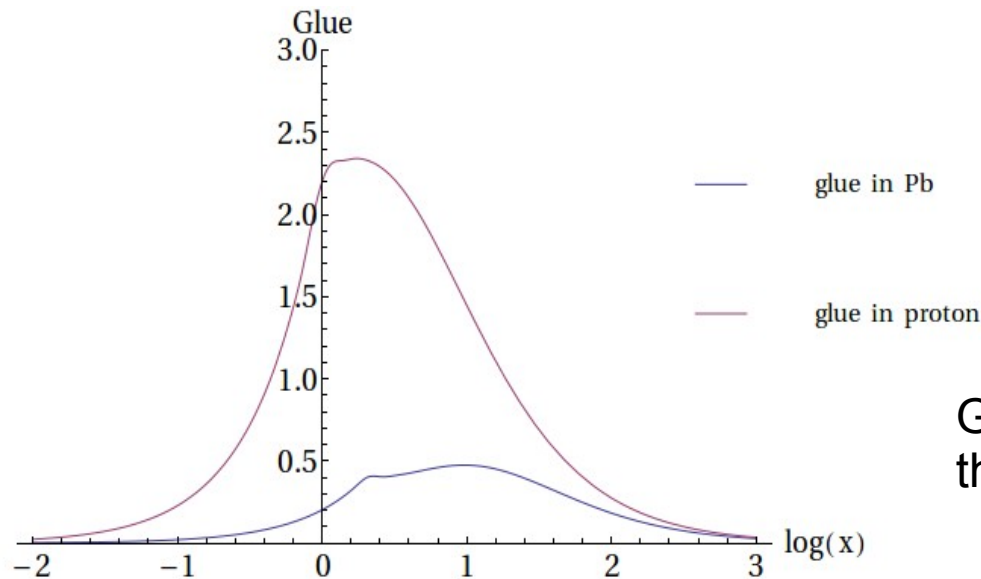
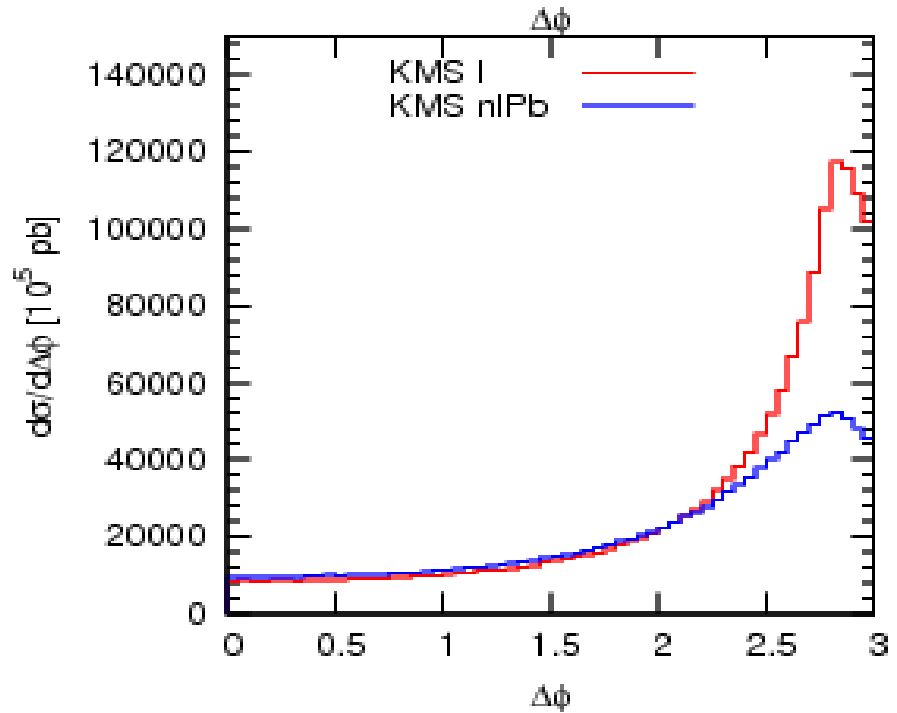
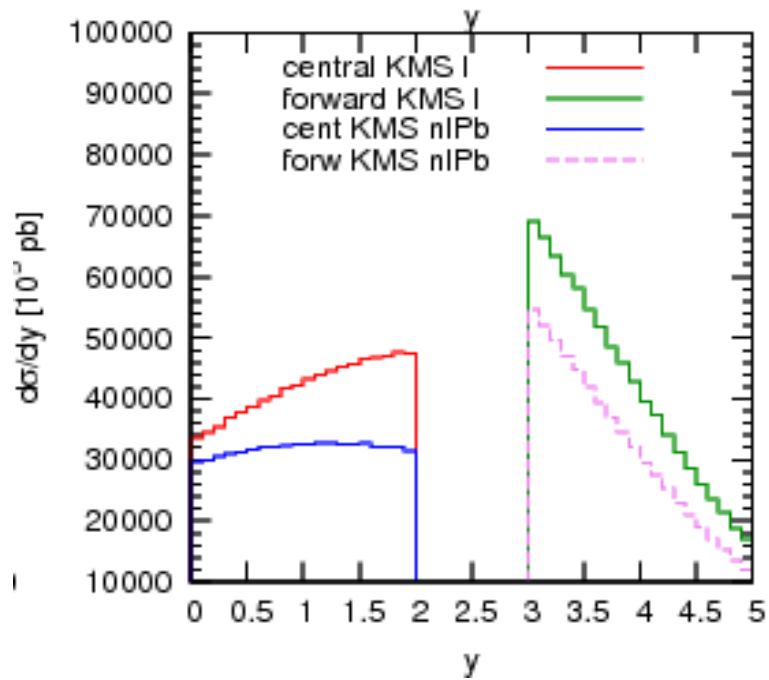


Standard BK



# Rapidity spectra and azimuthal decorrelations

KK, Sebastian Sapeta



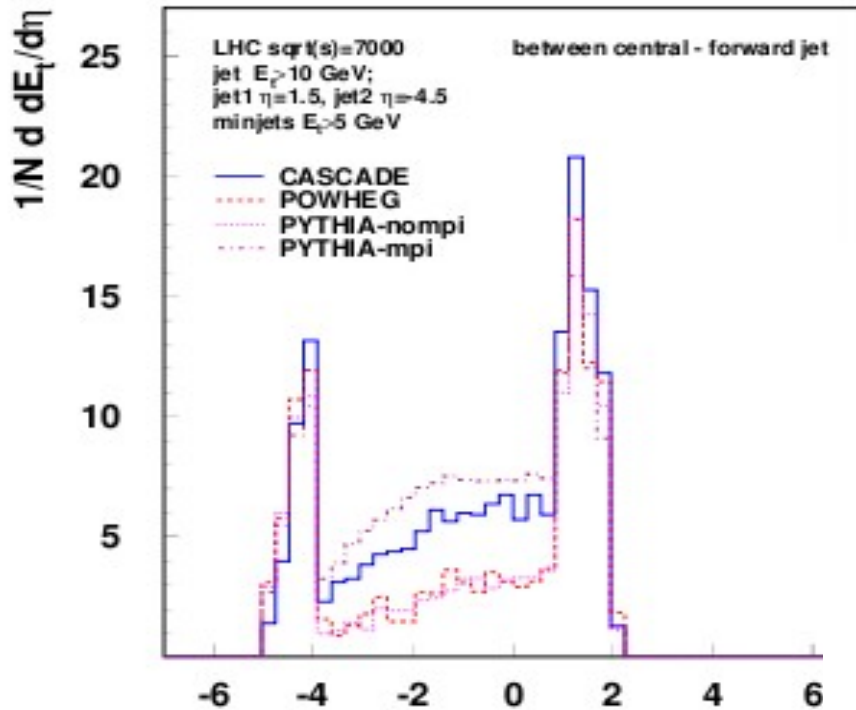
Prediction for rapidity and azimuthal decorrelations in p-Pb

Glueons in Pb have wider spread of momenta than in p

# CCFM and energy flow

M. Deak, H. Jung, F. Hautmann, KK

arXiv:1112.6354 To be checked for p-Pb



To be verified with KGBJS equation

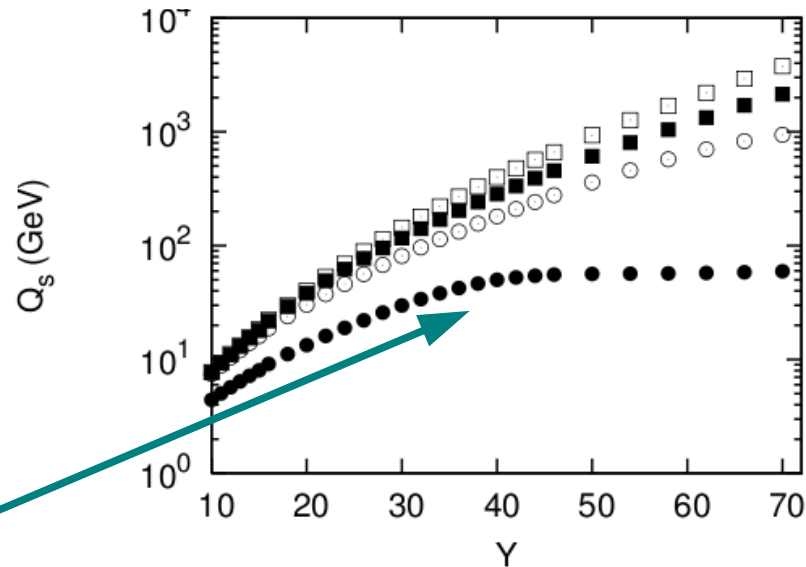
# Entropy production

Kutak'11

$$N_G(x) \equiv \frac{dN}{dy} = \frac{1}{S_{\perp}} \frac{d\sigma}{dy}$$

$$S = \frac{6C_F A_{\perp}}{\pi\alpha_s} Q_s^2(x) + S_0$$

$$S = 3\pi [N_G(x) + N_{G0}]$$



Avsar, Stasto '10

Multiplicity should stop to grow for given hard scale?

KK, K. Golec-Biernat, S.Jadach, M. Skrzypek