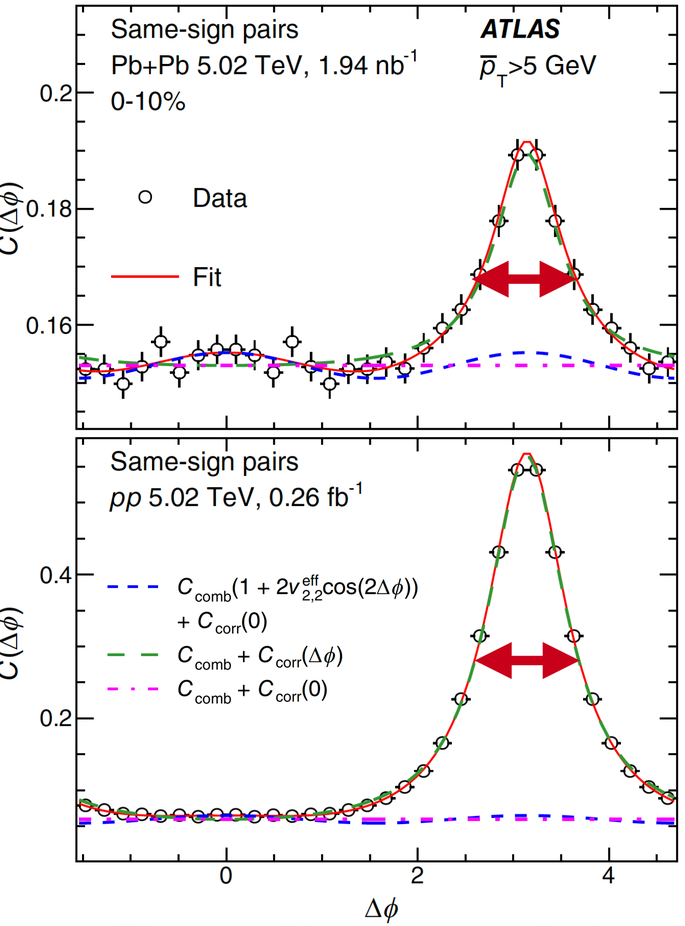
Inputs from QM
Gian Michele

The Good

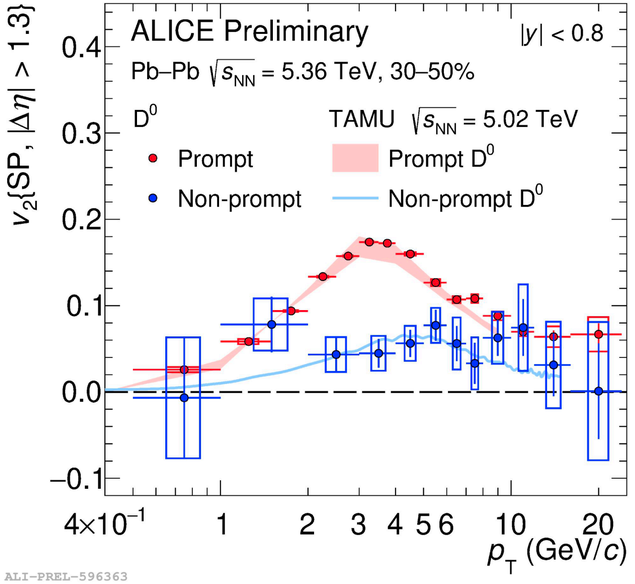
ATLAS PRL 132 (2024) 202301

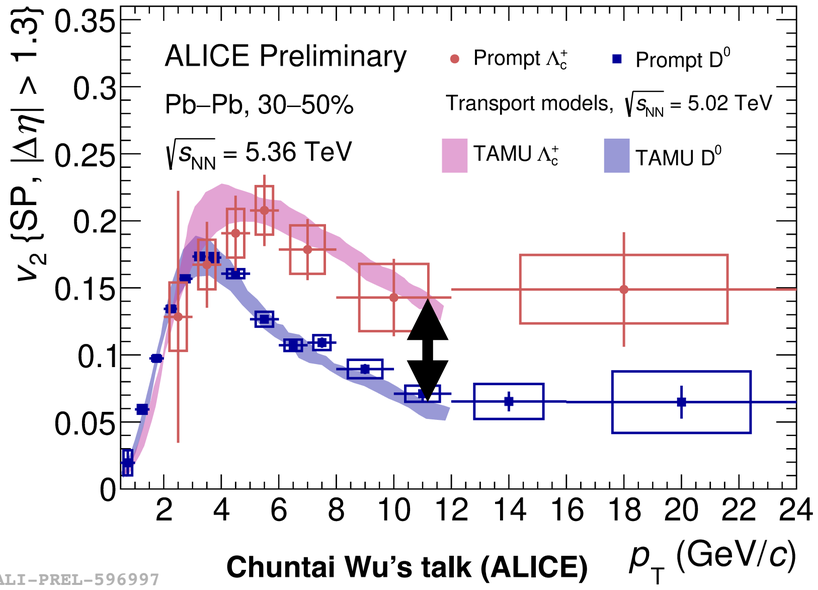


The good but not conclusive (which I would done differently)

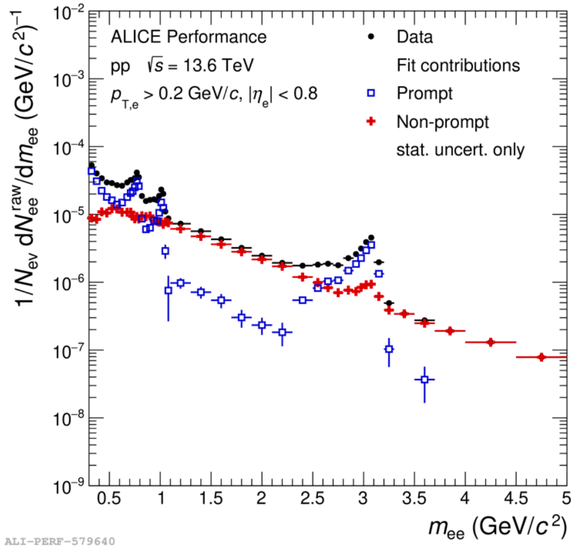
→ DDbar or collinear dimuons for gluon splittings

The good ones (happy that somebody else is doing…)



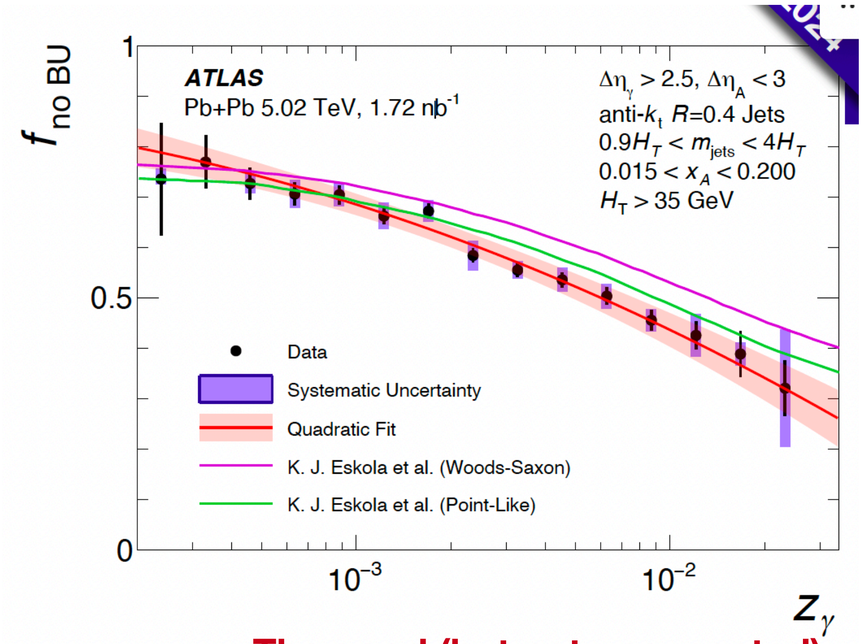


Chuntai Wu's talk (ALICE)

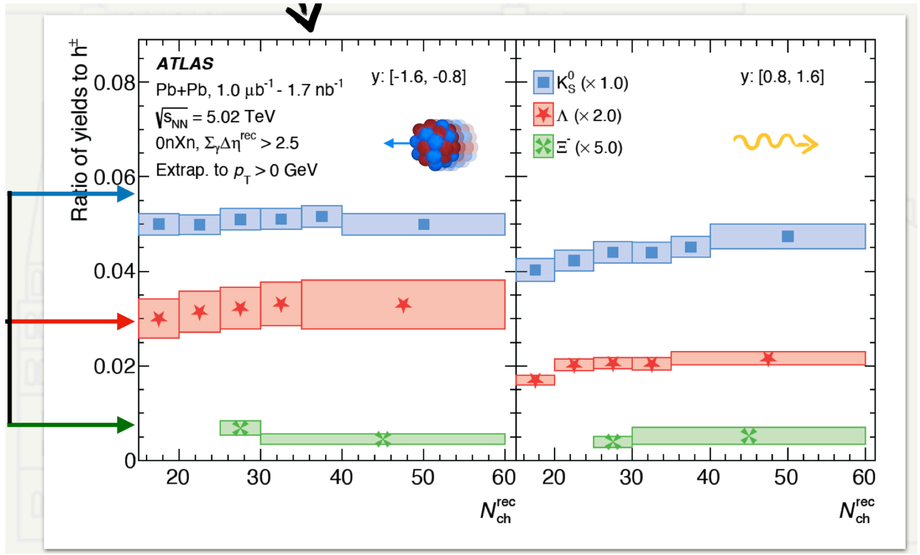


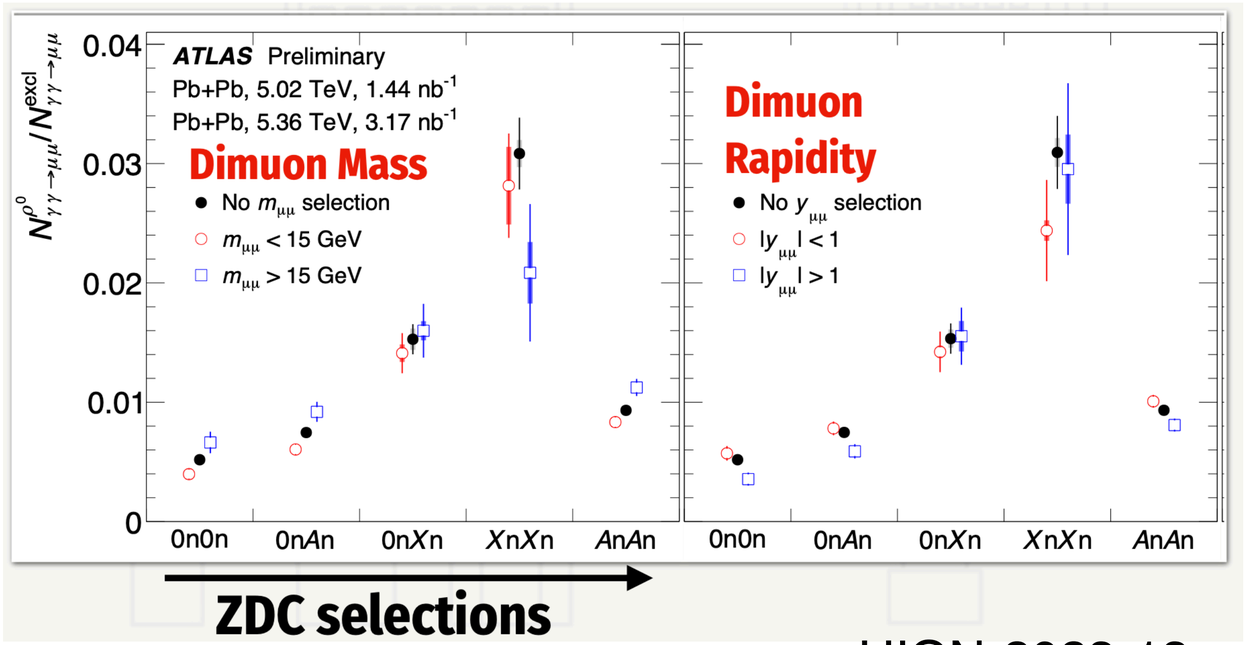
Technologically good. but how far is the physics?

The good and only good
→ from which we learnt a lot



The good (but not unexpected)
that EIC should not ignore…





HION-2023-13

- Now measure the rate of coincident occurrences of

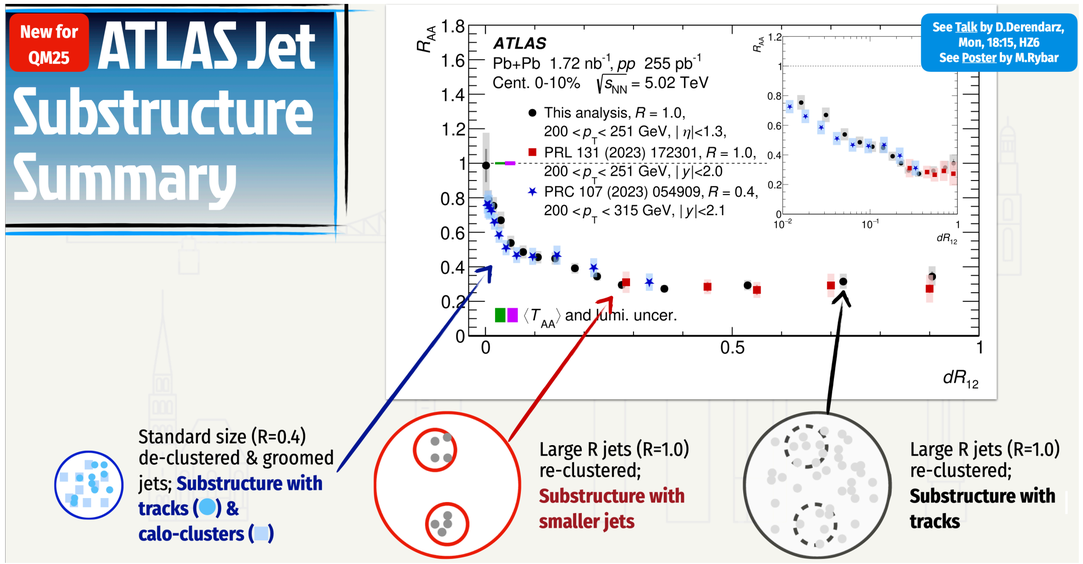
$$\gamma\gamma \to \mu\mu \text{ and } \gamma + A \to \rho^0 + A$$

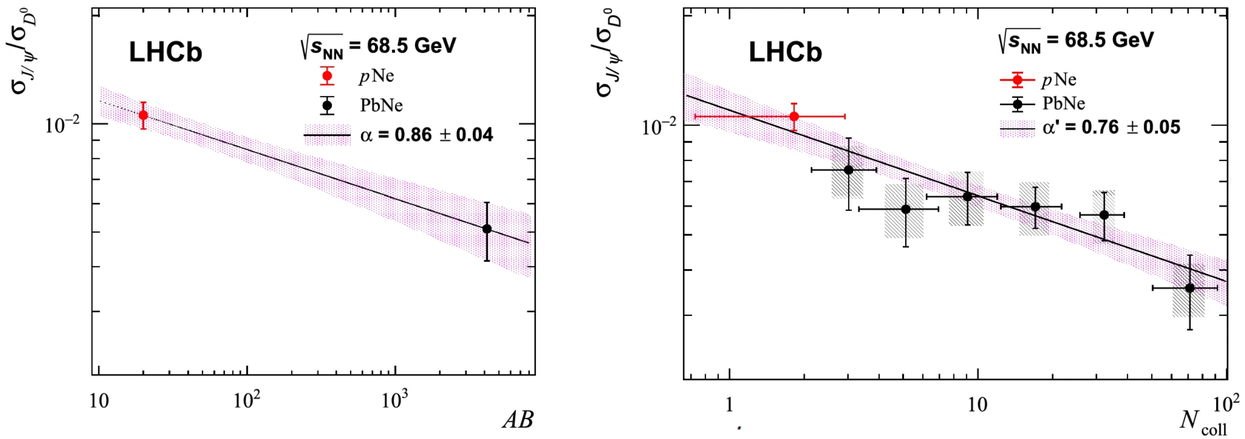
- Confirms the presence of **multi photon-induced processes in UPC collisions.**
- Provides new insights into the **impact parameter dependence** of photon-induced vector meson production.

The good and smart
→ first analysis that uses an independent EM effects (EM pileup) to calibrate the impact parametr of UPC collisions

The Good (or not?)

$\sqrt{s_{NN}} = 68.5$ GeV





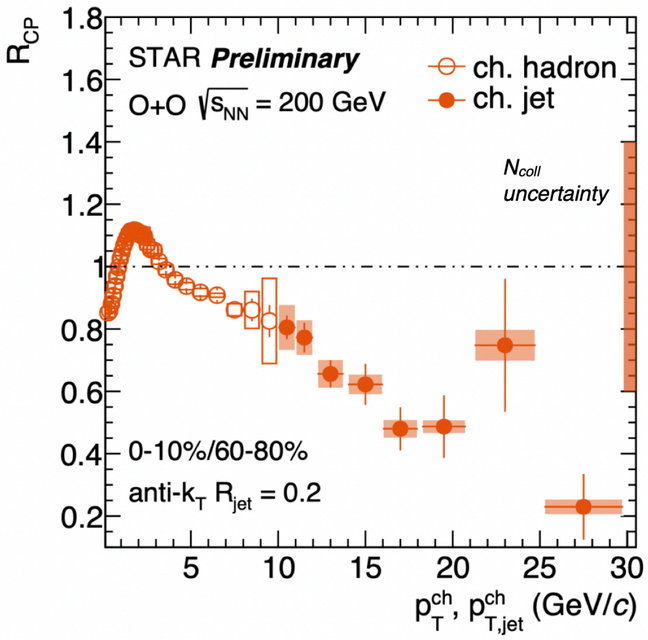
$$\frac{\sigma^{AB}_{J/\psi}}{\sigma^{AB}_{D^0}} = \frac{\sigma^{pp}_{J/\psi}}{\sigma^{pp}_{D^0}} \times AB^{\alpha-1} = C \times AB^{\alpha-1}$$

→ coefficient of nuclear absorption α is compatible with NA50 values from pPb (no deconfined medium expected)

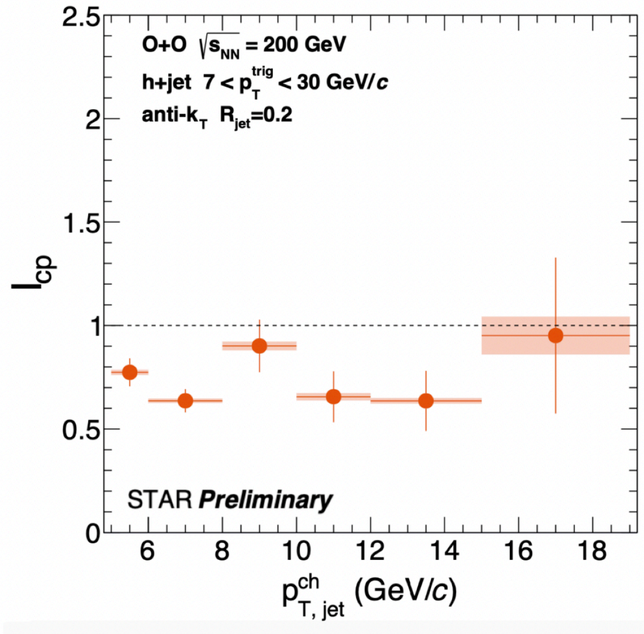
→ **Based on these new data, no indication of additional anomalous suppression of the J/ψ**

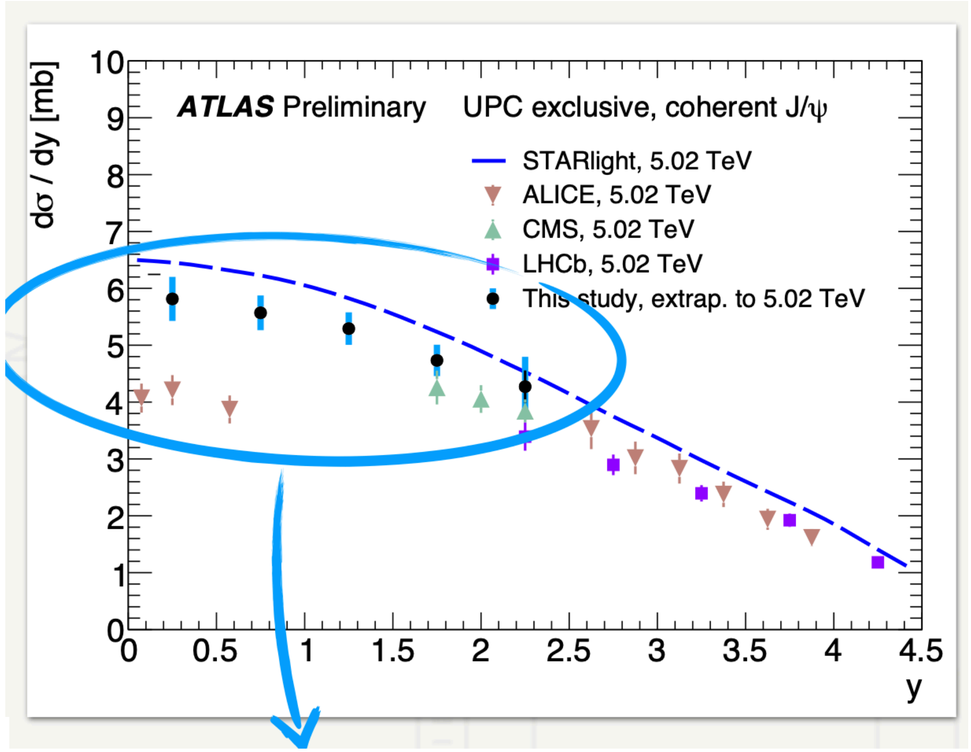
The Puzzling

Inclusive hadrons and jets



Semi-inclusive h triggered jets



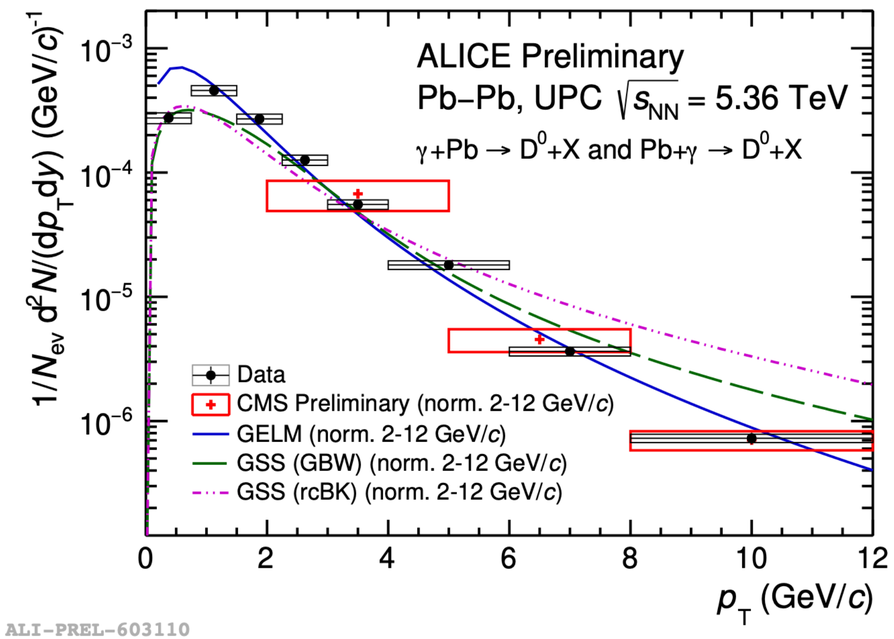


The remake of an old movie:
the saga of the event selection bias
in small systems (back then pPb now OO)

→ **unclear what is going on here**

→ my take home message: UPC and eA measurements are not easy
→ **we must be thoughtful and careful to preserve it as a real long-lasting field**

The worst and the best



we should welcome competition, **if it is based on solid well-thought results**

"Trends" that I didn't like:

- **Many "sloppy" results around** (more than what i recall in previous QMs)
- **Obsessive attention to improving statistical errors** but very little thoughts about systematics uncertanties
- **Quality/content of the parallel talks not high, focusing on pretty old type of measurements**
  → high statistics era has not yet become high precision era nor the "constraining-physics" era

"Trends" that I did like:

- **CMS HI is holding tight to its standards no matter what the competition does (as I am sure sPHENIX will do)**
- Having to face a though "technological" competition is forcing us to get smarter
- Our talks are always the most interesting and insightful