U.S. DEPARTMENT OF ENERGY

Office of Science

Selection of QCD studies using UPCs with the ALICE FoCal detector in Run 4

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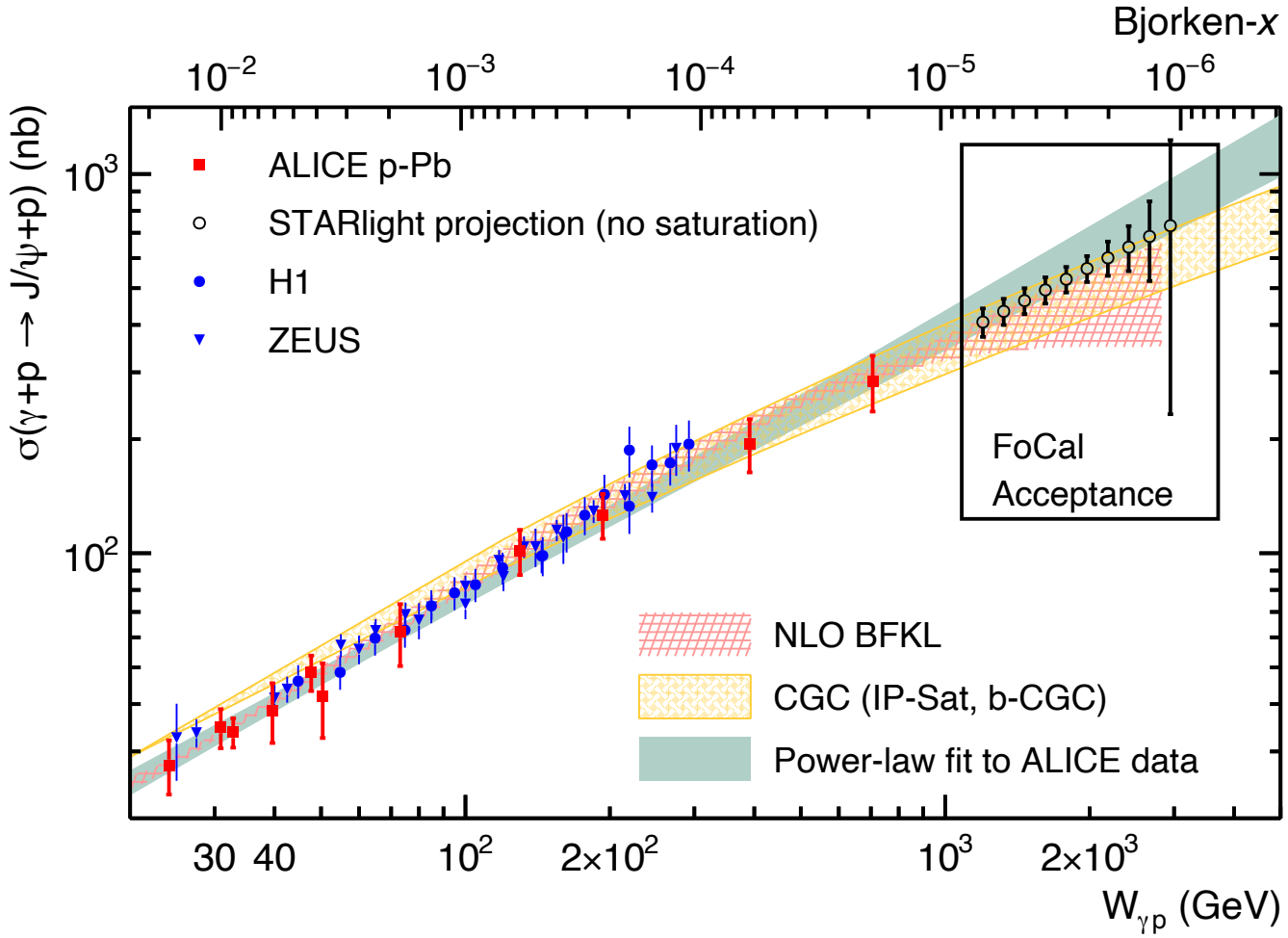
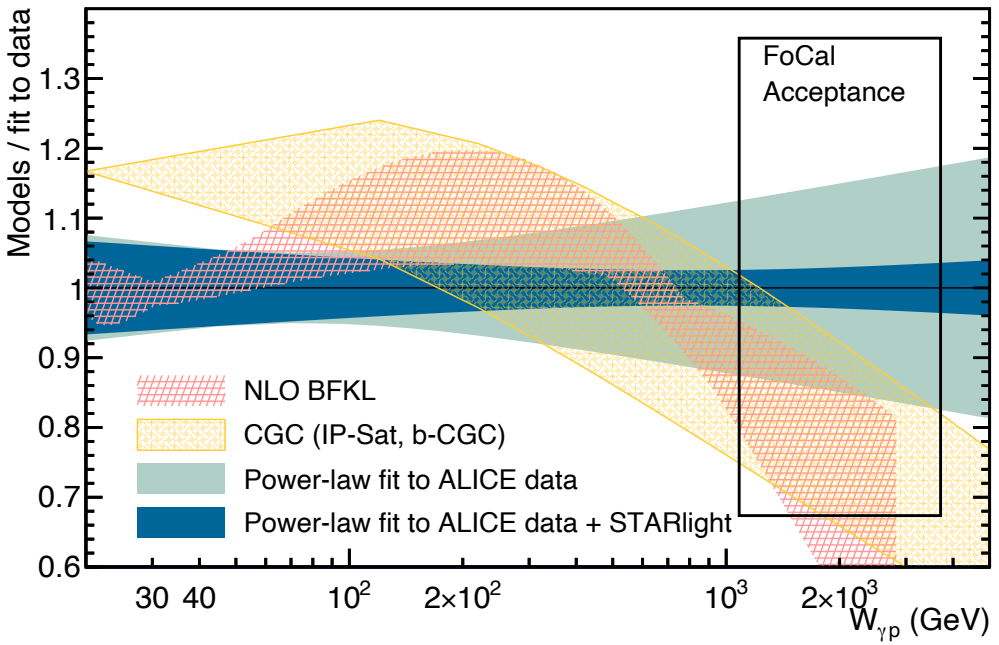
FoCal detector at ALICE Run 4
$3.4 < y < 5.8$
Exploring the highest photon-induced collision energies

Presentation based on
A. Bylinkin et al. UPC measurements with FoCal in preparation

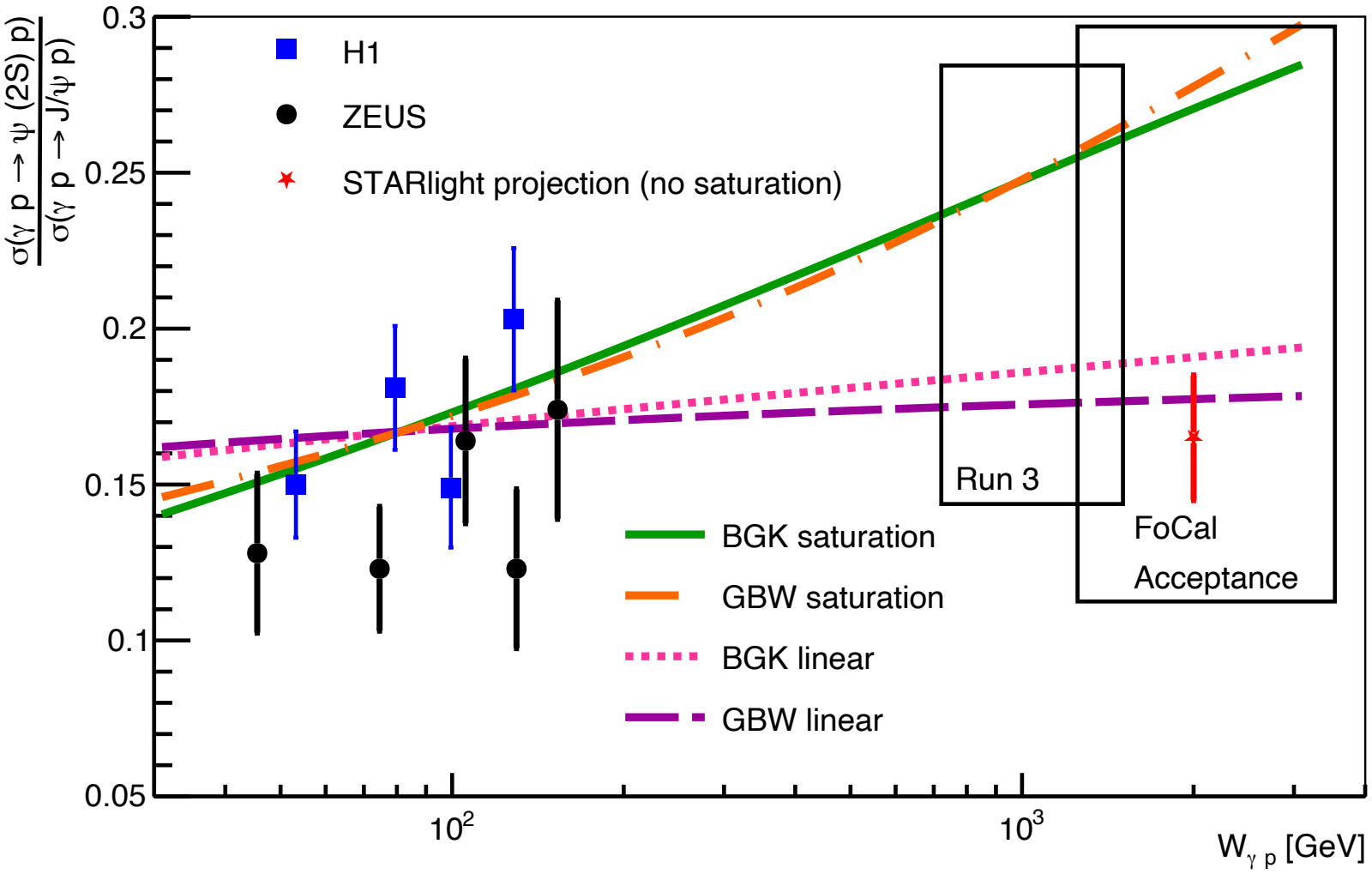
Gluon saturation and exclusive J/ψ in γp





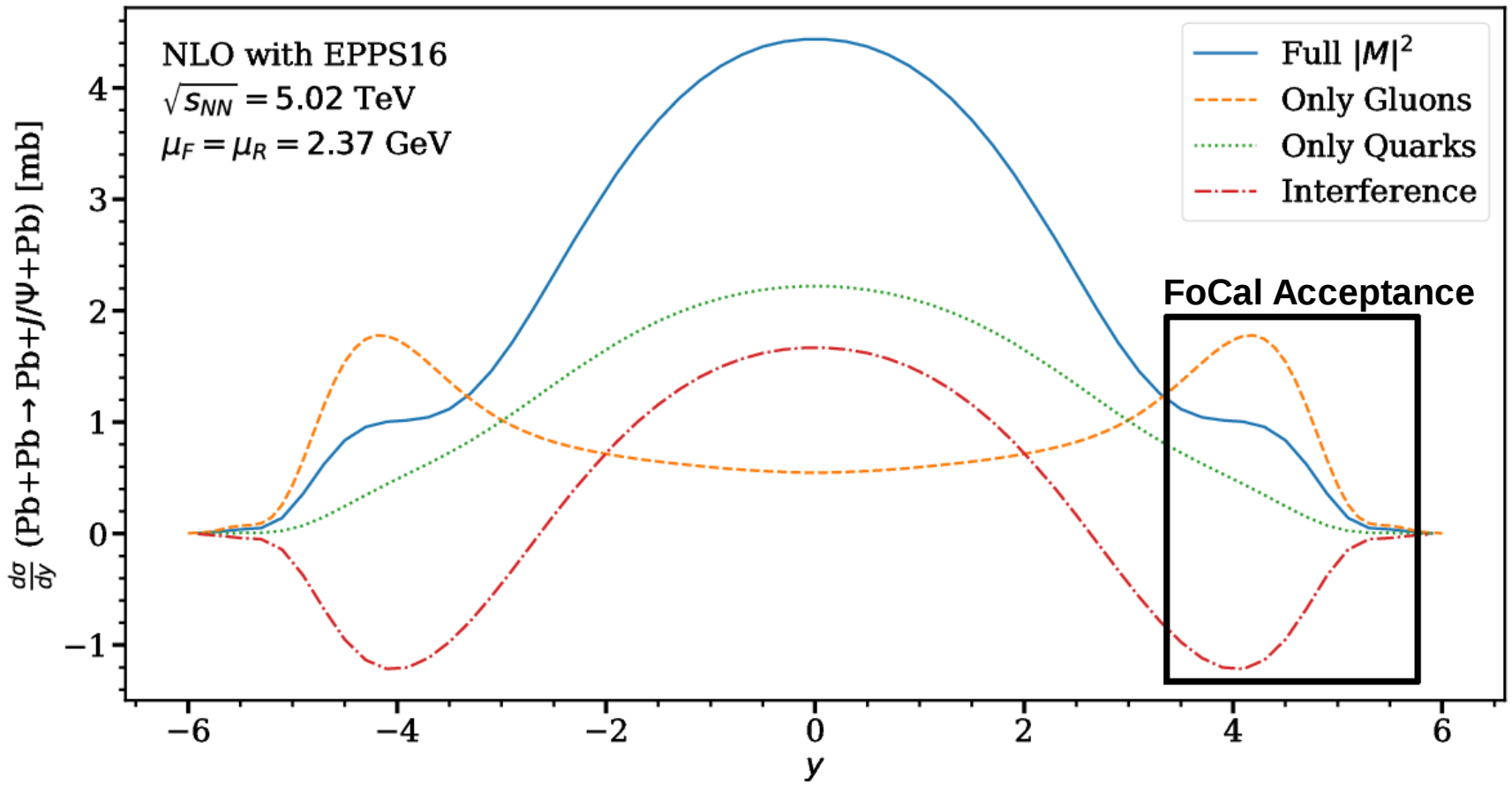
- LHCb has not exploited UPC in pPb collisions
- Data based on symmetric systems (e.g. pp) without ZDCs cannot separate photon direction

Gluon saturation and exclusive ψ(2s) / J/ψ in γp



- Greater sensitivity to distinguish the saturation and linear models
- Exploring the highest energies is essential

Gluon saturation and coherent J/ψ in γPb



- Expected yield of 360,000 UPC J/ψ for FoCal
- Separation of energy direction and study interference at forward rapidity only possible with FoCal