

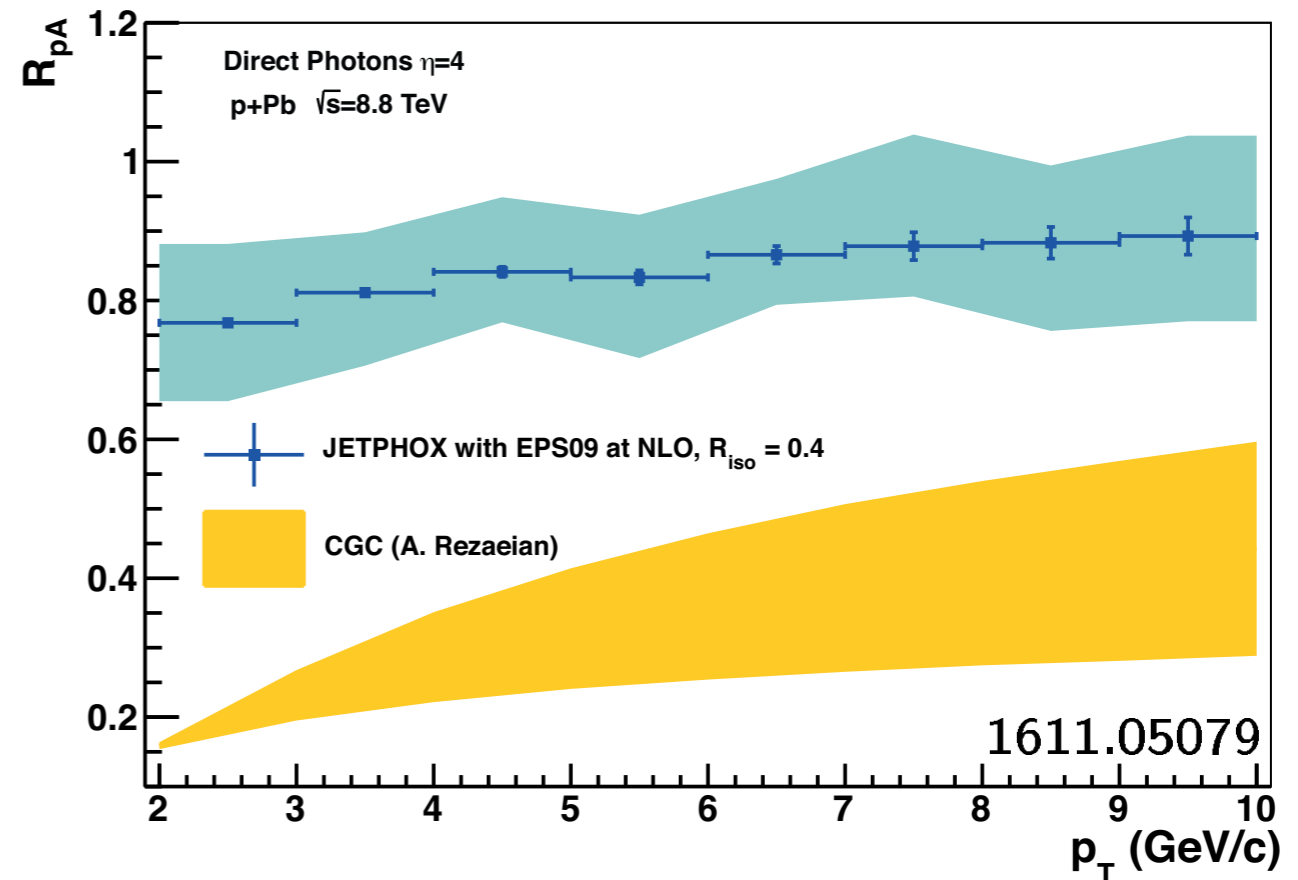
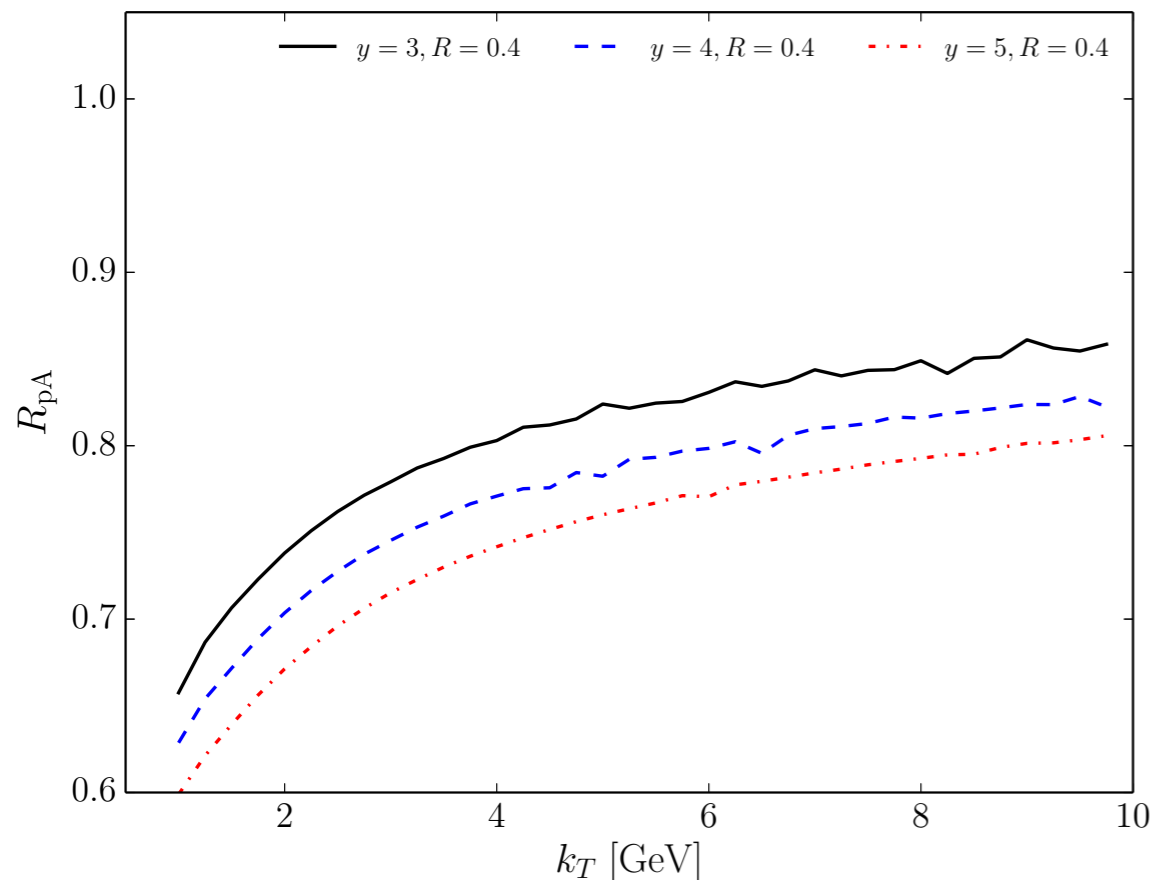
FoCal – Recent Developments

T. Peitzmann (Utrecht University/Nikhef)

Comparison with other calculations:

B. Ducloue, Talk at RBRC workshop

$$p + Pb / p + p \rightarrow \gamma + X, \sqrt{s} = 8000 \text{ GeV}$$



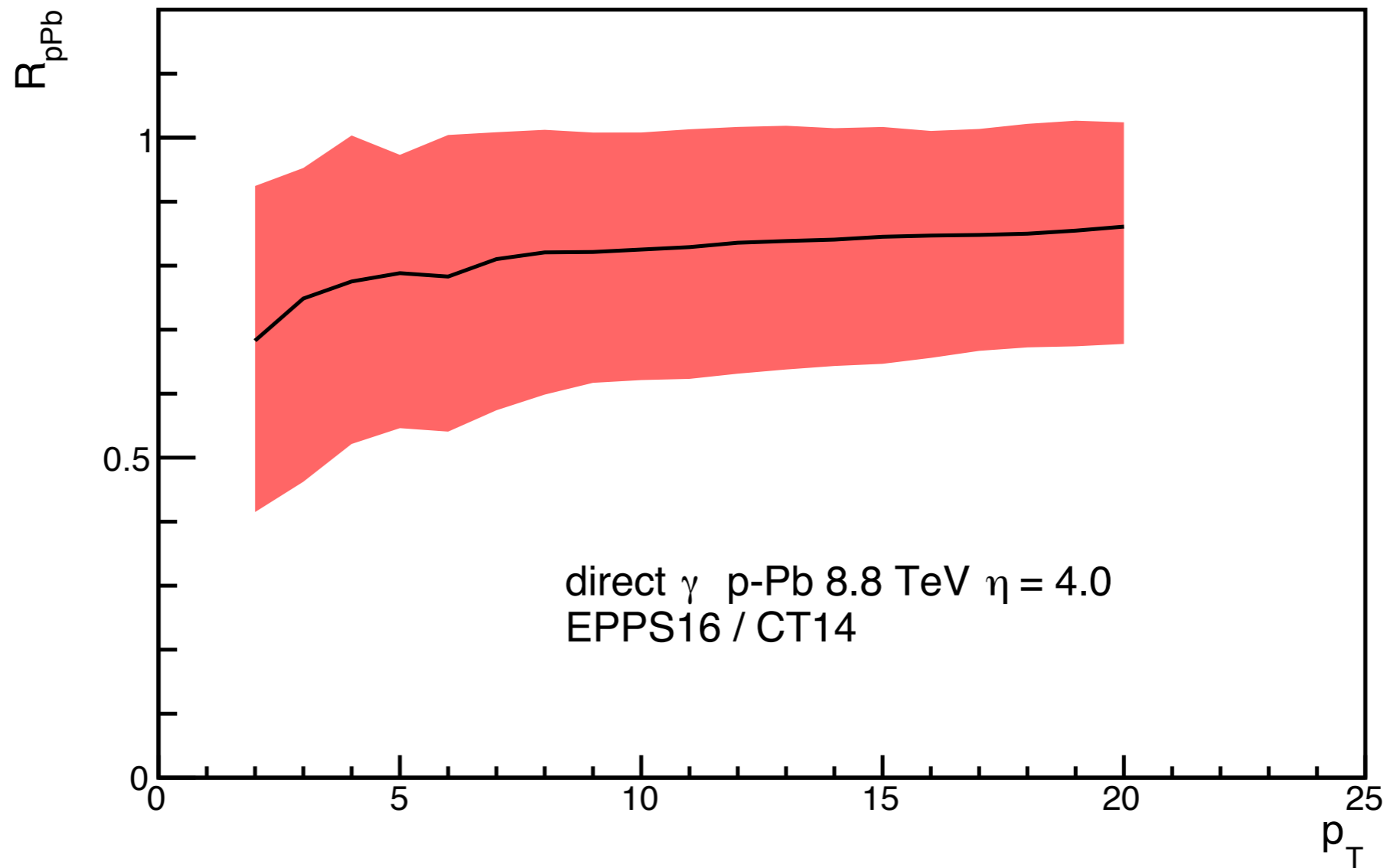
Significantly larger R_{pA} than previous CGC calculation ([Jalilian-Marian, Rezaeian](#)) in similar kinematics

Results not very far from collinear factorization+nPDFs
 Maybe not so discriminant observable?

Here also EIC data would be helpful to better constrain these calculations

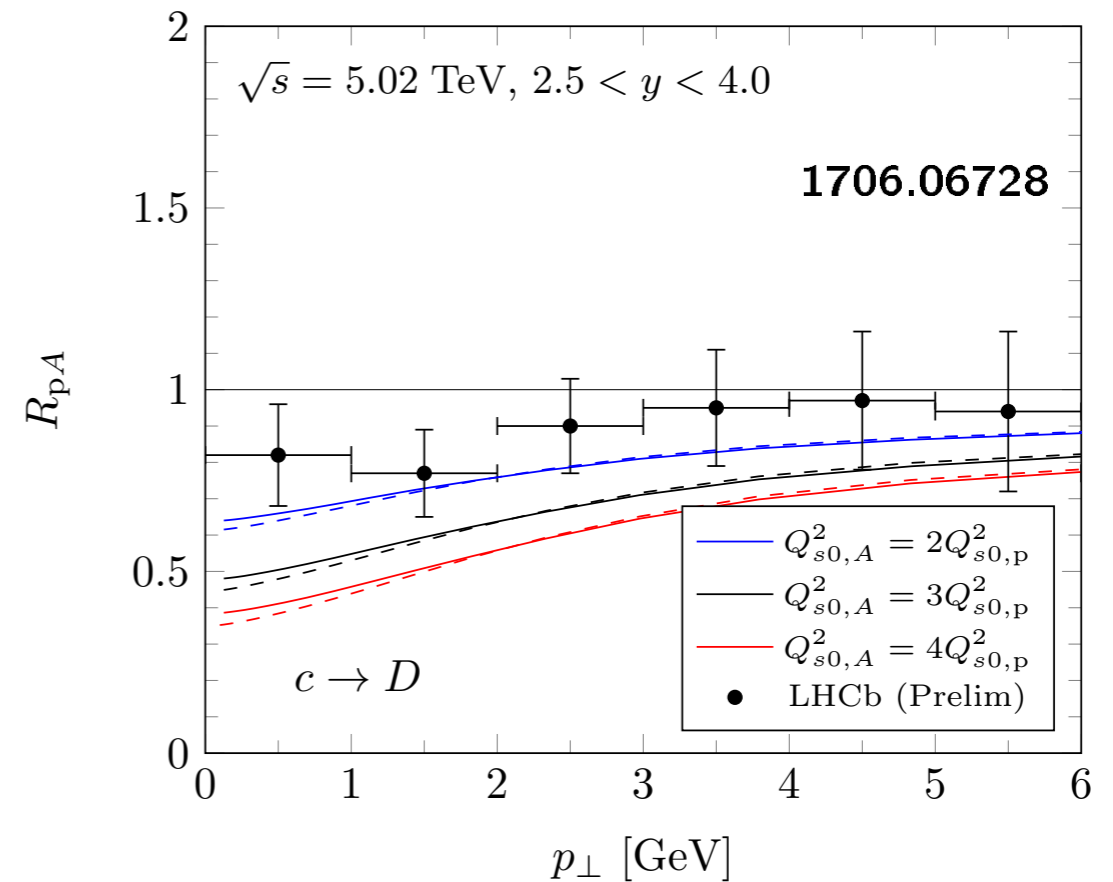
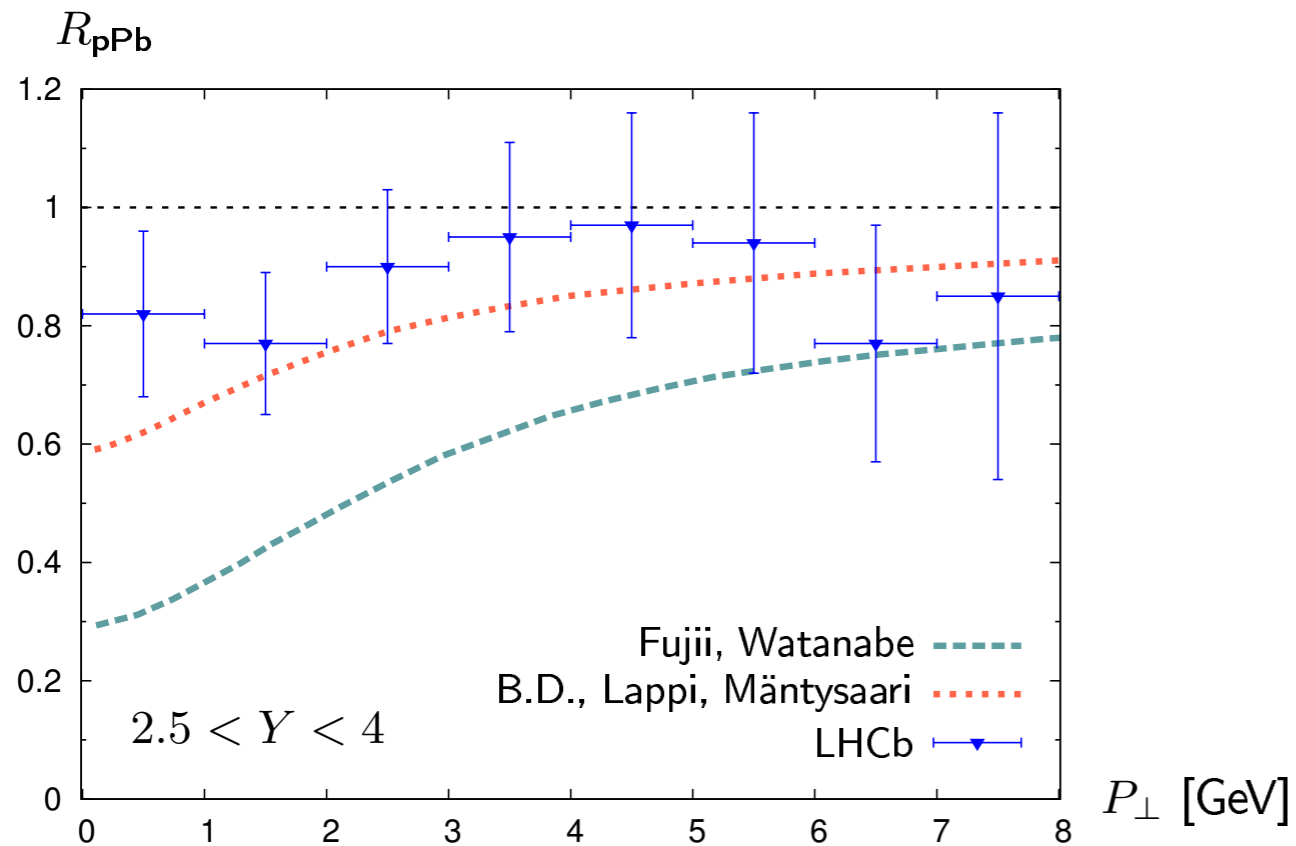
It will be very interesting to compare these results with future measurements

Update on PDF Uncertainties



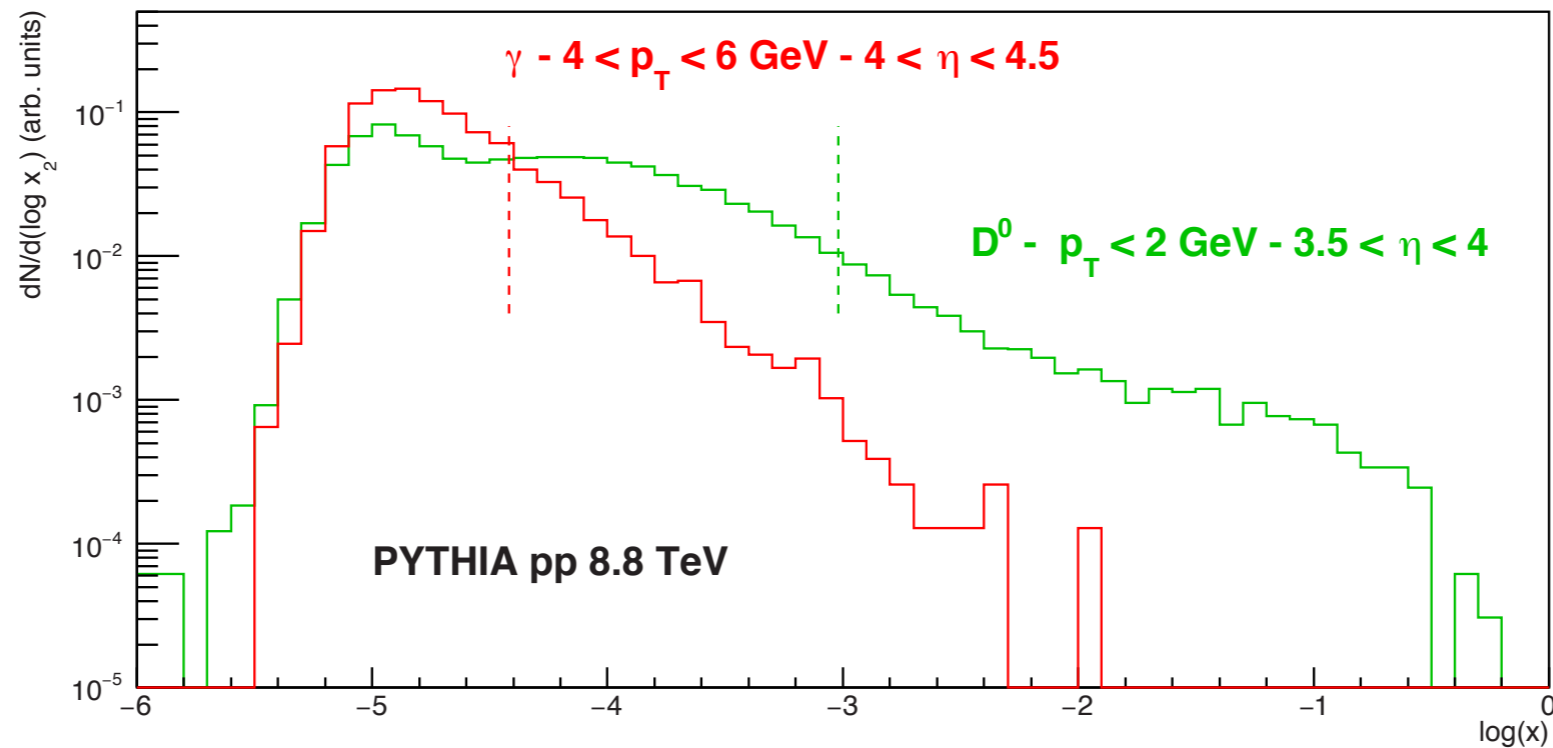
- larger uncertainties in new nPDF
 - old parameterisations were not flexible enough
- uncertainty band likely overlaps with (some) CGC scenarios

Similar conclusions as for J/ψ : early CGC calculation by **Fujii, Watanabe** using $Q_{s0,A}^2 = A^{1/3} Q_{s0,p}^2$ leads to strong suppression. Glauber model / updated calculation with smaller $Q_{s0,A}^2$: less suppression, better agreement with data



Preliminary LHCb data: used interpolated 5 TeV pp reference

x-Sensitivity

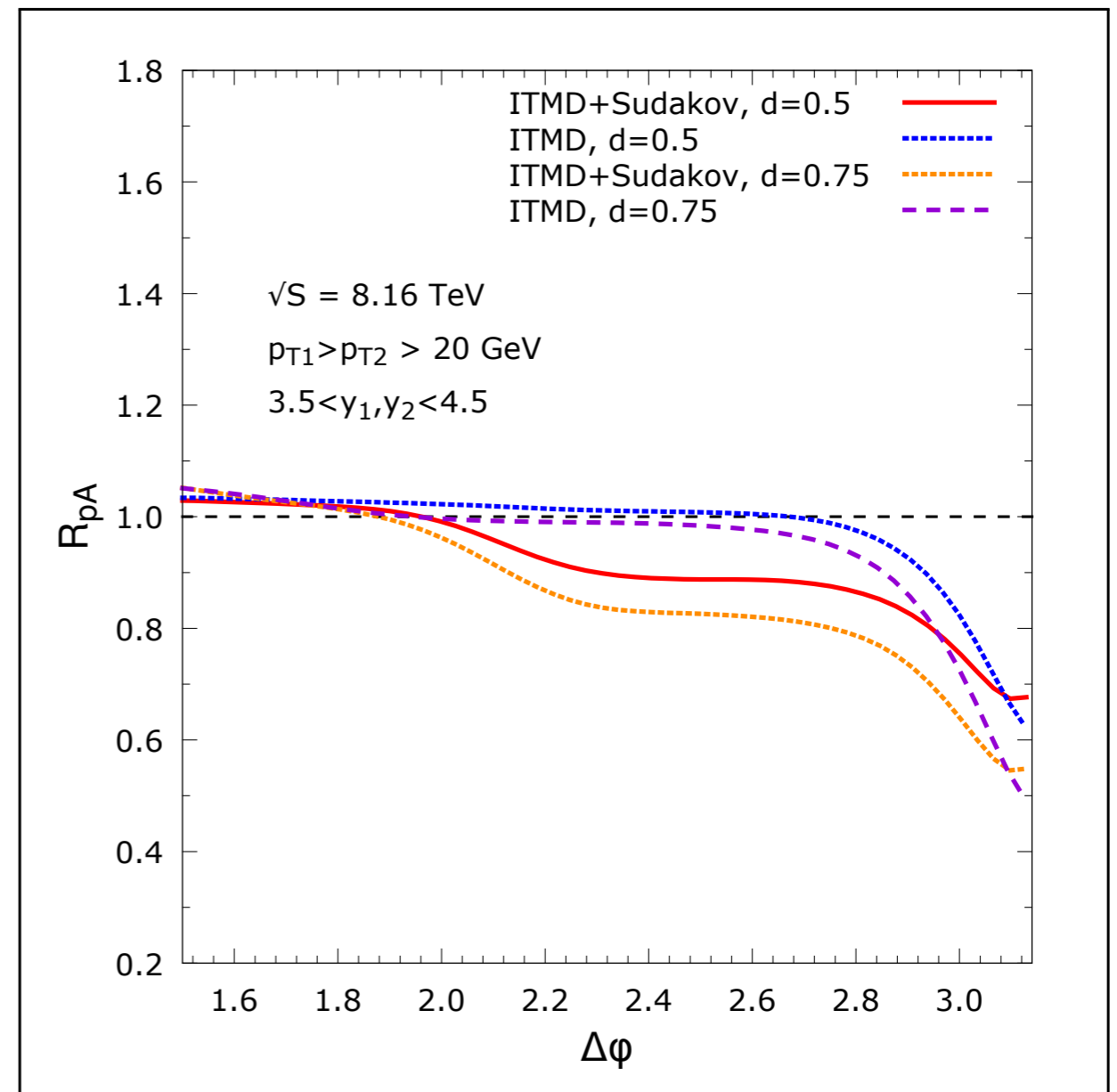
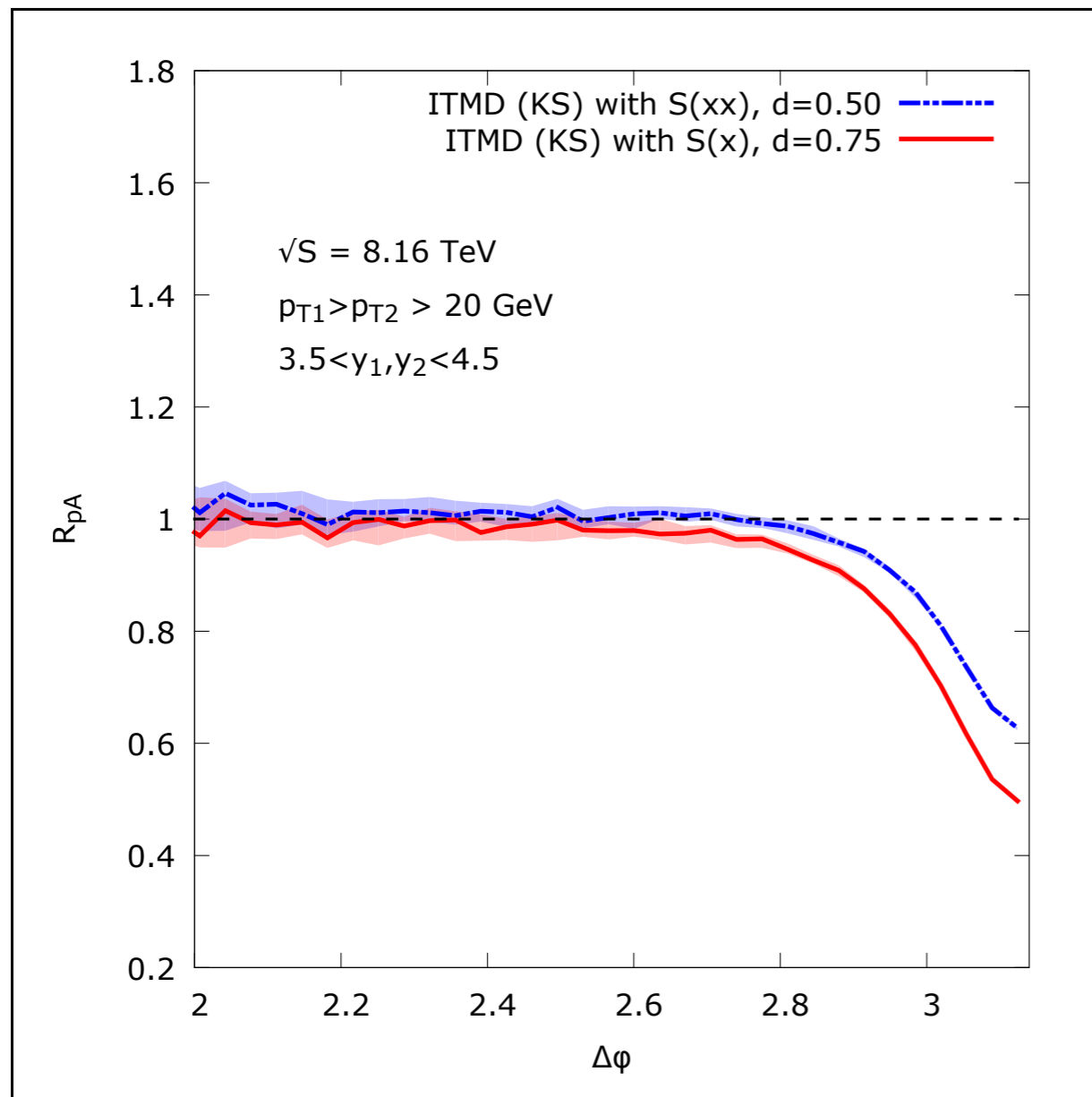


- had expected photons to be sensitive to smaller x than charm
- discussion with theorists ongoing
 - no good explanation so far
 - considerable uncertainty in theory
- photons will be in competition with charm

Results for dijet production in $p\text{Pb}$ at LHC

Nuclear modification ratio for azimuthal decorrelations

[A. van Hameren, P.K., K. Kutak, C. Marquet, E. Petreska, S. Sapeta, JHEP 1612 (2016) 034]



Physics Program to be Defined

- constraints on low- x gluons
 - direct photon yield, two pion correlations, jet yield/correlations?
 - studies by Toma and Tomoko ongoing
- parton energy loss at forward rapidity in Pb-Pb
 - competition with LHCb (most central?)
- need to continue discussion with IRC

Technical Progress

- need to converge on hardware design for next prototype/Mini-FoCal
 - schedule dedicated meeting after summer (mid-end September?)
- issues to be discussed
 - geometry (tower/slat size, gaps?, ...)
 - readout electronics (timing, trigger)
 - common interfaces