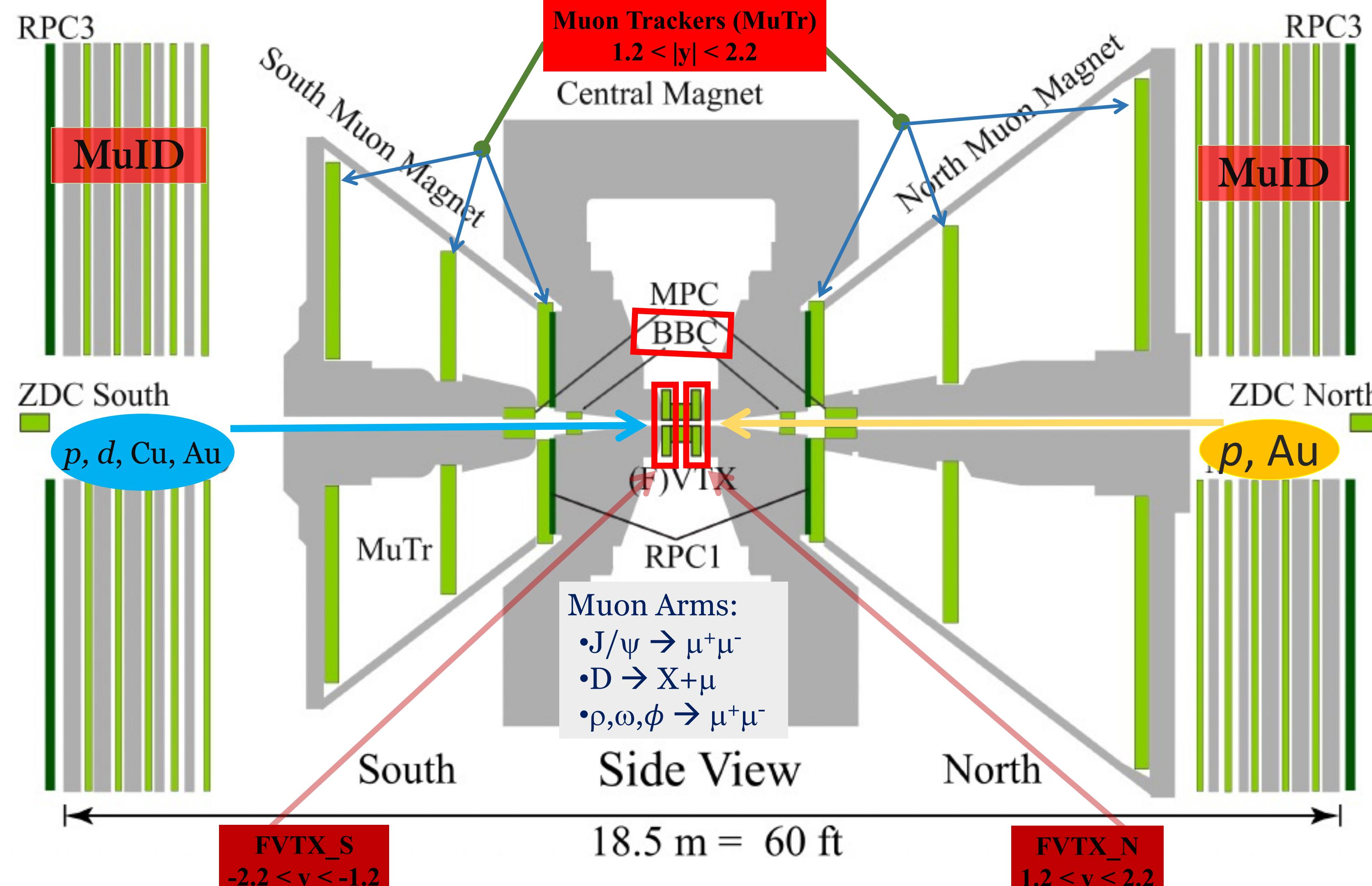
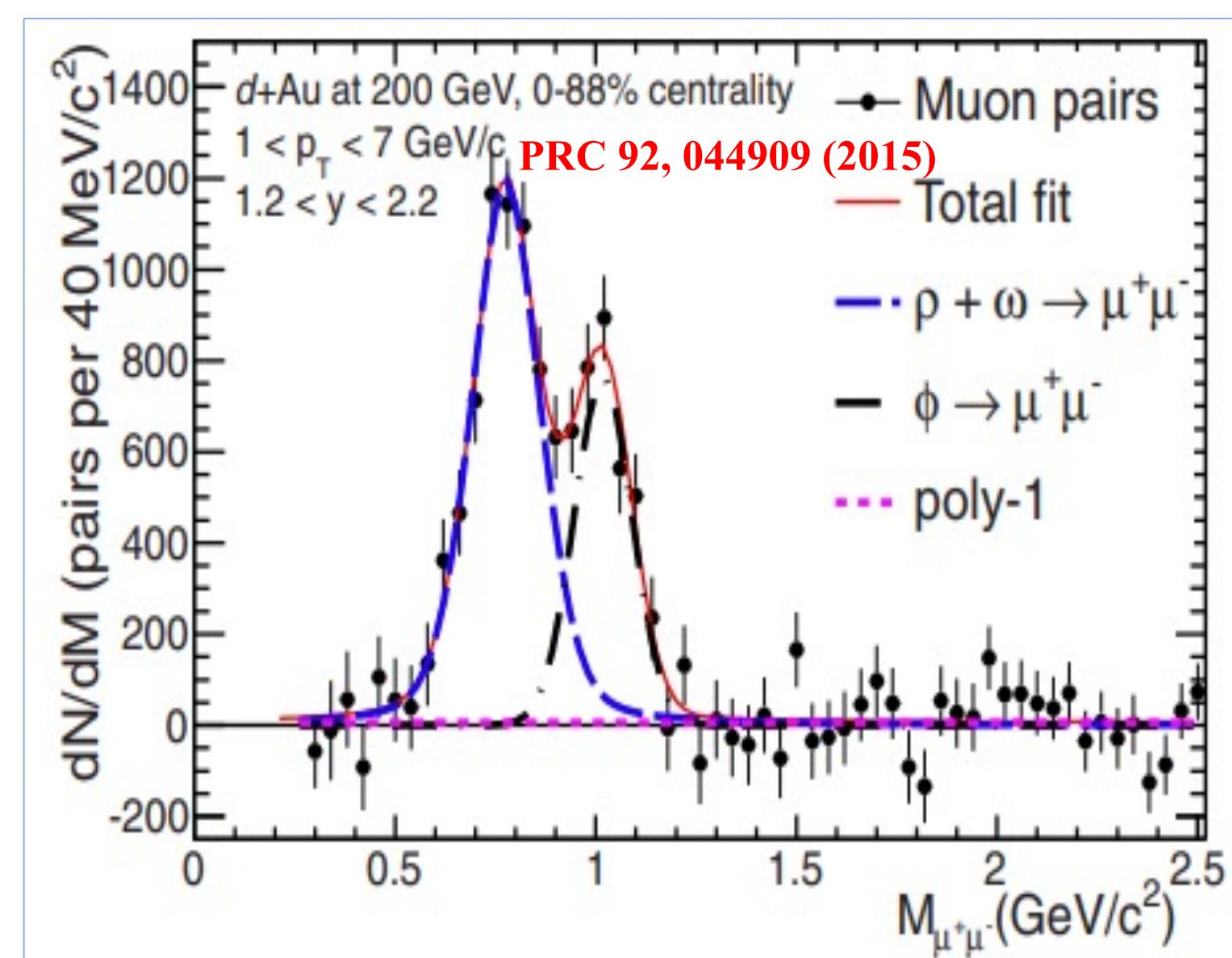
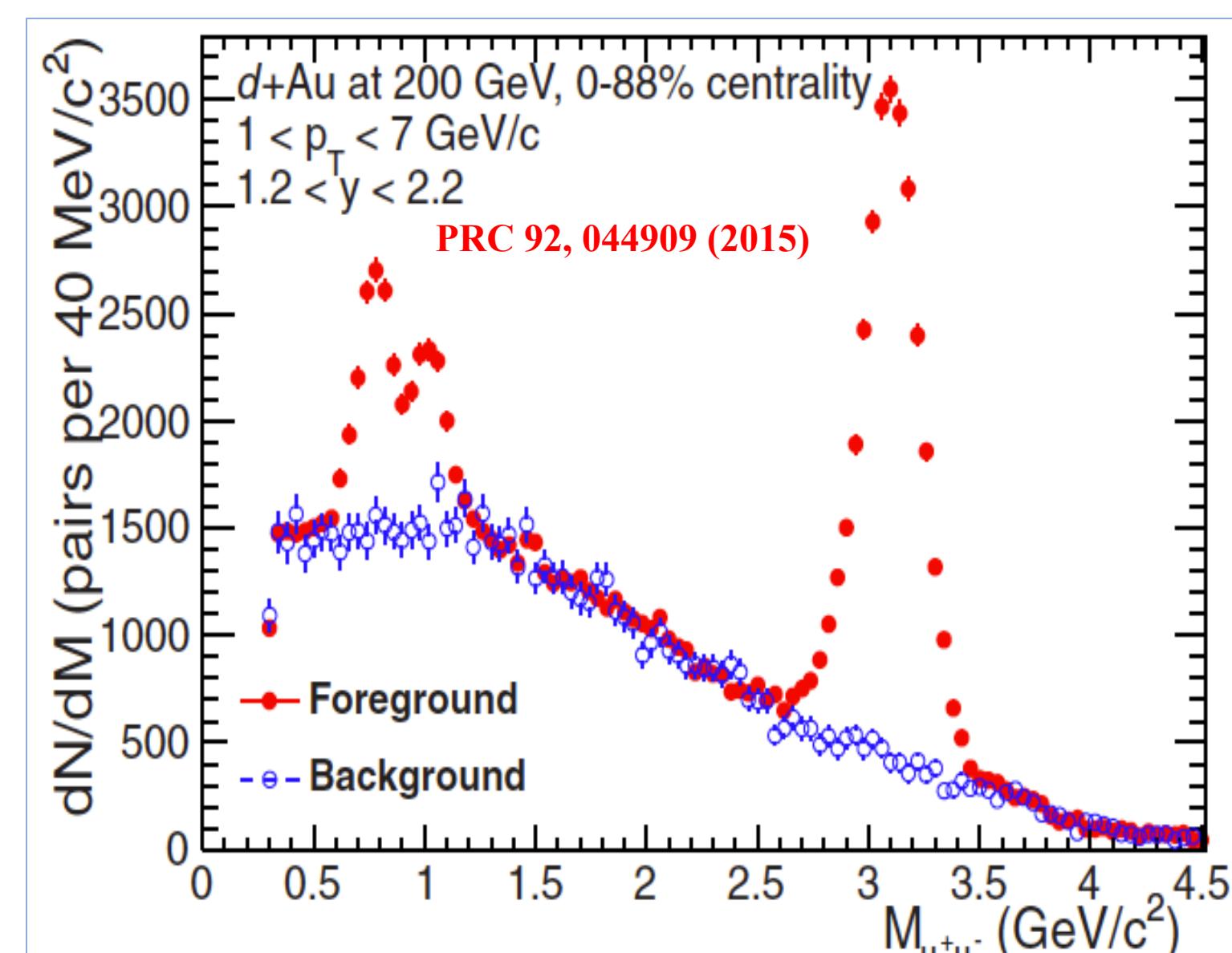


## PHENIX Forward Arm

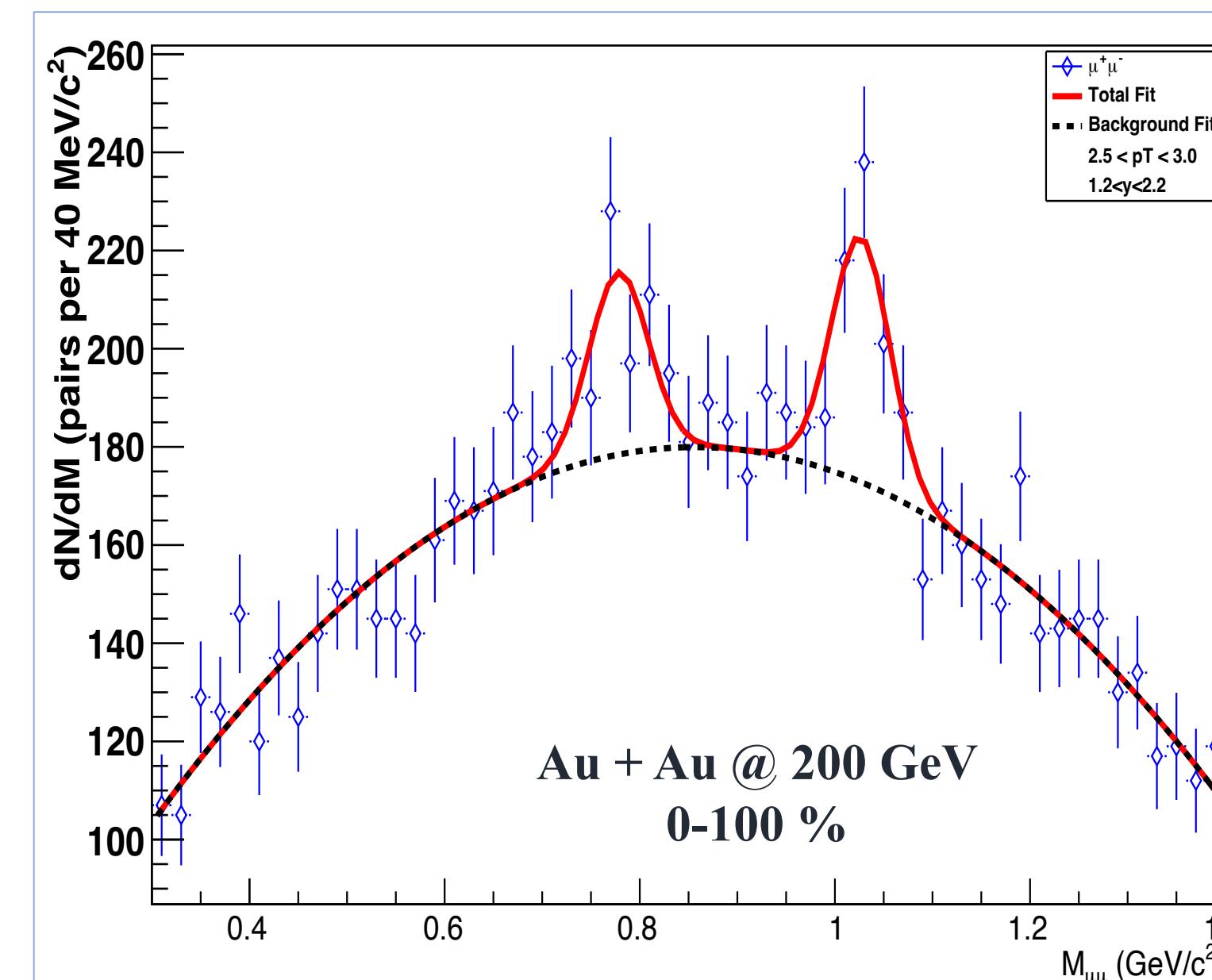
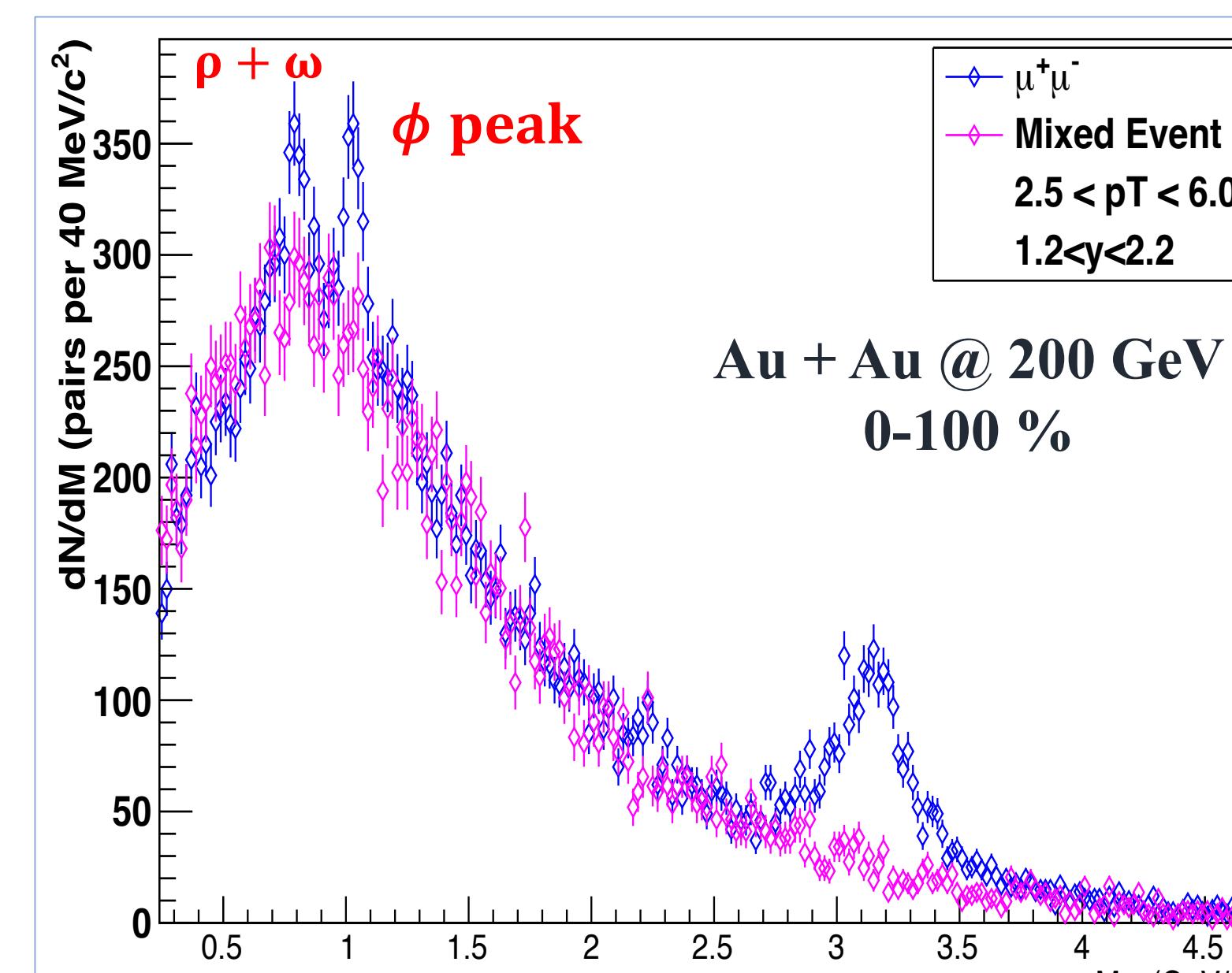


## $\phi$ meson Extraction and Raw Yield

- Reconstructed unlike signed muons from MuTr and MuID's are paired together to form dimuon mass spectrum. Any combinatorial background is subtracted.



- In Au + Au collision, FVTX is used at forward rapidity for first time in  $\phi$  analysis for the precise tracking and improving signal to background ratio.
- Required to match with FVTX:  $\rho + \omega$  meson peak distinct from  $\phi$  meson peak.

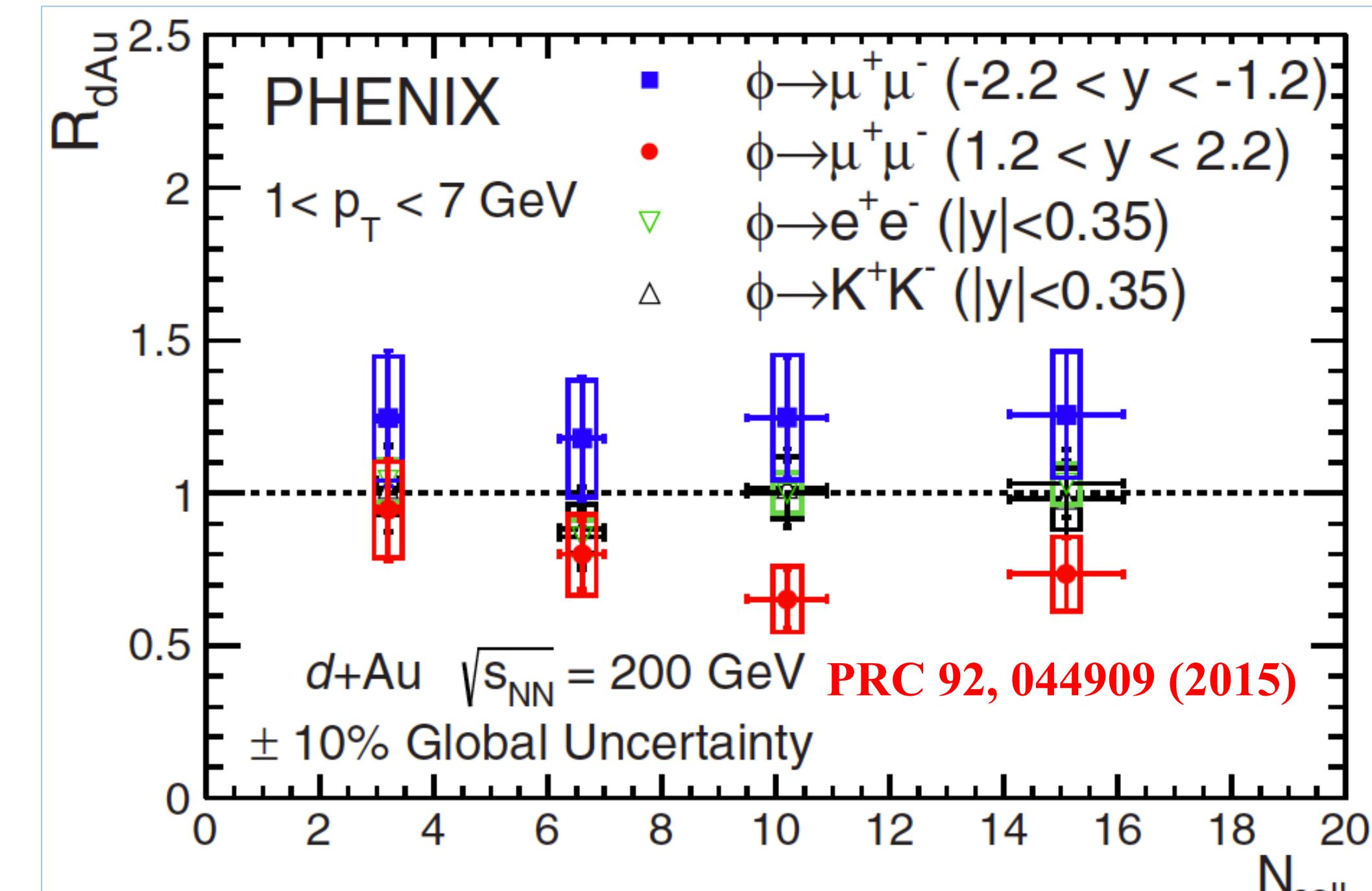
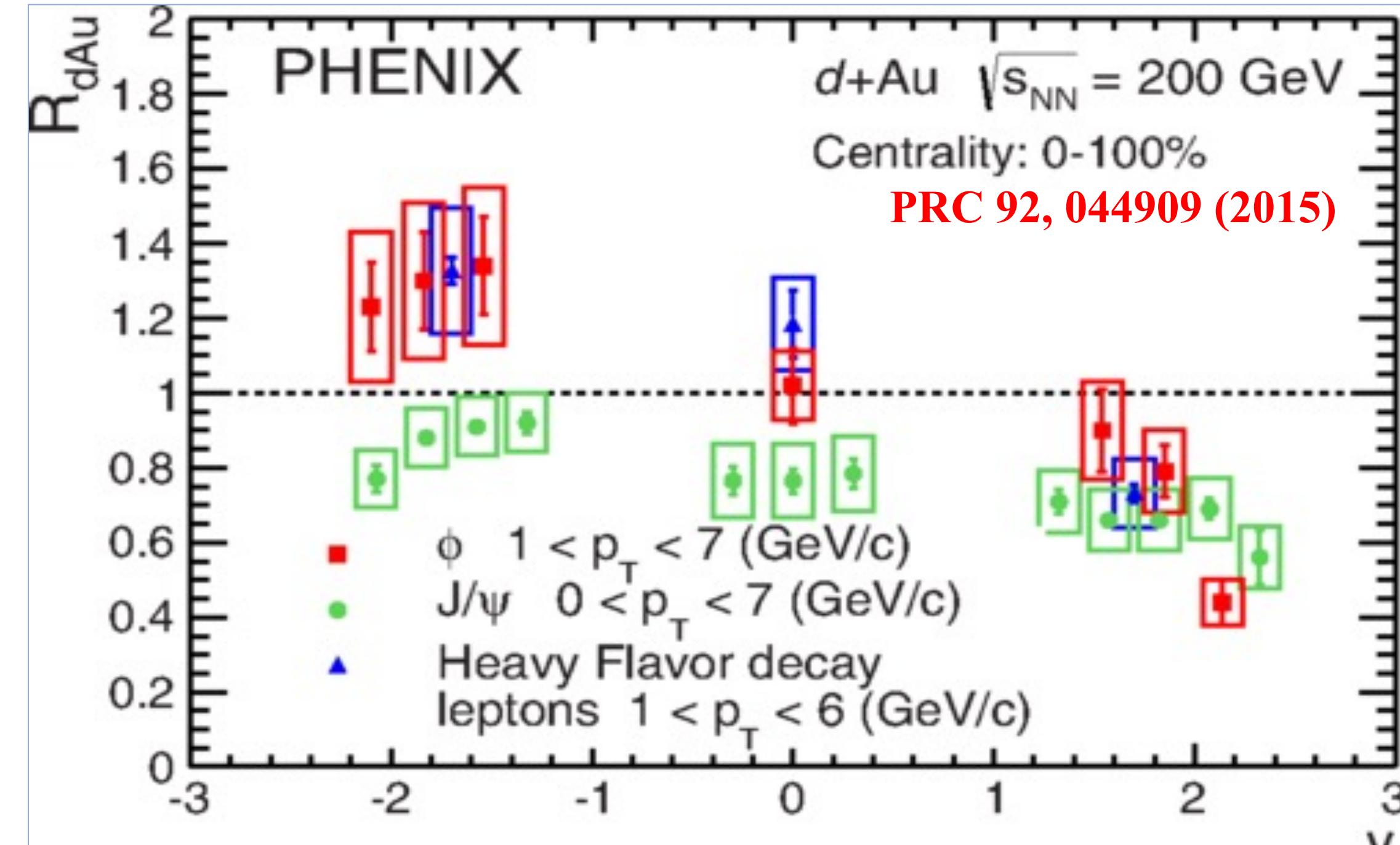
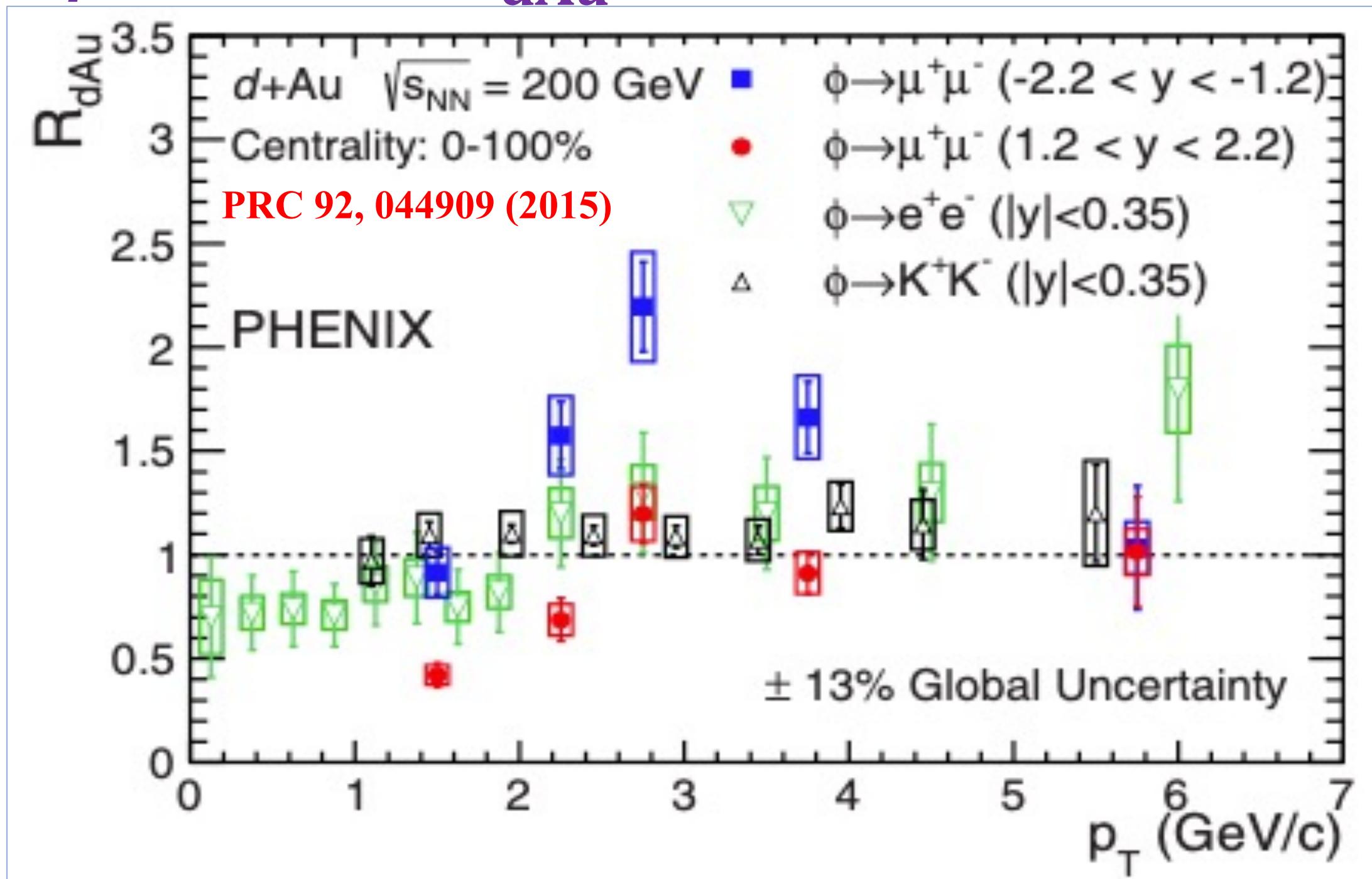


## Nuclear Modification Factor

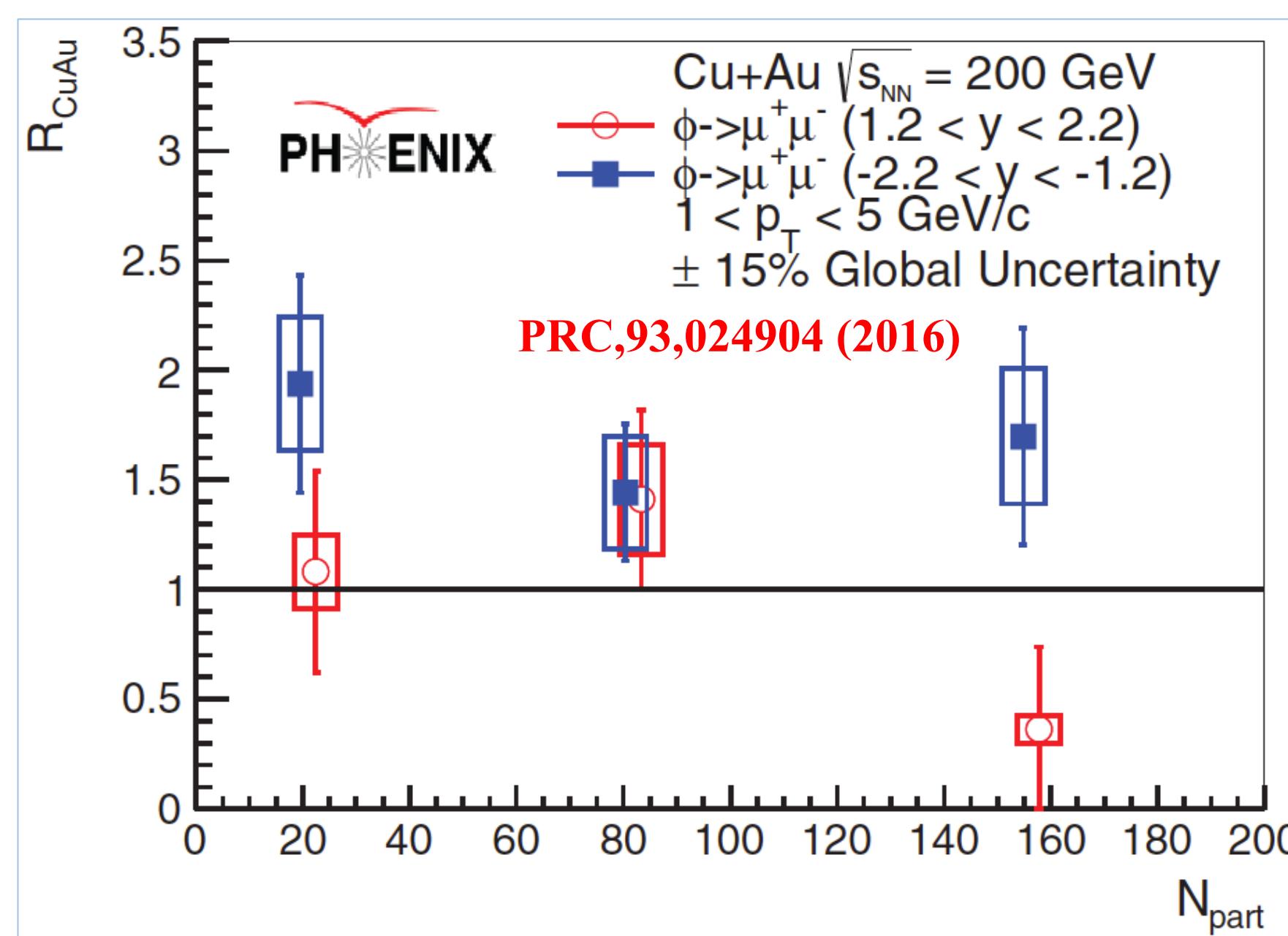
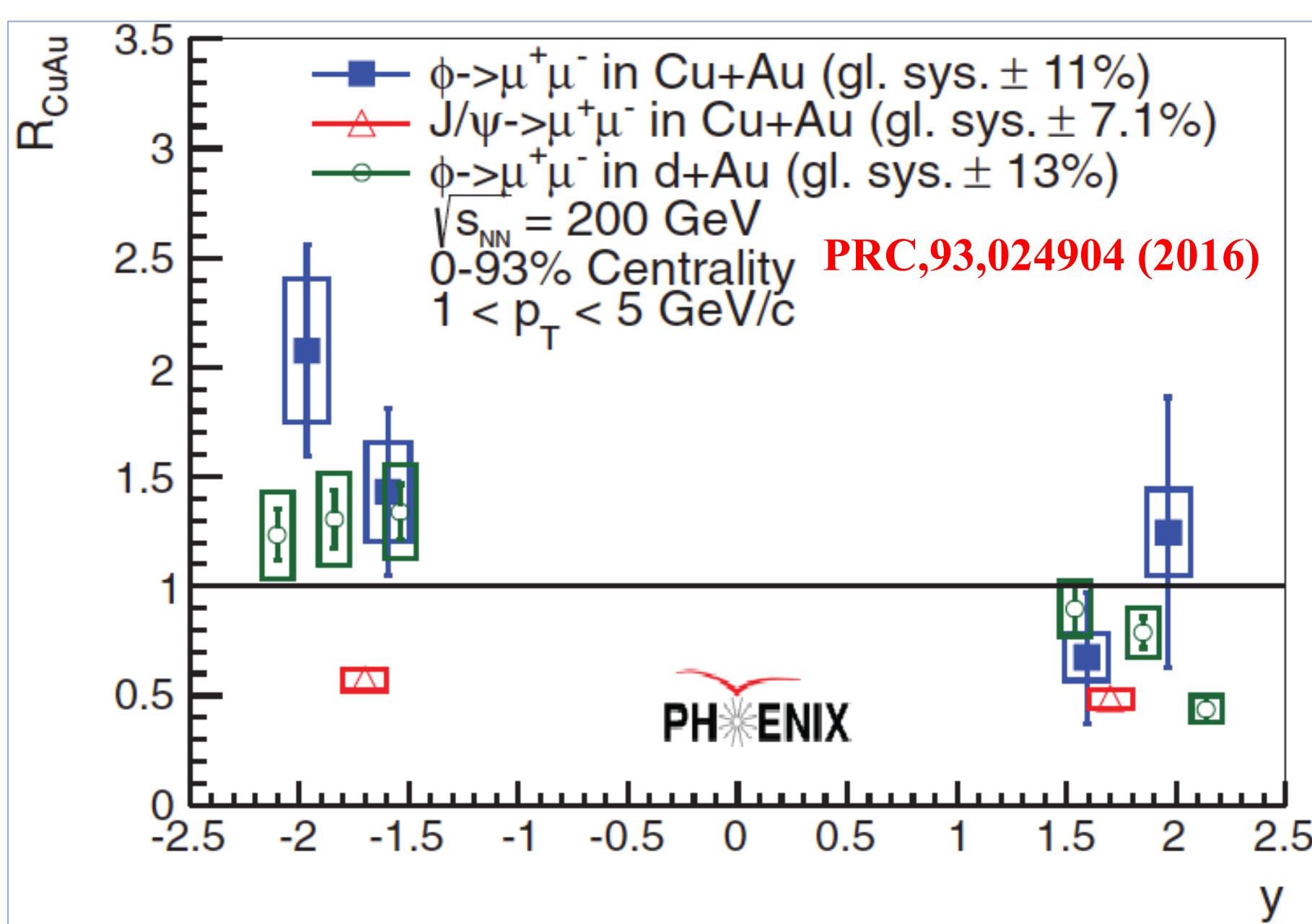
$$R_{AB} = \frac{d^2 N_\phi^{A+B} / dp_T dy}{d^2 N_\phi^{p+p} / dp_T dy} \cdot \frac{1}{\langle N_{coll} \rangle}$$

## $\phi$ meson $R_{AA}$

### $\phi$ meson $R_{dAu}$



### $\phi$ meson $R_{CuAu}$



## Summary and Conclusions

- $\phi(s\bar{s})$  (mass=1.019 GeV/c<sup>2</sup>) mesons are excellent probe for studying Quark Gluon Plasma (QGP).
- The enhancement of  $\phi$  mesons in Au going direction can be explained as enhanced strangeness production while no modification at mid rapidity.
- The observed  $p_T$  dependency of  $R_{dAu}$  in Au going direction for  $\phi$  mesons indicate characteristic Cronin-effect, a CNM effect.
- At Mid rapidity,  $\phi$  mesons nuclear modification factor in Au + Au collision shows suppression (PRC,83,024904), it is interesting to study the same in forward rapidity region and get insight into the strangeness production in medium and possible hot nuclear matter effect (Ongoing Analysis).

### Reference

- PHENIX Collab, PRC,92,044909 (2015),  $\phi$  mesons production in d + Au collision at 200 GeV.
- PHENIX Collab, PRC,93,024904 (2016),  $\phi$  mesons production in forward/backward rapidity in Cu + Au collision at 200 GeV.