Quark Matter 2025 presenta

IL BUONO IL BRUTTO IL CATTIVO

DIGITALLY REMASTERED

Cristian Baldenegro
MIT-HIG meeting, April 18th 2025

The good
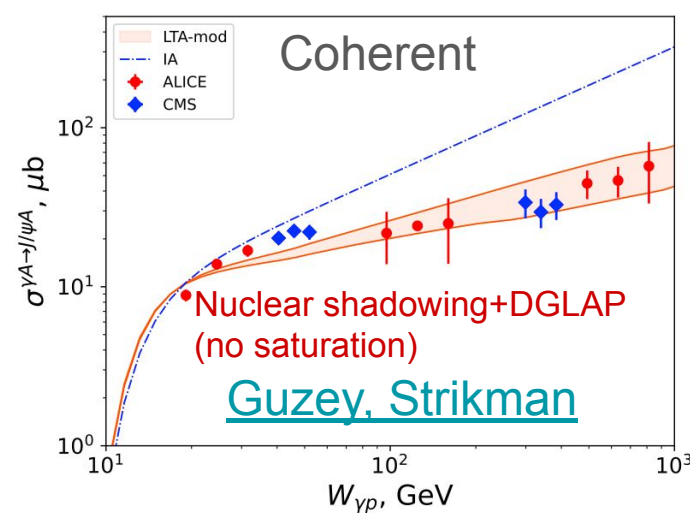
Nuclear shadowing describes exclusive VM data **without** parton saturation (better global description of ϱ, φ, J/ψ, Υ than saturation-based models, in general)
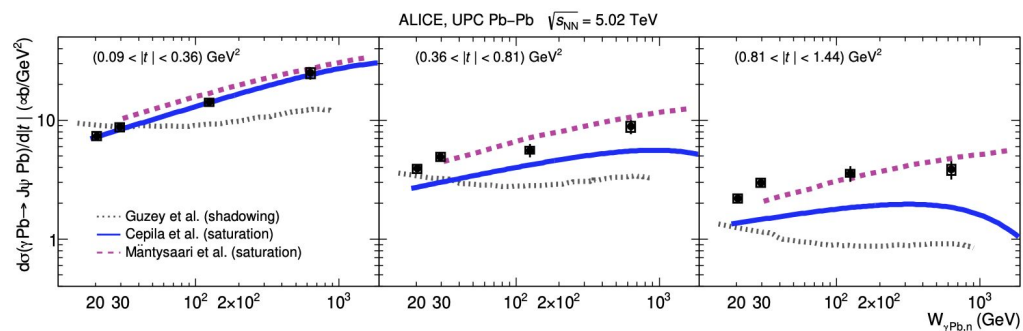
Shadowing seems to fail for <u>incoherent</u> J/ψ at high-|t|, whereas (some) saturation models do better (four-momentum transfer |t| vs photon-nucleus energy, WyN)

Would be good to know how nuclear shadowing deals with UPC open HF (hopefully theorists are even more excited from Janice's presentation!)

Coherent

Nuclear shadowing+DGLAP (no saturation)

<u>Guzey, Strikman</u>

IL BUONO

ALICE, UPC Pb–Pb $\sqrt{s_{NN}} = 5.02$ TeV

<u>ALICE</u>, **shadowing (dotted black)** undershoots at high-|t|, some saturation models do better (**Mäntysaari et al**)

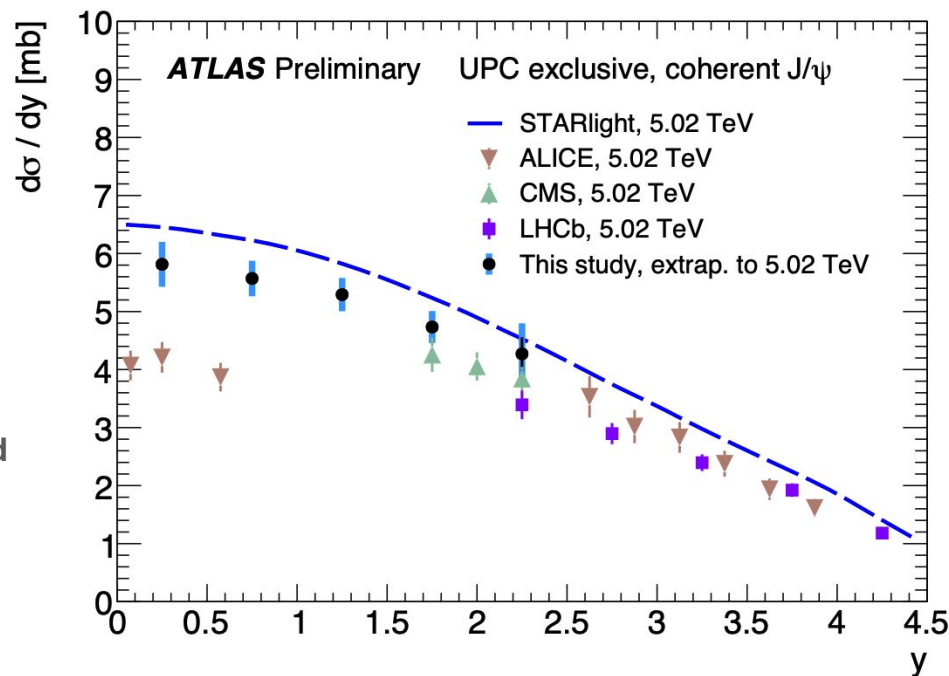"Hotspot" model for JIMWLK initial conditions

The bad

Tensions for mid-rapidity exclusive J/ψ between **ATLAS** & **ALICE**

Coherent VM has been the standard working horse for low-x cold nuclear matter at LHC/RHIC

Potential "crisis" in exclusive vector meson world (tbc)

Opportunity to pontificate with UPC open HF

First exc. vector meson measurement by ATLAS in general
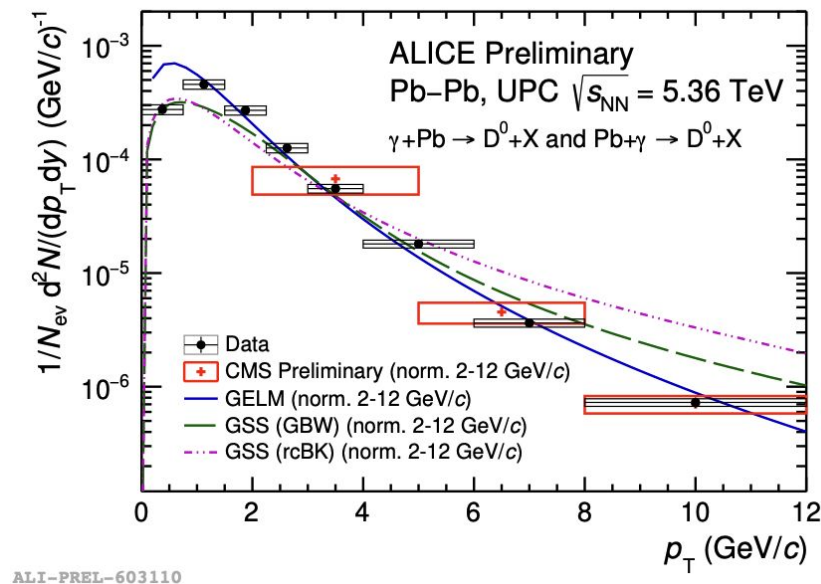
ATLAS note

The (consensed) ugly:

ALICE's UPC D^0:

- Not fully-corrected

- Ambiguous normalization; not clear why it's not normalized to luminosity.

- Different rapidity gap widths, cannot be merged into a yN+Ny category as in CMS

- Aggressive uncertainties (incomplete, though)

Overall, not great for the field that this is a thing (alas, nothing new...)

Probably will have to pontificate in future conferences (UPC, Low-x, Initial Stages, etc.)

ALI-PREL-603110