

## Discussion session

GDR QCD Workshop on Coherence/Incoherence in Hadronic Diffractive Collisions at  
DIS and Hadron Colliders

Université Paris-Saclay, France

# Table of Contents

- 1 Models for coherent  $J/\psi$  photoproduction in peripheral collisions
- 2 Quark Matter 2023: results

# Models

## $\gamma p$ cross section

- VDM: Vector dominance model with (Zha et al.) and without interference terms
- Colour dipole models (saturation): GBW and IIM

## $\gamma A \rightarrow VA$ cross section

- Quantum Glauber model (dipole models (S3) , VDM , Zha et al.)
- Classical Glauber model ( only VDM )

## Effective Photon or photon plus Pomeron Flux (b-dependence)

- Effective Photon flux (dipole models and VDM)
- Effective photon plus Pomeron flux (Zha et al. )

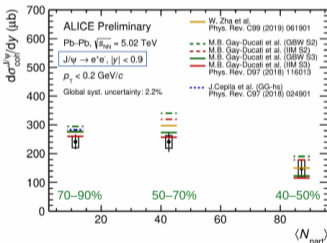
# Conference presentation

## Coherent $J/\psi$ photoproduction in Pb-Pb collisions: centrality dependence



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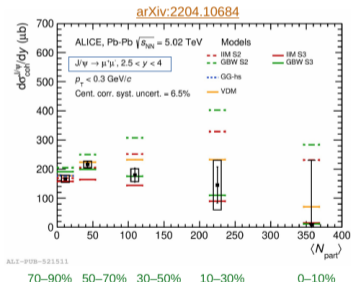
- Both measurements at mid and forward rapidity don't show a significant centrality dependence\*
- Measurements are qualitatively described by a large number of models developed for UPC and extended to account for the nuclear overlap



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\* The cross section is not normalized to the centrality interval width

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6

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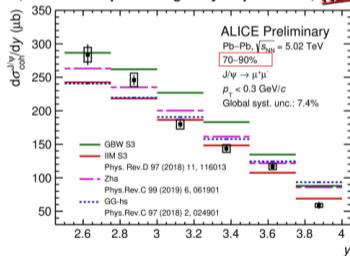
## $y$ -dependence of the coherent $J/\psi$ photoproduction cross section



- A strong rapidity dependence is seen
- Models initially developed for VM photoproduction in UPC and modified for PC **are able to describe qualitatively the magnitude of the cross section, but fail at reproducing the  $y$ -dependence, **NEW** similarly to UPC.**

Models considerations:

- GG-hs: photon flux with constraints on impact parameter range
- Zha: assumptions on photon-pomeron coupling (nucleus+spectator)
- GBW S3 } effective photon flux and photonuclear cross section considered w.r.t UPC calculations (see next slide)
- IIM S3 }



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12

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*Thank you!*