Baryon to meson ratio from pp and Au+Au collisions

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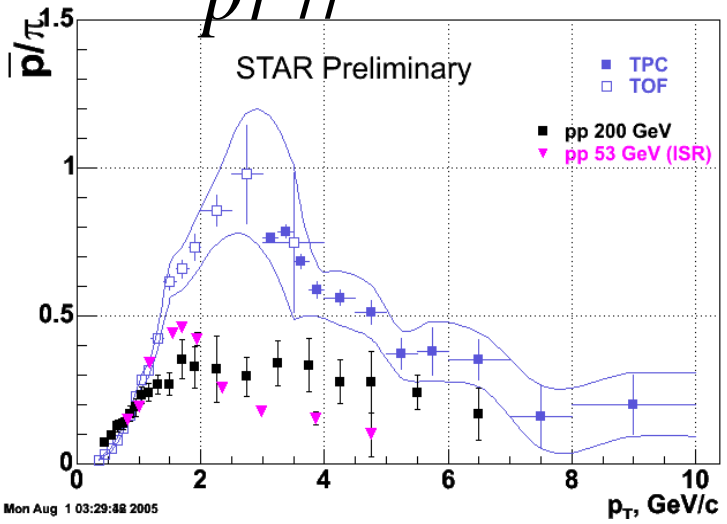
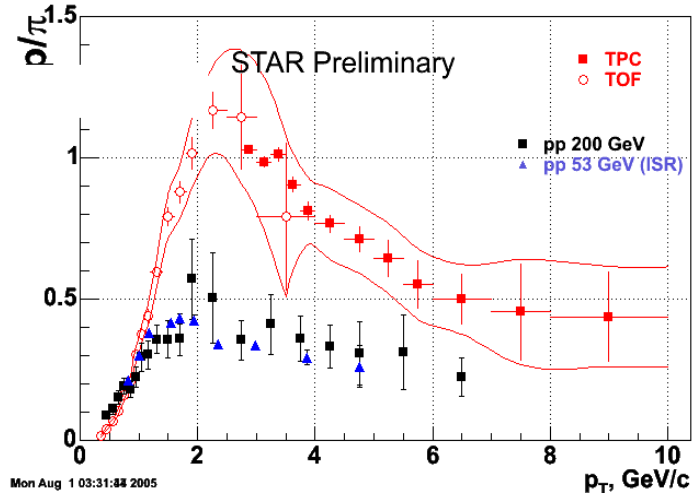
Experiment: Proton/pion ratio at RHIC

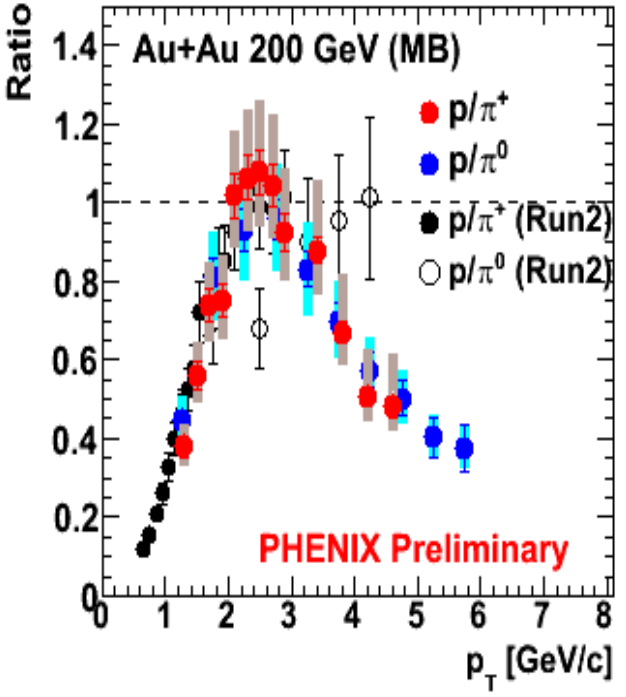
200 GeV Au+Au, 0-5%

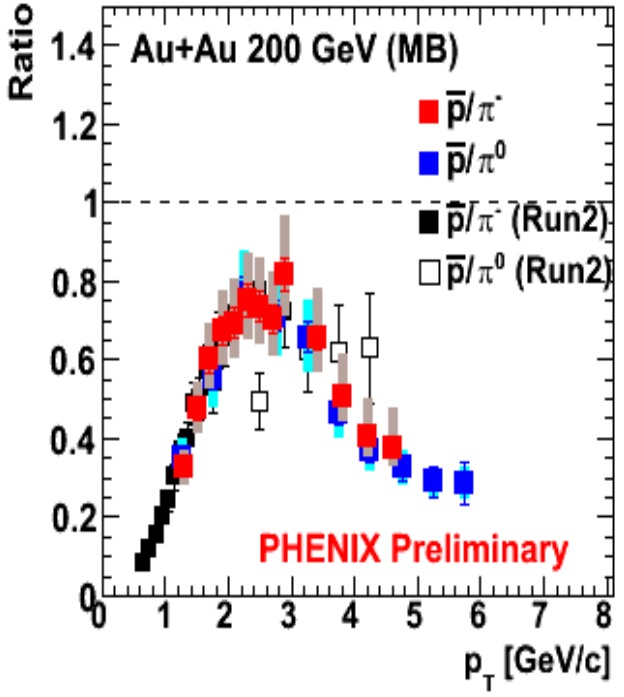
$\bar{p}/\pi^-$



p/π^+







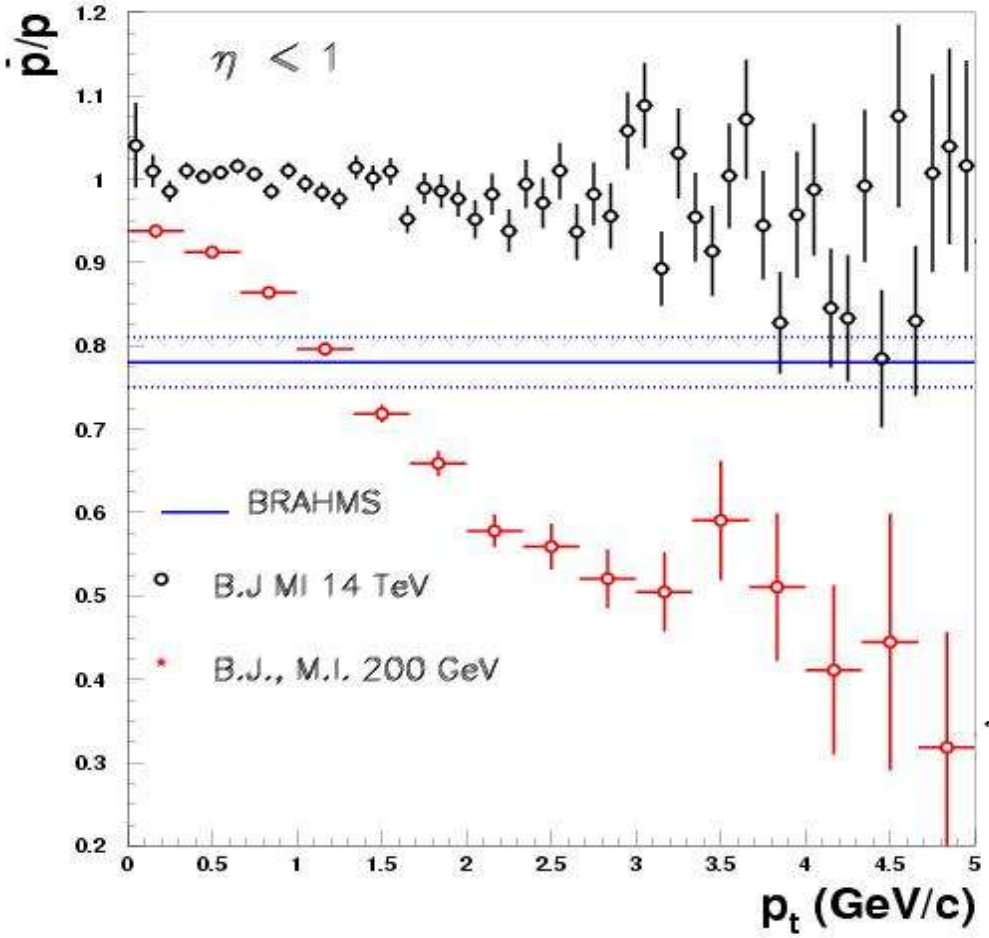
– increase at intermediate p_T

– decrease at high p_T "PUZZLE"

The baryon/meson ratio provide information about production mechanism.

transition from soft to hard processes at intermediate pt

Antiproton/proton at 200 GeV and 14 TeV

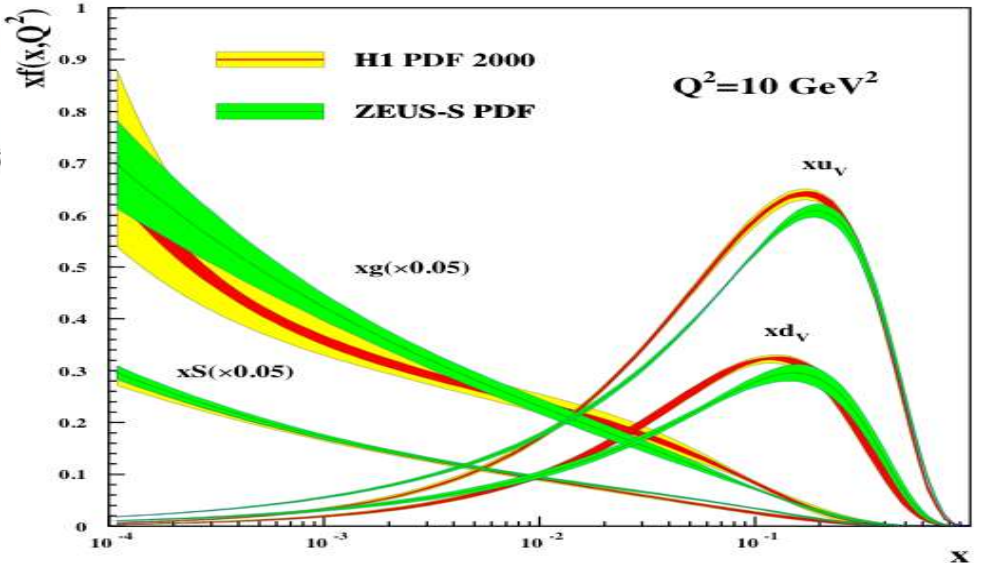


✔ **Pythia production mechanisms does not reproduce data.**

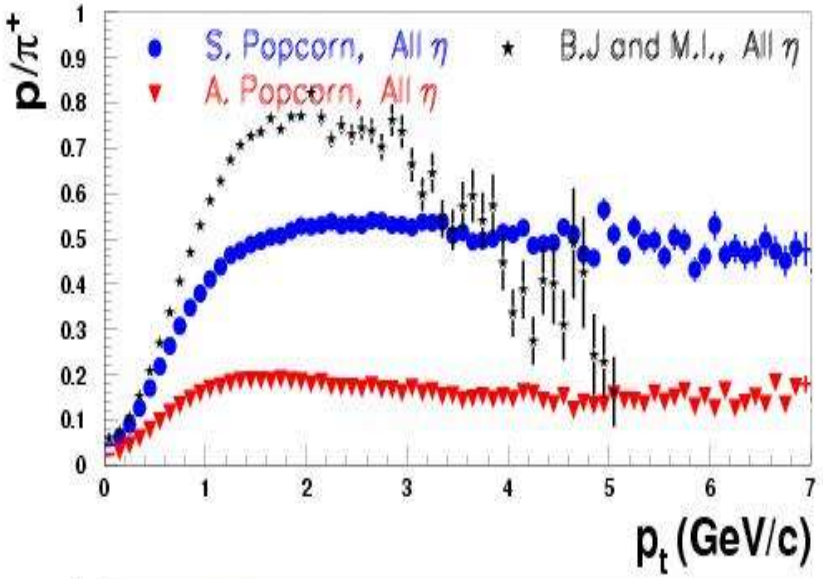
✔**Different models produce differents behaviour.**

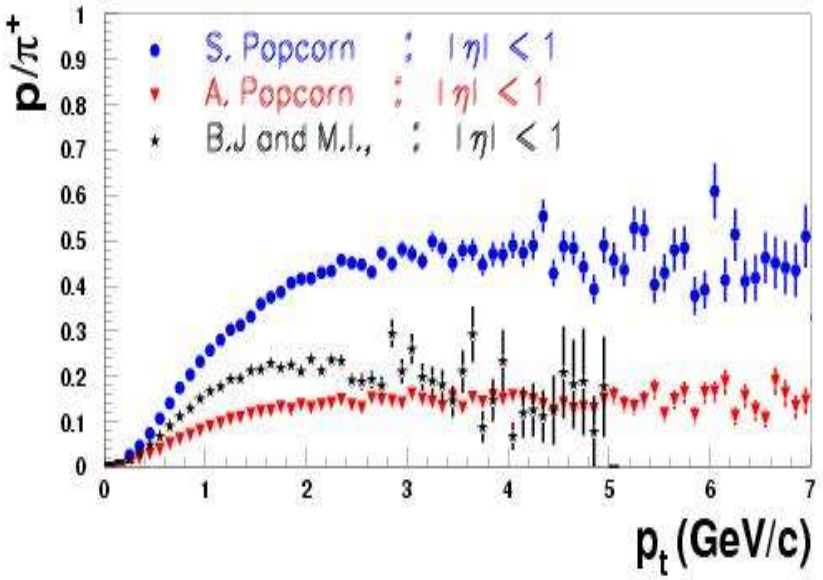
✔**High energy conduce to different shafe on the spectrum.**

$$x_{1,2} = \frac{p_t}{\sqrt{s}} e^{\pm y}$$



Results from pp at 14 TeV

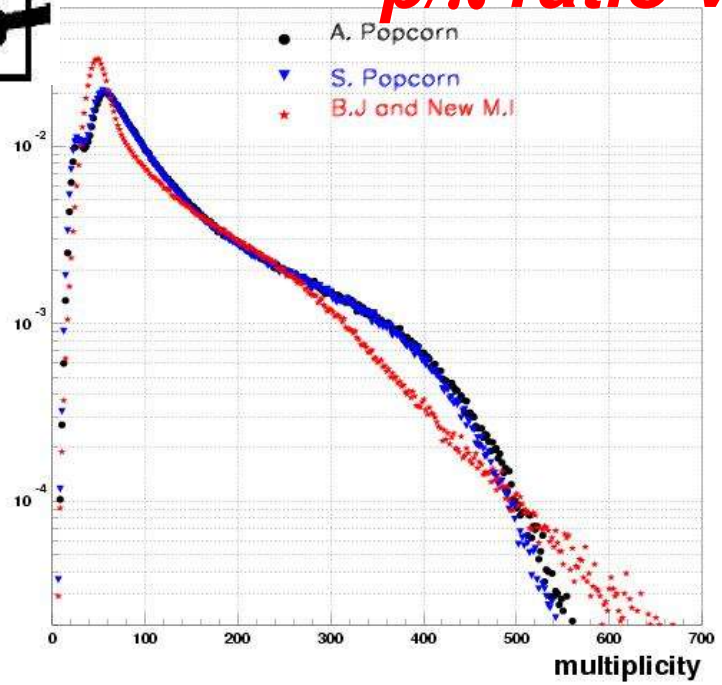


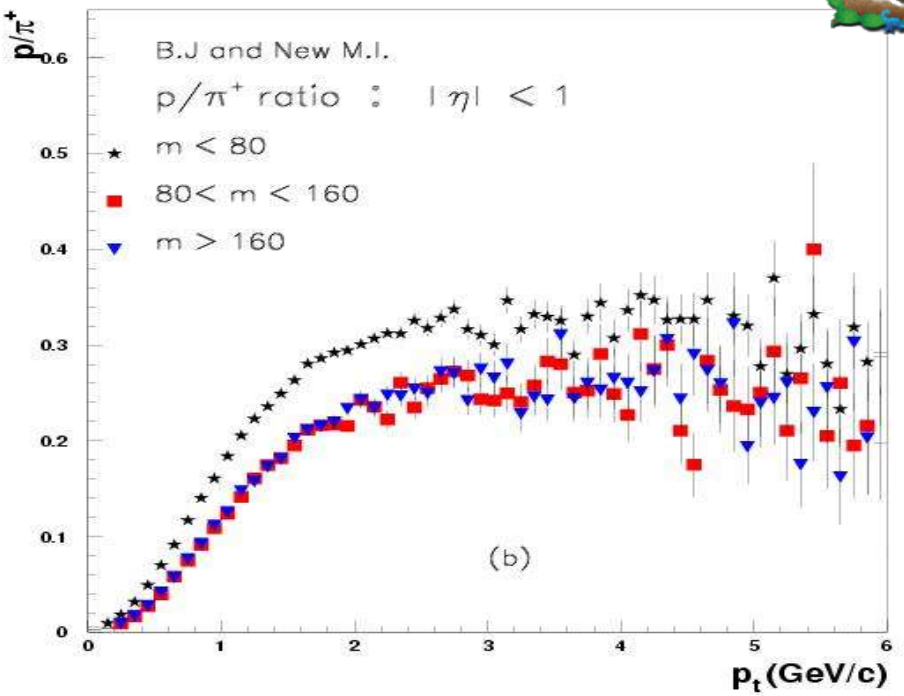


✓ *The energy seems to increase the pt distribution on B-J respect to Popcorn.*

✓ ***The p/π give us a width band to production models. It is posible to see the difference in the experiment?***

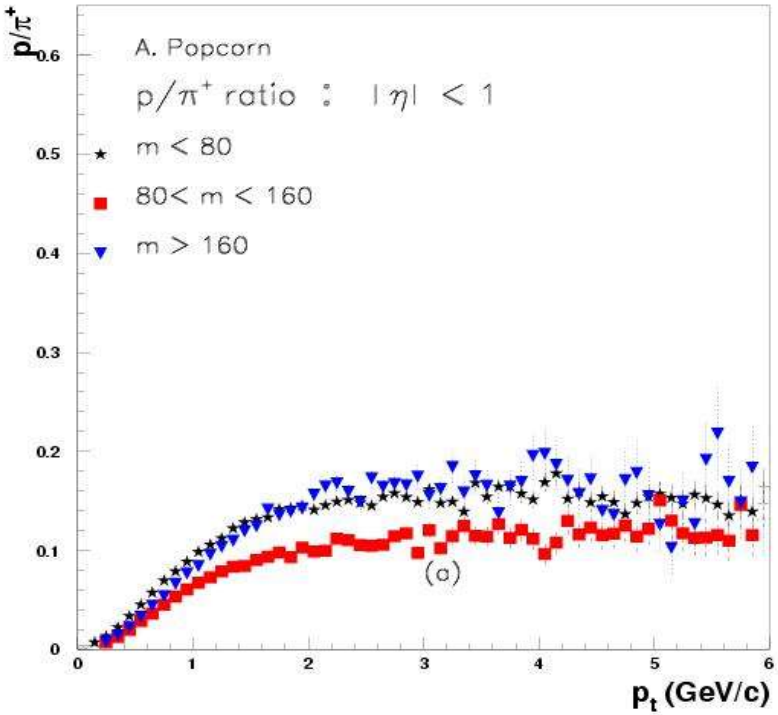
p/π ratio vs. multiplicity (pp at 14 TeV)





- *Multiplicity increase with the energy, allowing to study the baryon/meson on this variable*

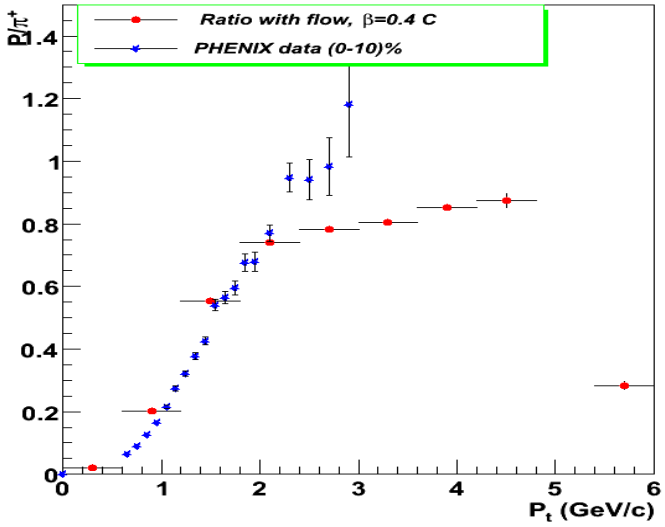
- *Preliminary results show a width band for p/π as function of the multiplicity.*



PHENIX Au+Au data vs HIJING+ radial Flow

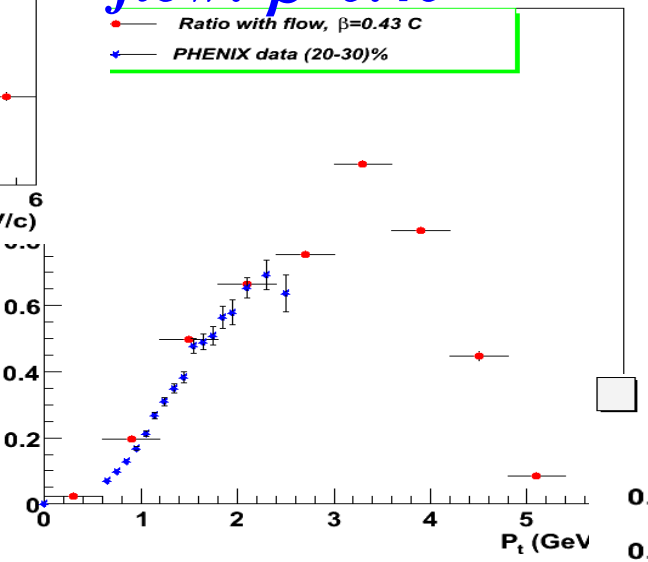
Au+Au (b=(0-4.6)fm)

flow: β=0.43c



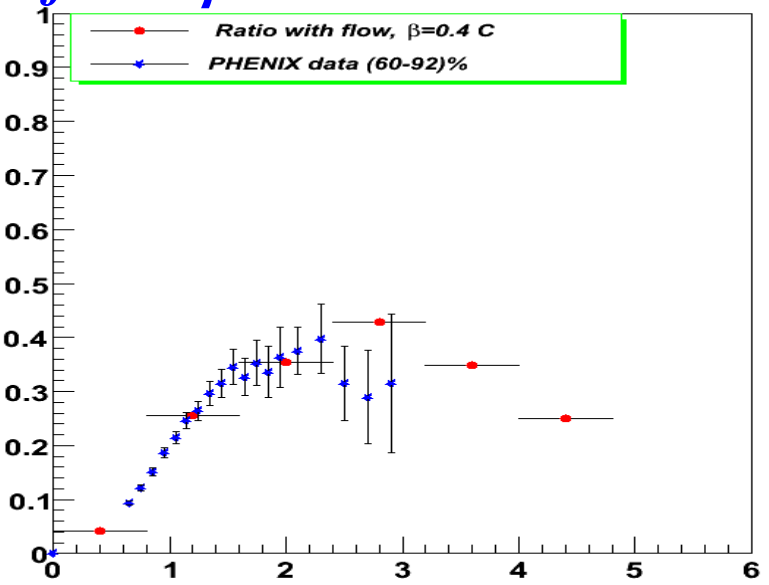
Au+Au (b=(6.6-8)fm)

flow: β=0.4c



Au+Au (b=(11.4-14.4)fm)

flow: β=0.3c



Au+Au collisions with radial flow can reproduce experimental results to different centralities

SUMMARY

We have studied different scenarios of production mechanisms of p,K,π,Λ with Pythia 6.3, and HIJING:

P/π ***Has a p_t dependence.***

The p/π and Λ/K ratios vs p_t, E, η and multiplicidad, indicate:

- ✓ ***Different behaviuor among models, (there is a big discrepance).***
- ✓ ***The differences among models are sensitive to multiplicity, E and η.***
- ✓ ***p/π, and Λ°/K. ratios has the same behaviour***

RHIC data on Au+Au can be describe by HIJING plus radial flow for all centralities

PERSPECTTIVA

- ✓ ***Make reconstruction, identify particle and calculate the baryon/meson ratio at ALICE energies***