

A scenic view of a coastline featuring a large natural rock archway over the ocean, a sandy beach, and a cliffside with a waterfall.

Résumé AGS/RHIC user meeting

Raphaël
Étretat
29/06/05

Introduction

Workshops parallèles résumés pas leur organisateur la dernière journée :


- ~~Kaon rare decays~~

- ~~Spin~~

 Photons (organisateur : David)

 Implications cosmologiques

 High p_T & jets

 Heavy flavor (speaker : Carlos)

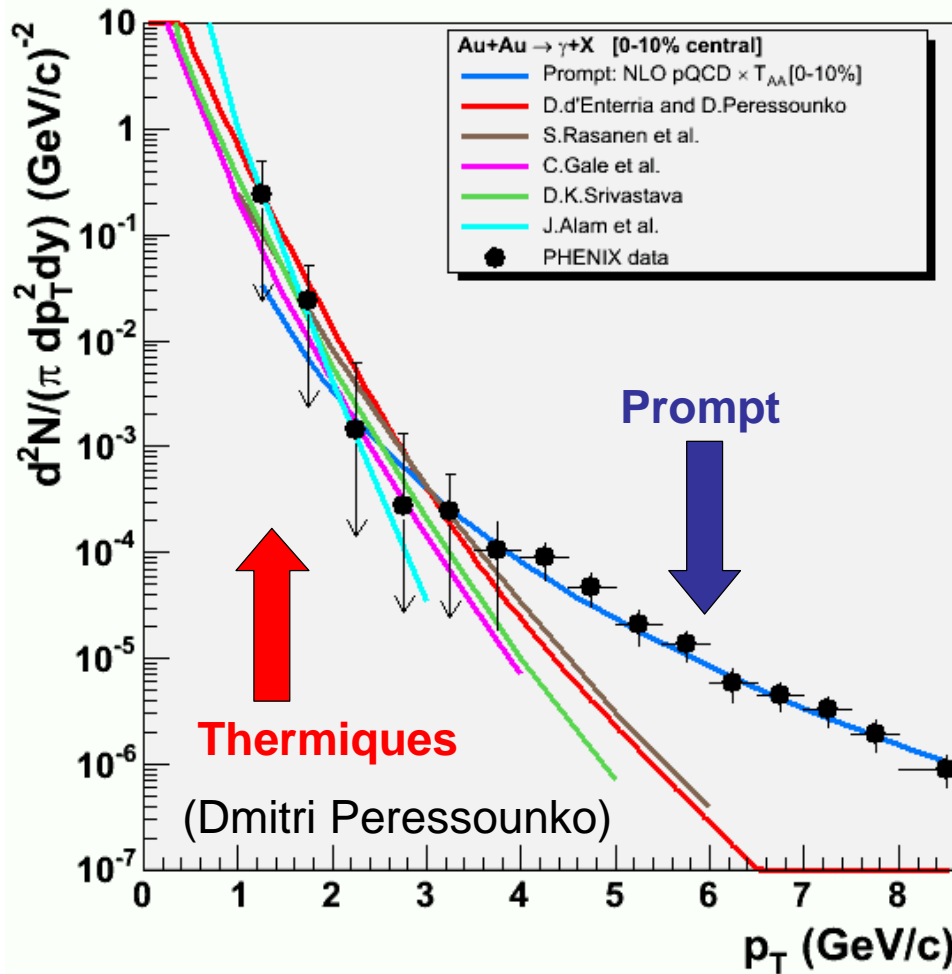
- ~~Correlations and fluctuations~~

- ~~Femtoscopia~~ *« HBT remains a puzzle... »*

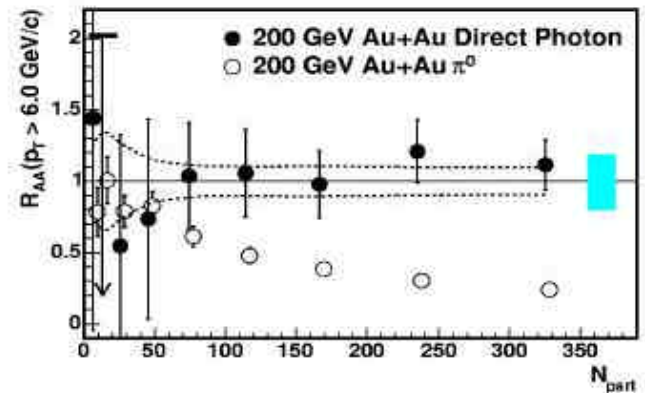
Présentations pas disponibles sur le web dimanche...

Sélection hypersubjective, hyperbiaisée, hypersélective, hypersuperficielle...

Photons (1/2) AuAu



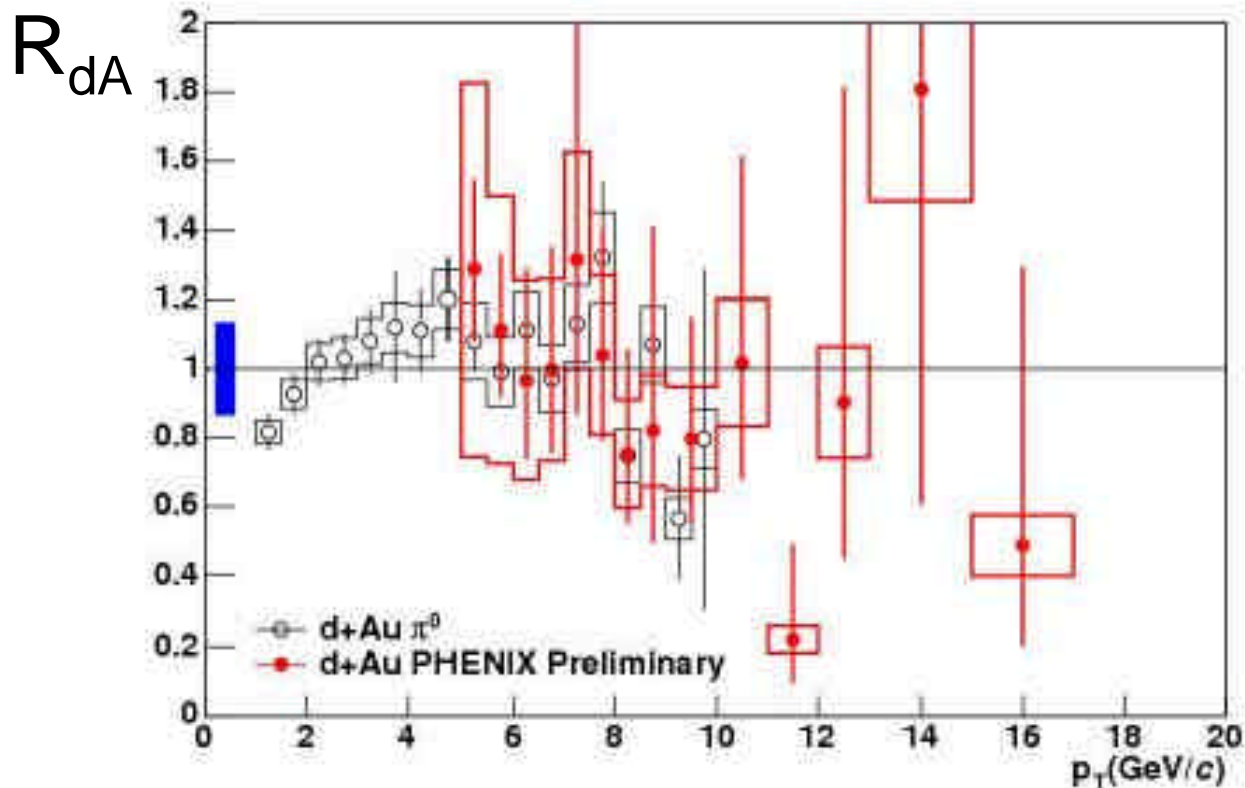
$$R_{AA}(p_T, y; b) = \frac{\text{"hot/dense QCD medium"}}{\text{"QCD vacuum"}} = \frac{d^2 N_{AA}/dy dp_T}{\langle T_{AA}(b) \rangle \cdot d^2 \sigma_{pp}/dy dp_T}$$



● Direct photon production in Au+Au unmodified by QCD medium.

(Hisa Torii)

Photons (2/2)

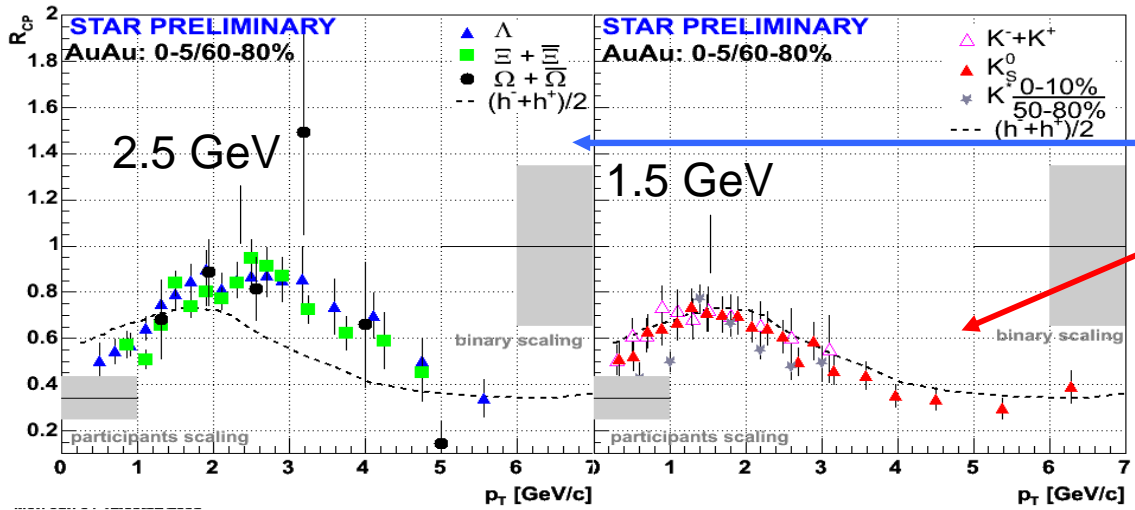


- R_{dA} consistant avec 1
- Pas ou peu de Cronin...

(Hisa Torii)

High p_T & jets (1/3)

- Voir le talk de David d'hier (sonic boom,...)
- + Quelques commentaires mésons/baryons



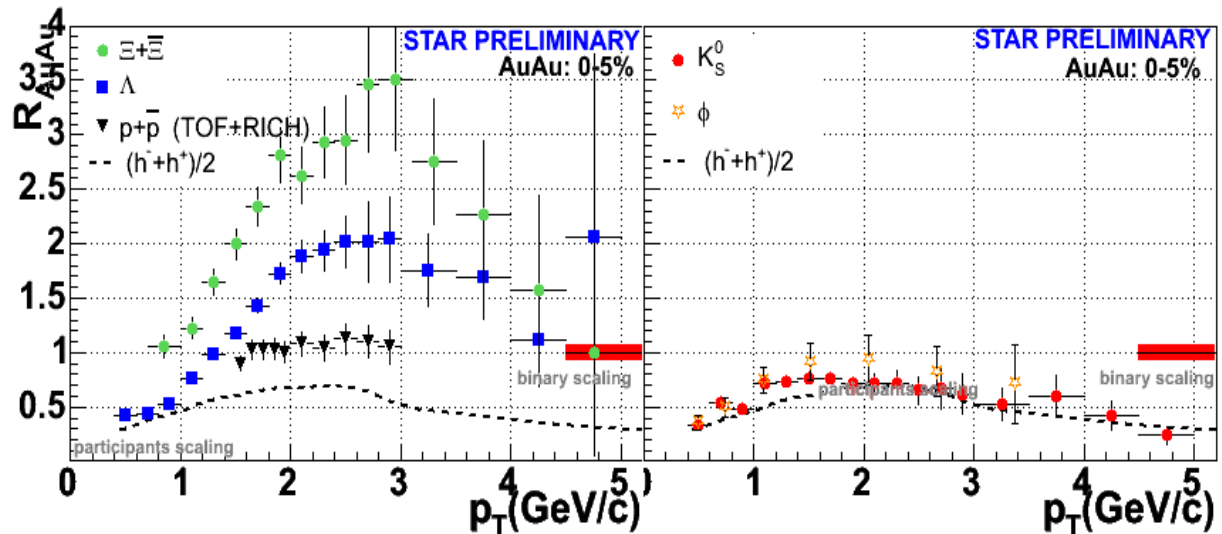
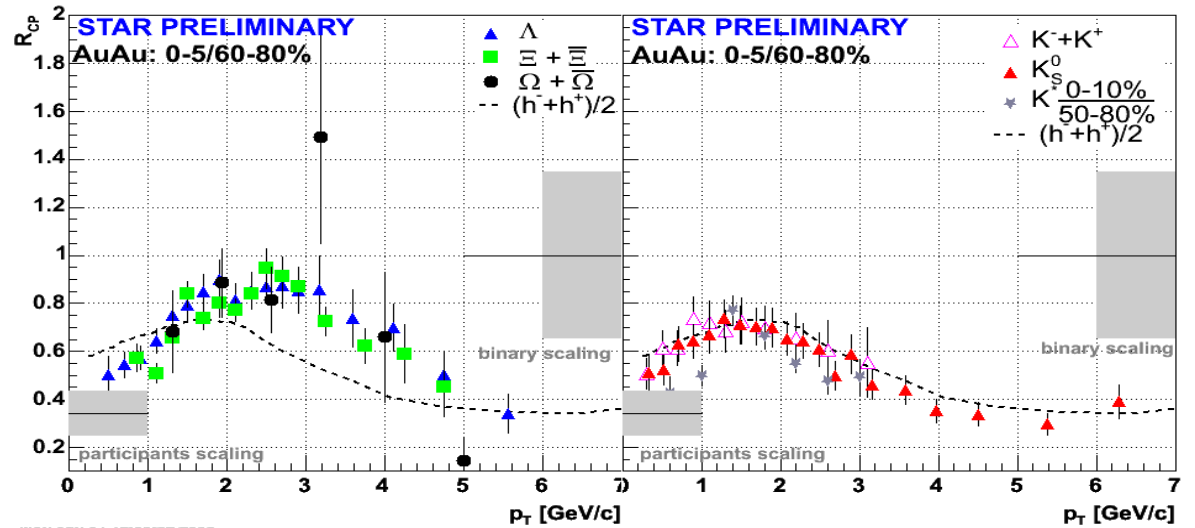
- Coalescence (2 ou 3 quarks de bas p_T)
- HIJING BBbar v2.0 (jet quenching + shadowing + baryon junction + strong color field effects)

High p_T & jets (2/3)

- R_{CP} vs R_{AA}
- Comportements des étranges très différents
- périphérique
- versus pp
- ϕ versus p ?

(Camelia Mironov)

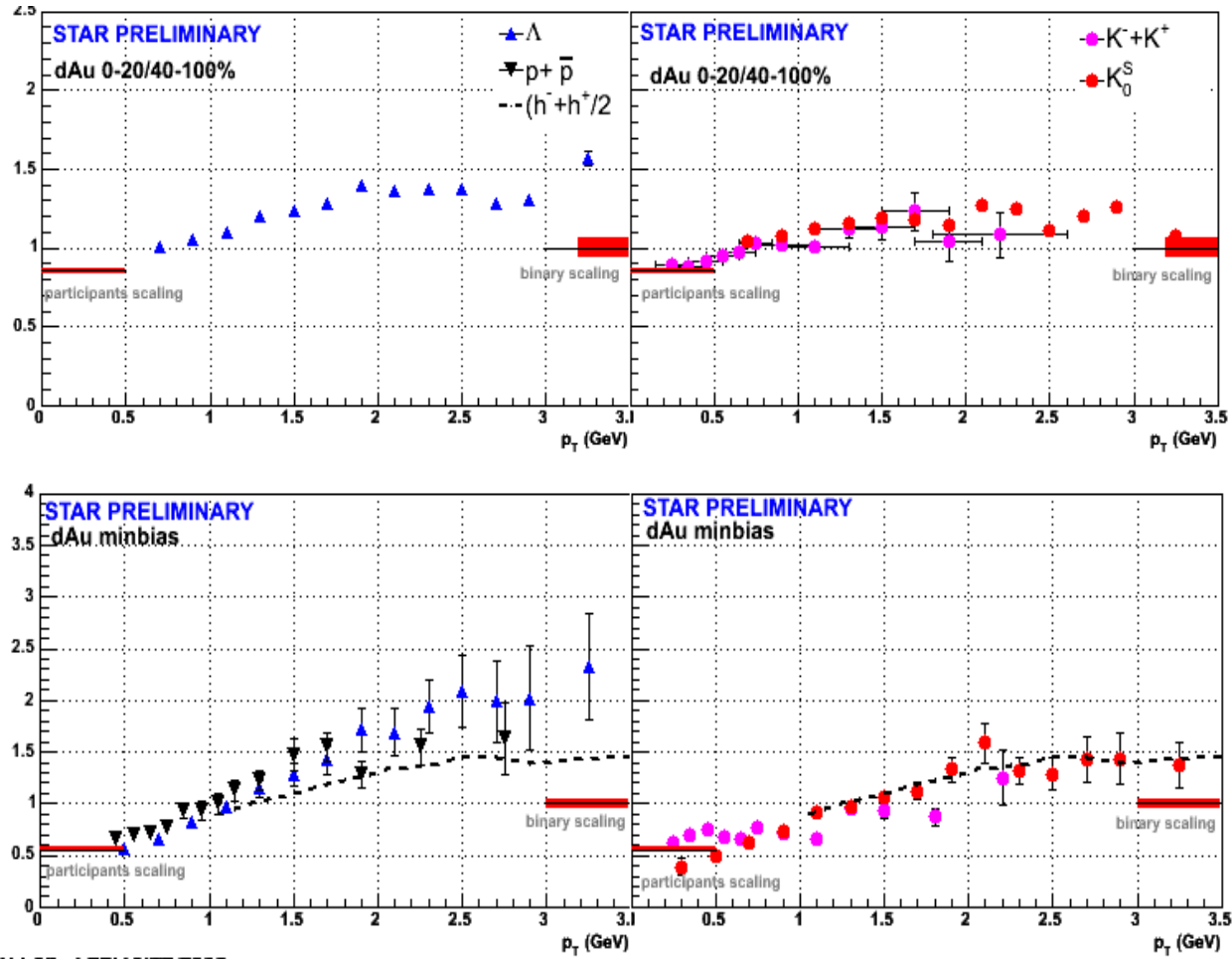
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High p_T & jets (3/3)

- Différence mésons / baryons dans dAu aussi...

R_{dA}



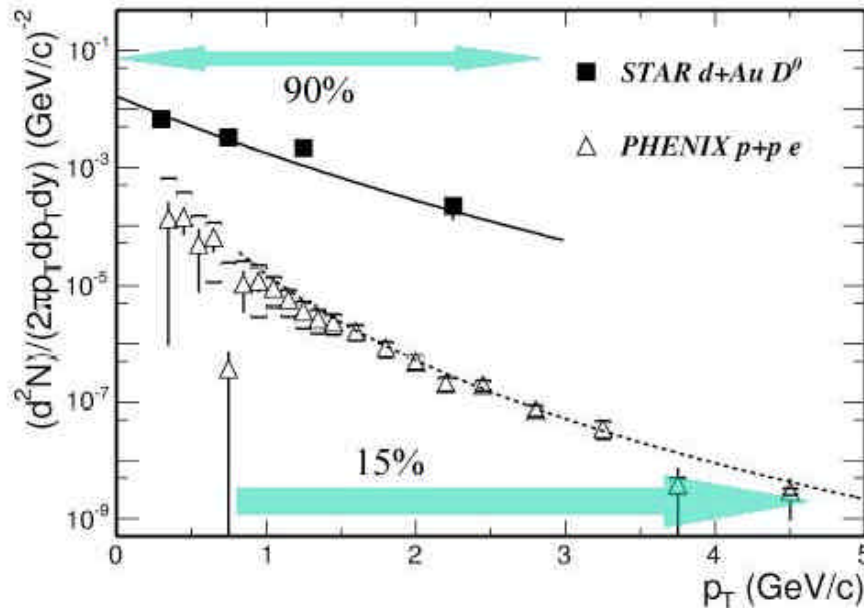
(Camelia Mironov)

Heavy flavour (1/6) Charme ouvert

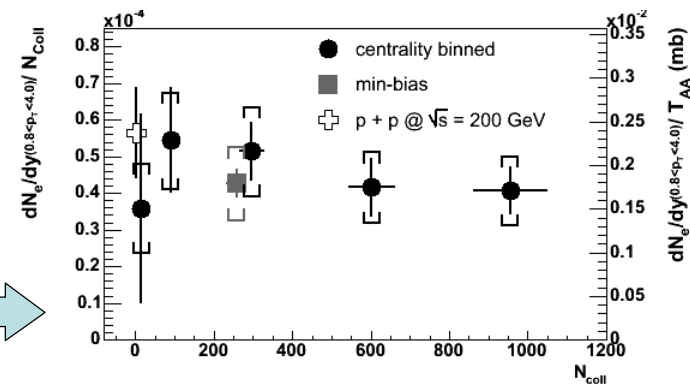
- Production du charme ouvert en « pp »

Combined fit of STAR D^0 and PHENIX electrons:

No discrepancy: $\sigma_{cc} = 1.1 \pm 0.1 \pm 0.3$ mb



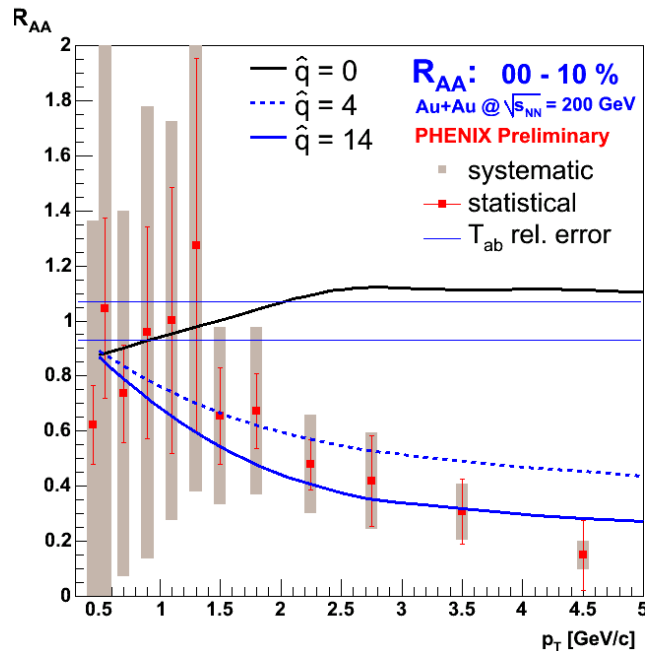
(Frank Laue, DongJo Kim)



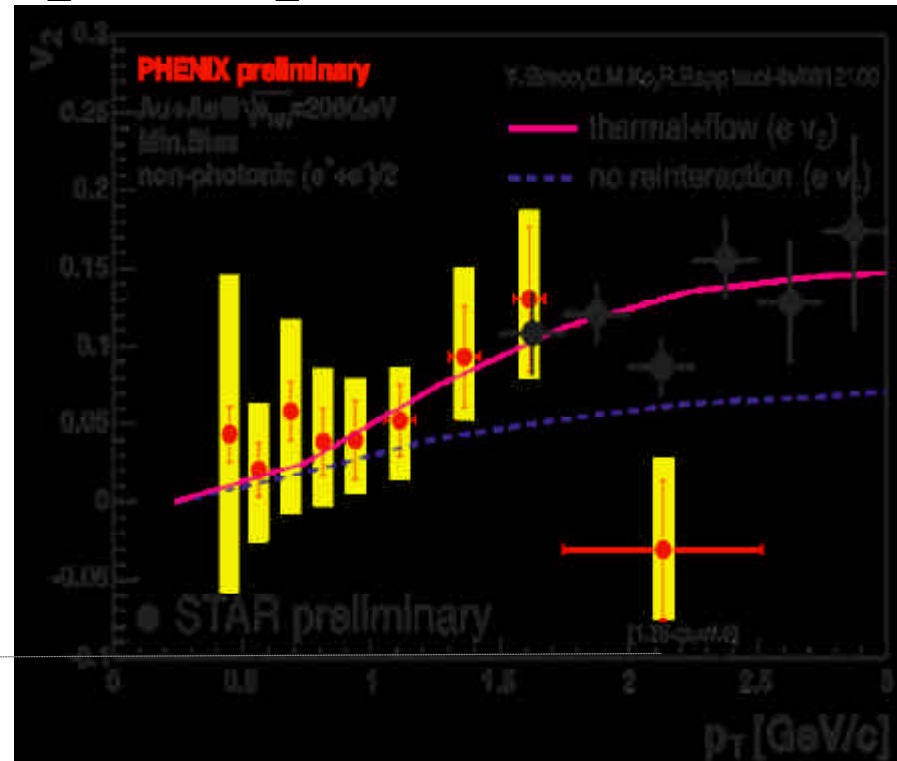
- Pas modifiée en dA, AA \rightarrow

Heavy flavour (2/6) Charme ouvert

- Flow cohérent avec $v_2(c) = v_2$ (light quarks)
- R_{AA} (quenching)

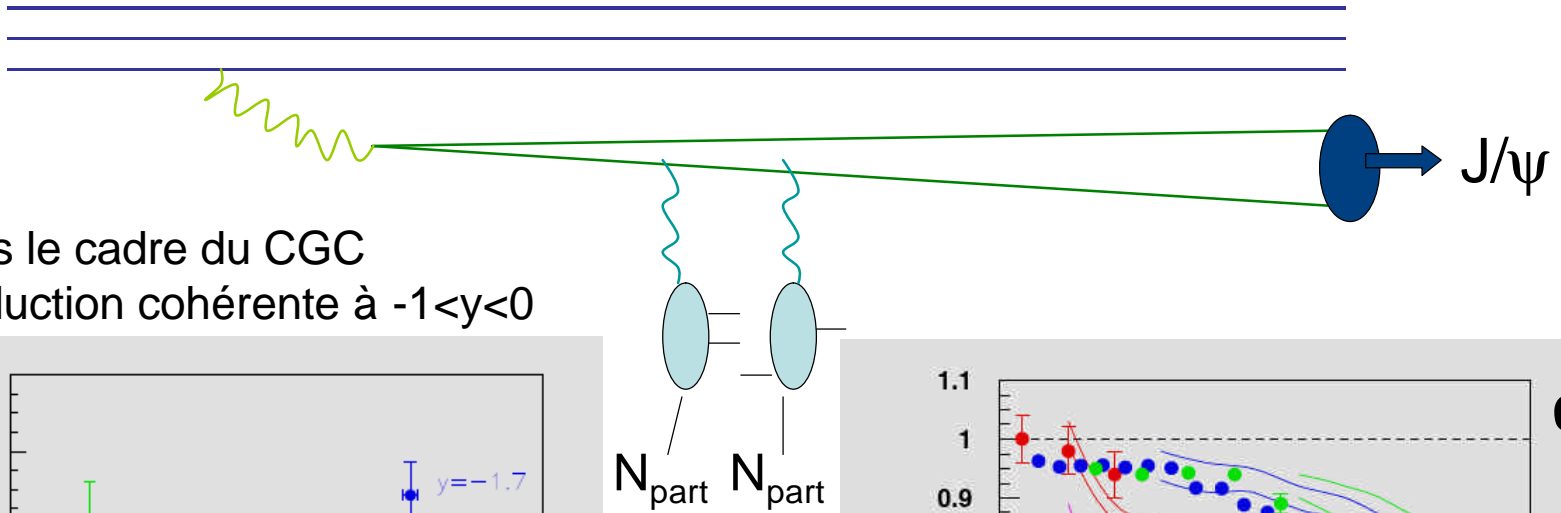


(DongJo et voir Carlos cet après midi)

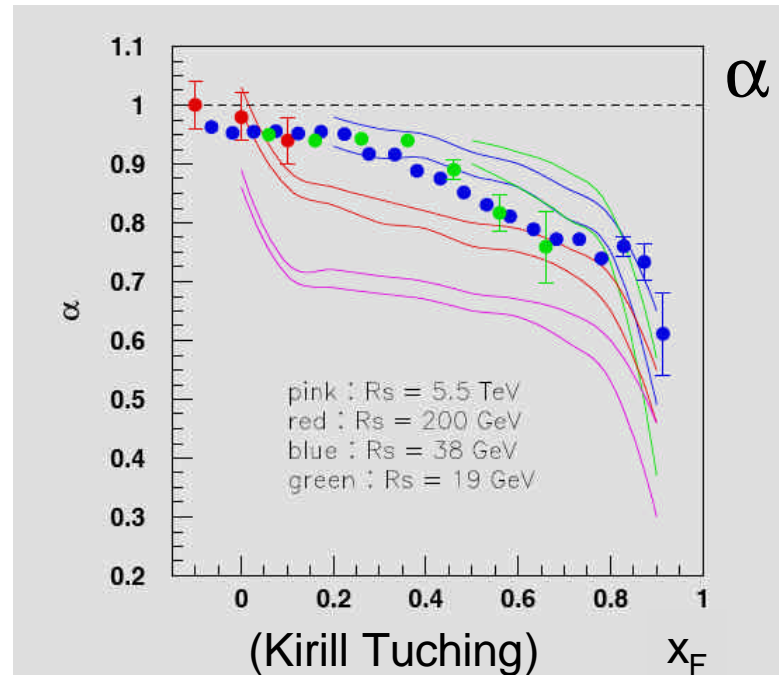
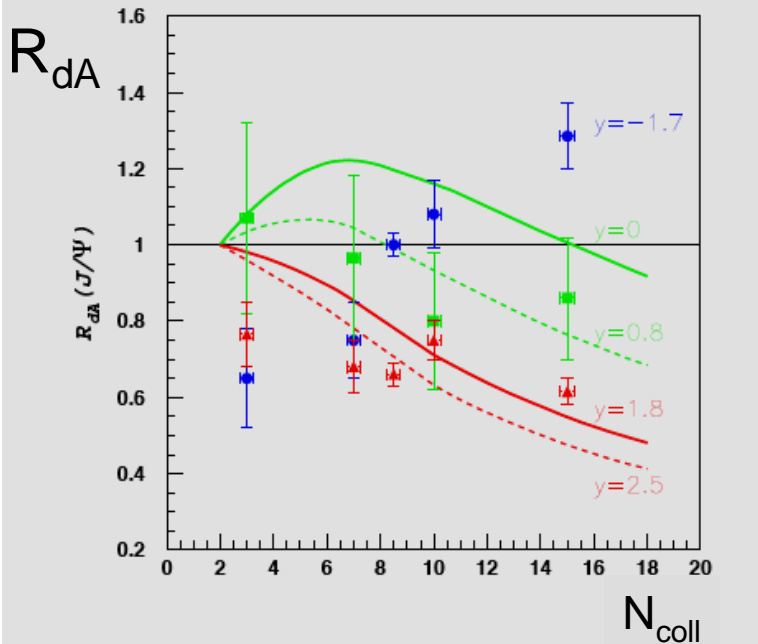


(Frank Laue, DongJo Kim, Ralf Rapp)

Heavy flavour (3/6) J/psi dAu

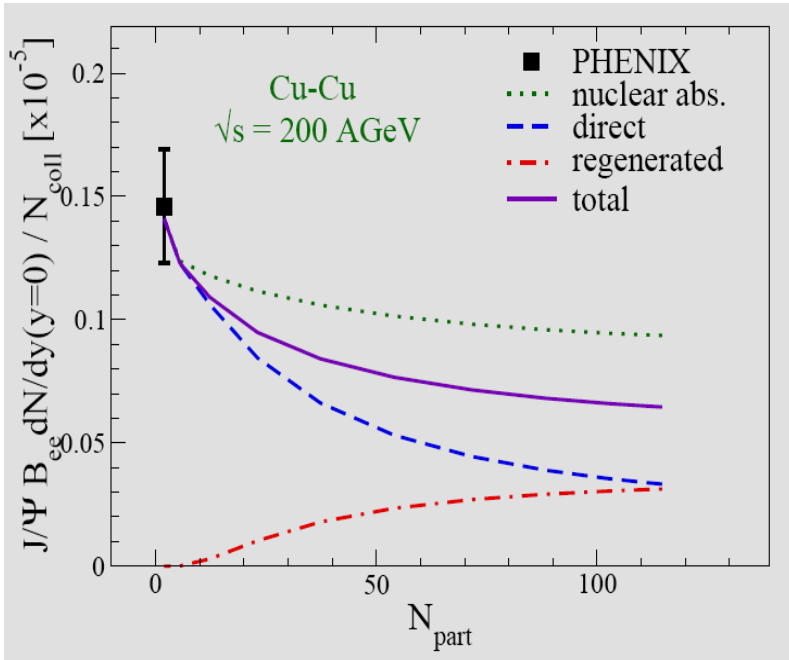


Dans le cadre du CGC
Production cohérente à $-1 < y < 0$

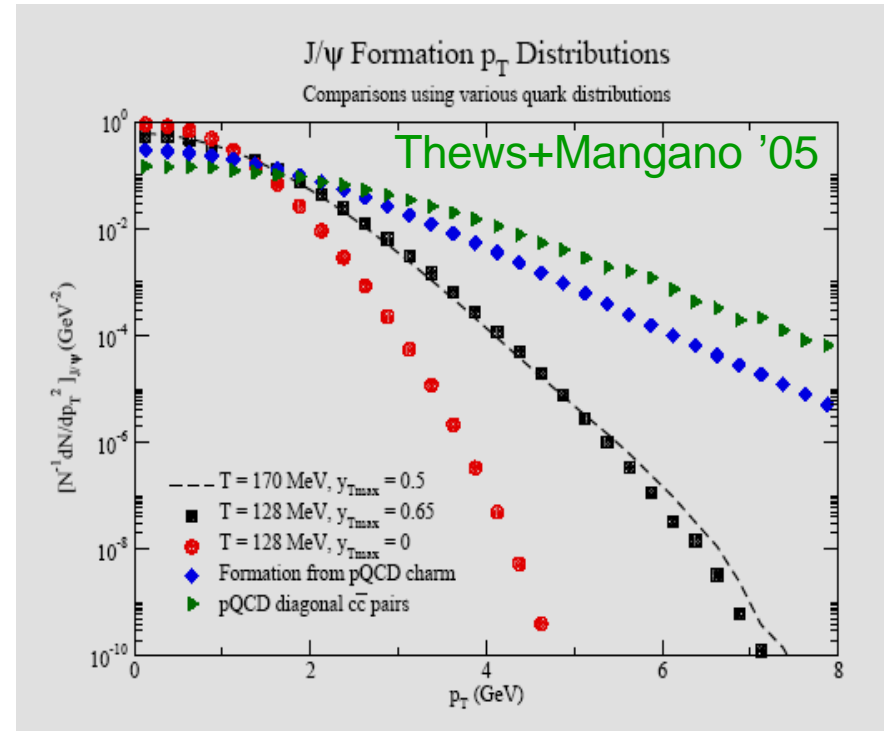


Heavy flavours (4/6) J/psi AA ?

Prédictions pour le J/ψ



Ralf Rapp : CuCu @ $y=0$
(ai demandé le reste)



Distribution en p_t très dépendante de la coalescence...

Heavy flavours (5/6)

- Promesses pour Quark Matter...

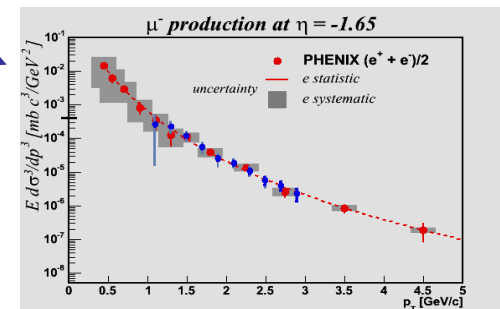
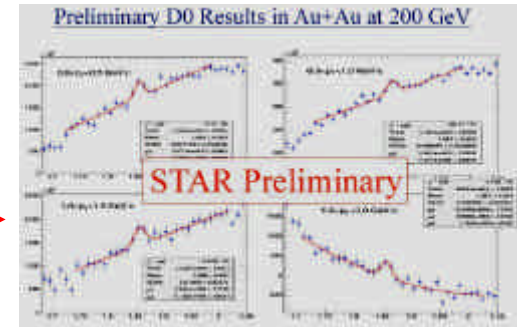
- Open charm

- RdA, RAA des D0 -> Kpi (STAR) →
 - RAA des simples électrons (STAR)
 - Single muons pp (PHENIX) →

- J/psi

- AuAu et CuCu (Cf. Hugo & Andry ici)

- D'autres chose ?



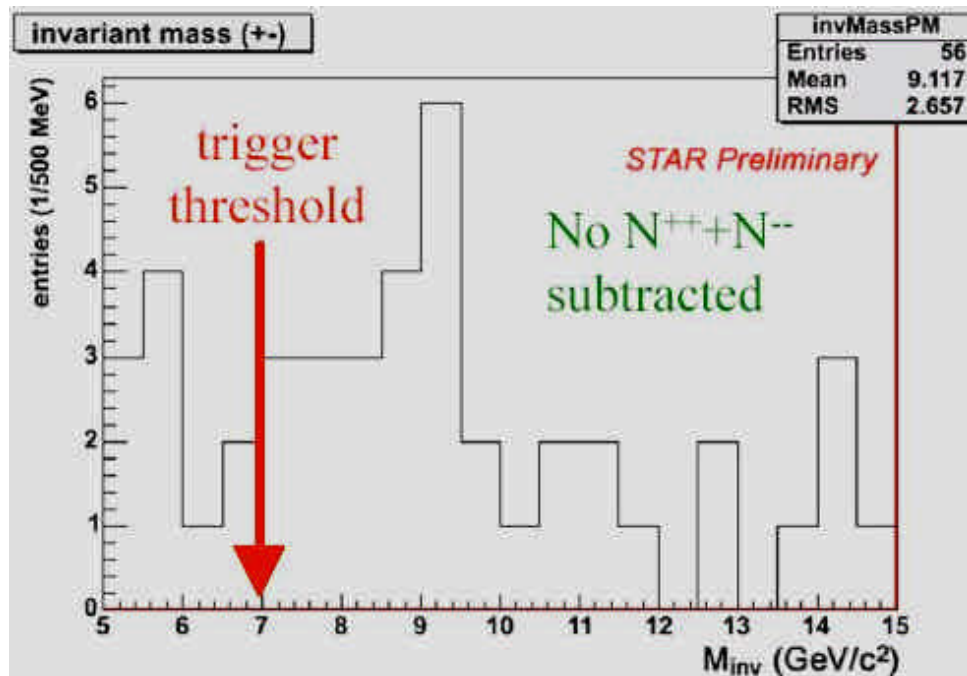
Heavy flavours (6/6) beauty ?

- Open beauty ?

STAR versus calcul hep-ph/0502203

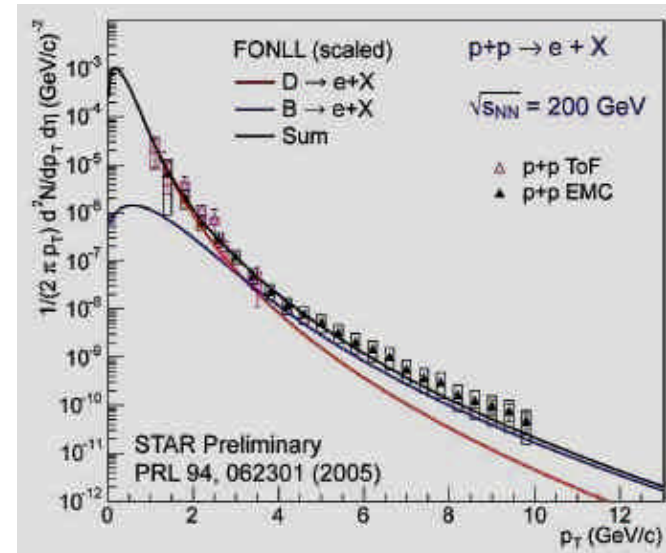
(M. Cacciari, P. Nason, R. Vogt)

(idem phenix -> 5 GeV/c)



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Des upsilon ?

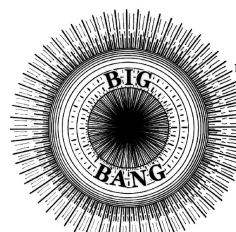
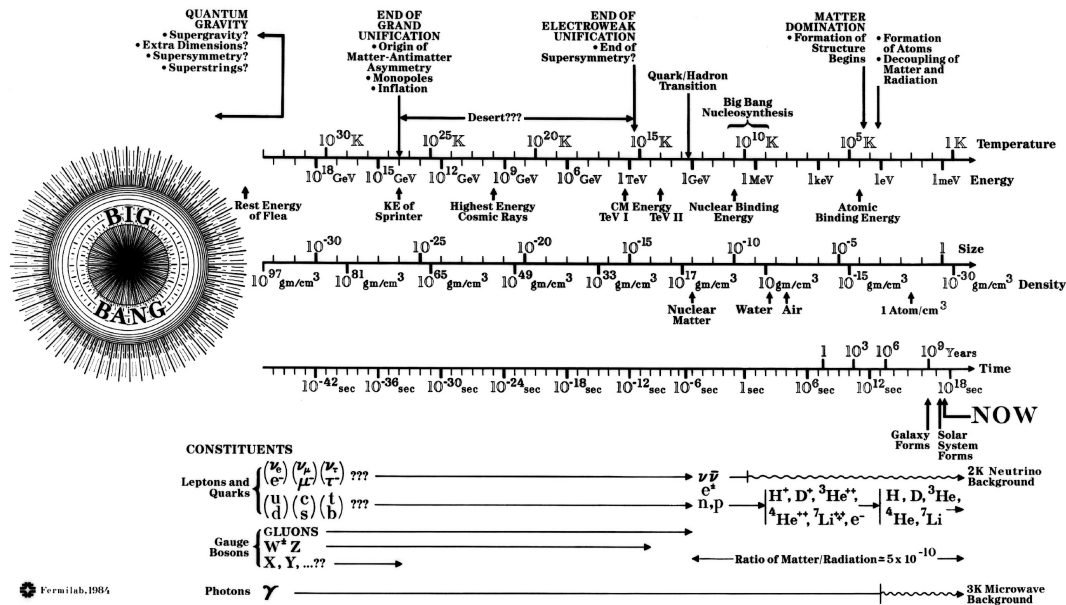
Données brutes

AuAu de STAR

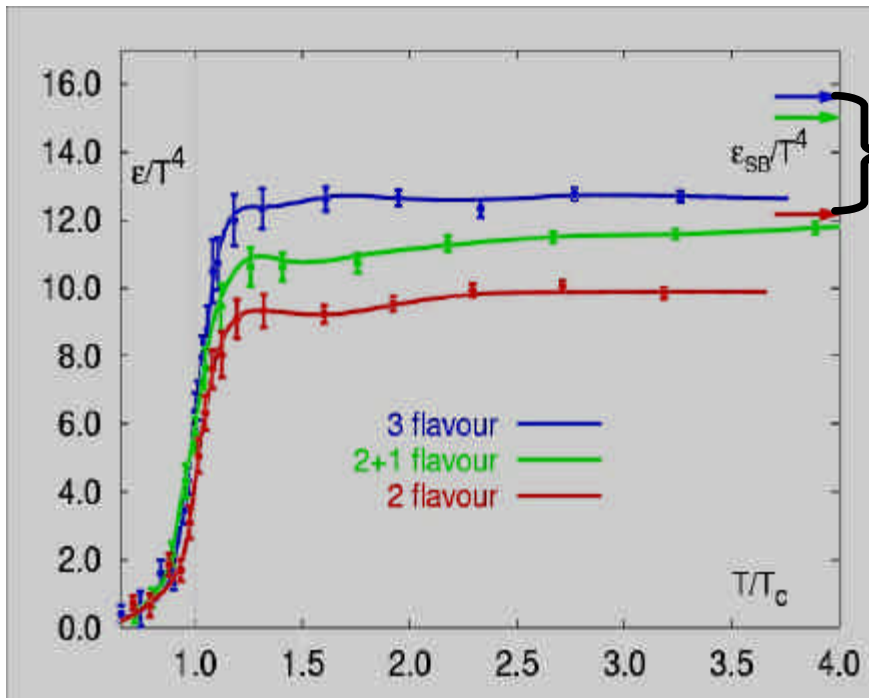
(Frank Laue)

Implications cosmologiques (1/2)

- « PQG ~ état de l'univers quelques microsecondes après le big-bang »
- Qu'est ce que ça change qu'il soit costaux et coulant ?
- Pas grand-chose car pas de reliques de cette époque...



Implications cosmologiques (2/2)



Mais effets indirects :

- « *Modification de 2.5% de la densité de WIMPs* » Karsch
 - « *Some effect on primordial nucleosynthesis* » Scherrer
- Cf. revue de Friedman & Turner ?

Conclusions du RHIC/AGS meeting

Pour la physique :

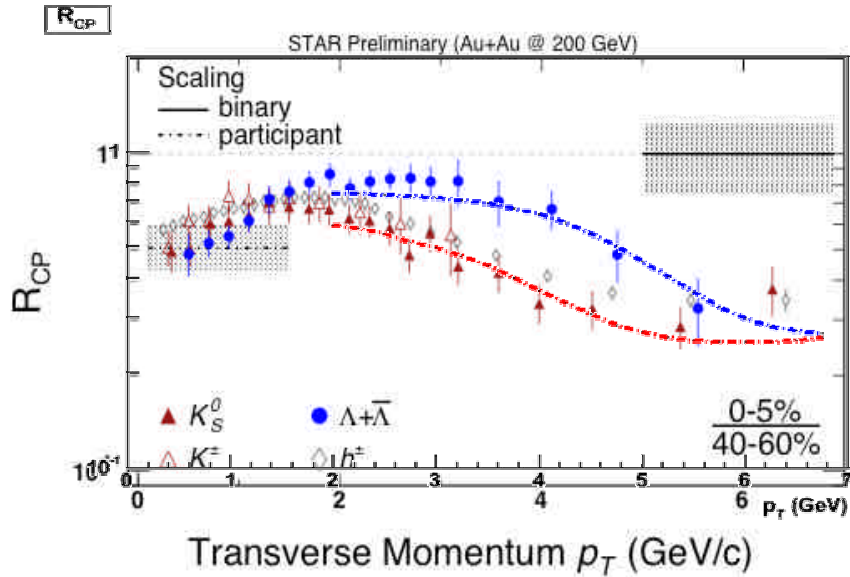
- « *See you in Quark Matter...* »
 - Entendu au moins quinze fois
- Ça va être charmant !

Plus anecdotique :

- PHOBOS s'arrête...
- Aussi, PHENIX vote beaucoup...
- « Brookhaven serves perfect fluids »

Diapos de secours

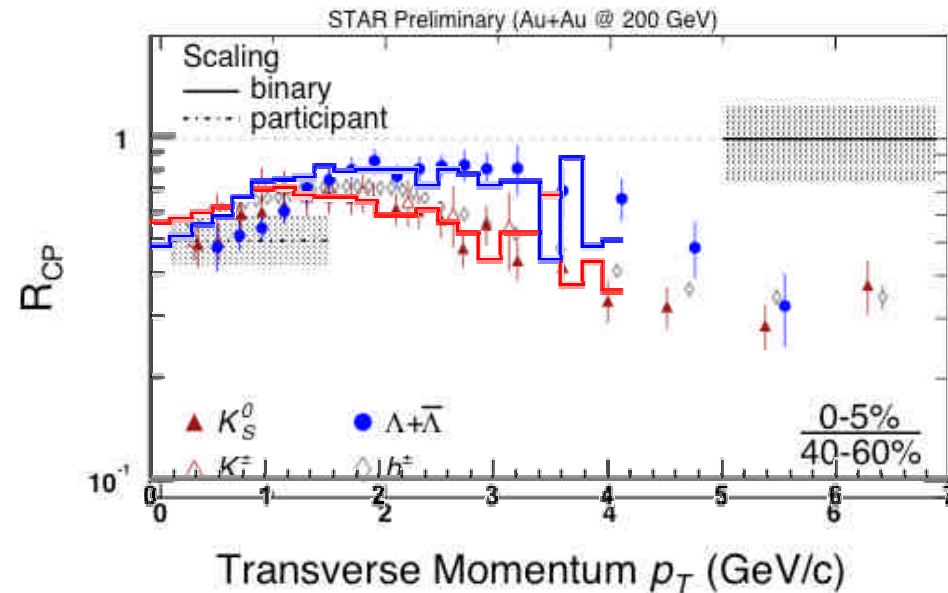
Théorie R_{CP}



Fries et al nucl-th/0306027

Reco for K^0 s and $\Lambda+\bar{\Lambda}$
Central ($b=3\text{fm}$) / Peripheral ($b=12\text{fm}$)

Topor-Pop et al (nucl-th/0407095)



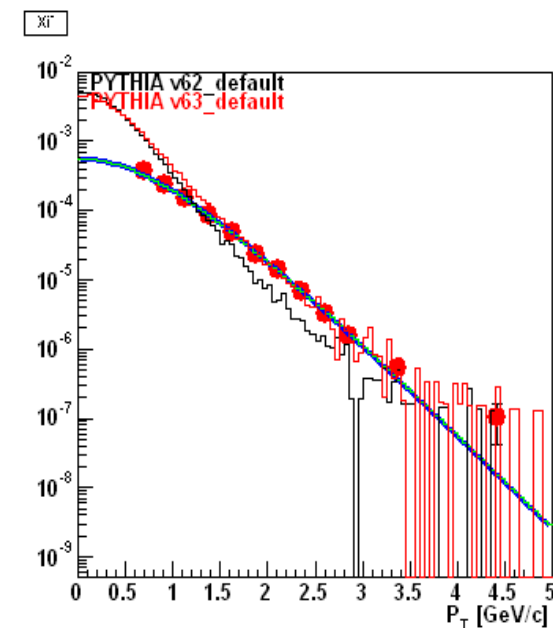
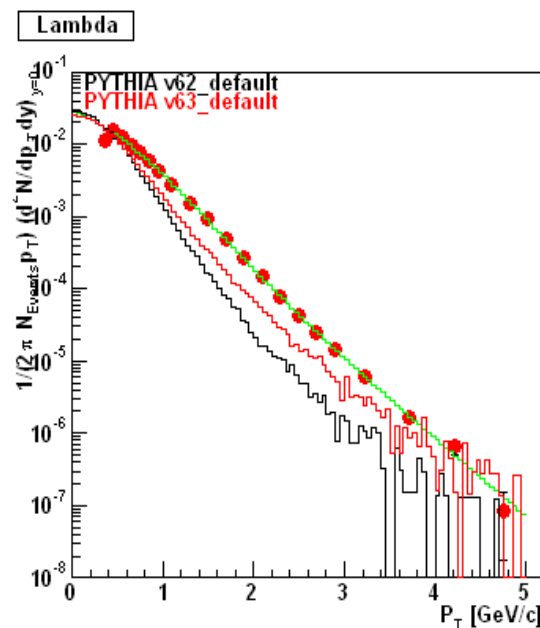
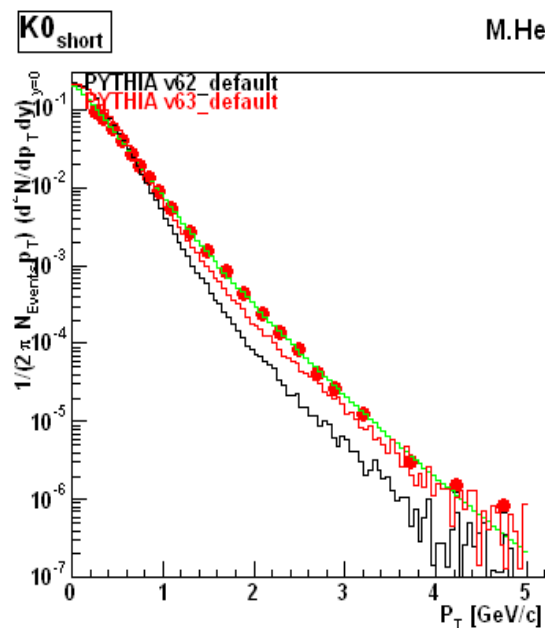
Hijing/BBbar v2 0-10% / 60-90%

For $K^- + K^+$ and $\Lambda+\bar{\Lambda}$

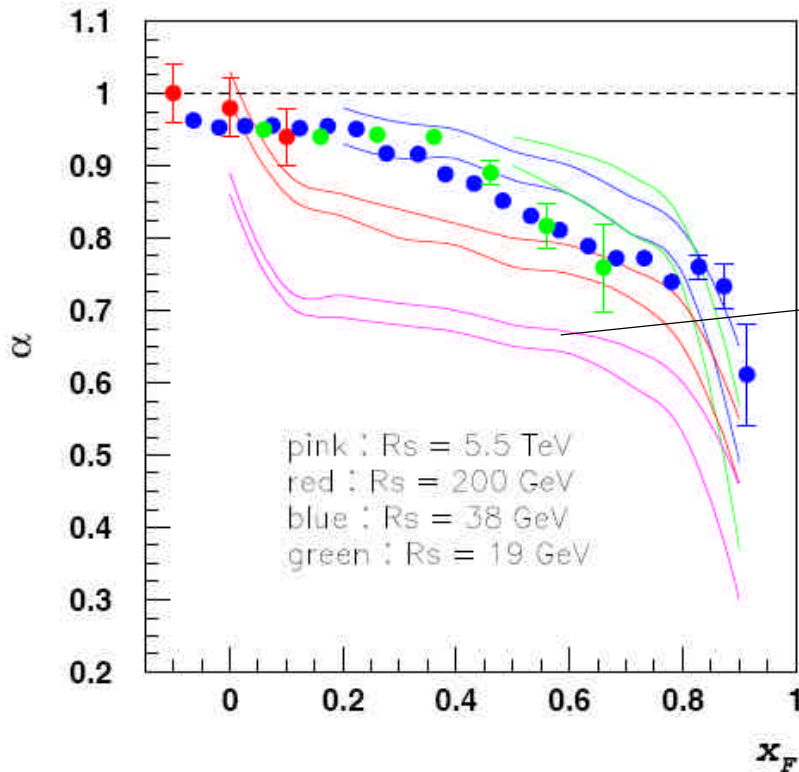
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Do we understand the baseline ?



x_F scaling...



$$S_{pA} = A^a S_{pp}$$

- ✓ Note $\alpha=2/3$ plateau: collision of two black disks.
- ✓ x_F scaling at lower energies is due to slow dependence of Q_s on energy.
- ✓ If proton saturates (at LHC?) α will scale with x_1 at forward y (not shown).