

Discussion session on hadronic resonances and transport

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Outline of discussion

- * Questions on thermal models
- * Questions on hadronic transport
- * Questions on fluid dynamics
- * Questions on experiment

Questions on thermal models

Questions to Krzysztof:

Maybe for thermodynamic quantities, t-channel is not important but how do we know that its not important for transport

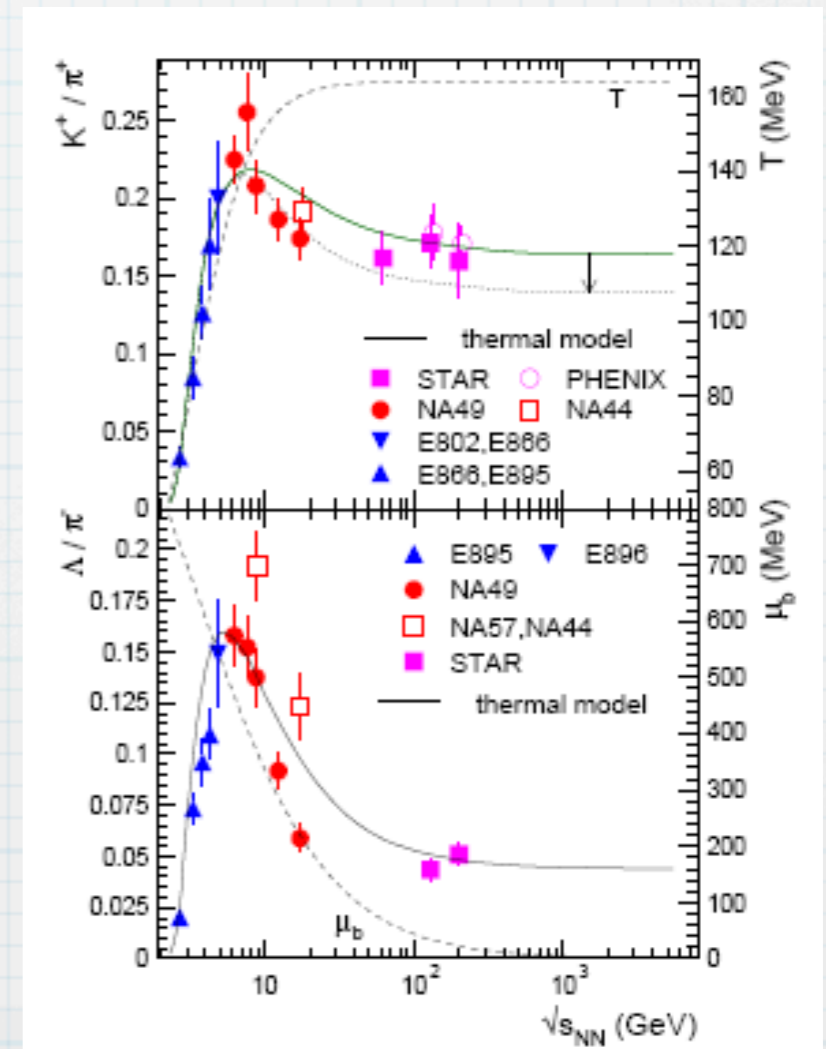
Why does equilibration rate not influence your conclusions ?

What will happen to this plot if you had a large number of strange (S) resonances?

Would we get the extra k/π , Λ/π from these new resonances? **No!**

Traditional explanations rely on first order phase transition (Koch, AM, Randrup)

What about the excluded volume ?



Questions on Boltzmann Equation

From Steffen :

Hmm! what's missing ?

$$\left[\frac{\partial}{\partial t} + \frac{\vec{p}}{m} \nabla_r \right] f^1 = C_{\text{coll}}$$

Where is the Vlasov term ?

If the medium very dense, can we remain at the 2-2 collisions or do we now need the mean field.

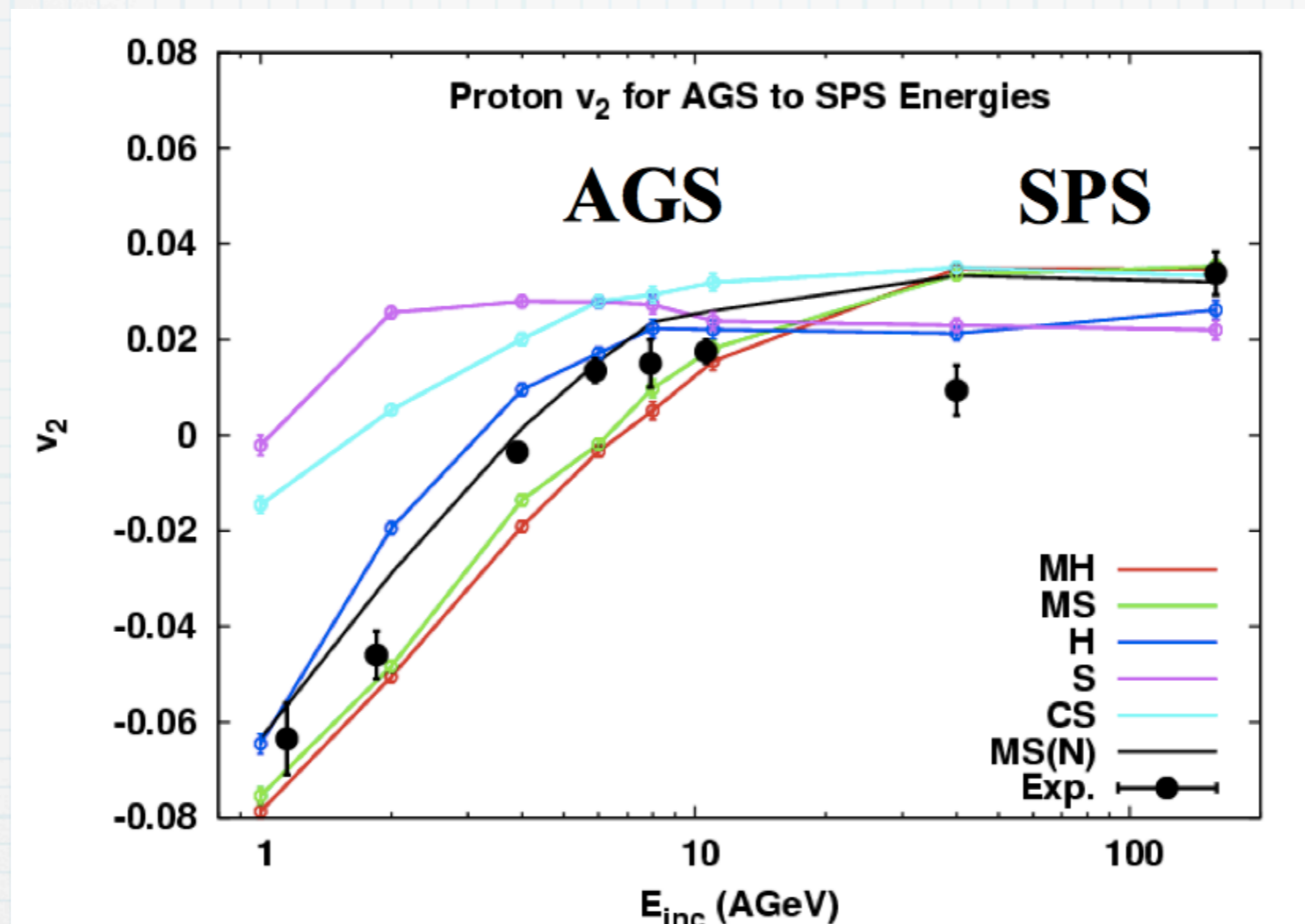
What degrees of freedom are contained in string excitations

PYTHIA doesnt have these new resonances right ?

why does the string gas have a lower limiting temperature

How does transport coefficient extraction, depend on resonances

Regarding that mean field



Is this still true with an exponential hadronic spectrum, a whole bunch of heavy hadrons which are not carrying a lot of kinetic energy

Questions on Hydrodynamics

Is it clear that many body effects are unimportant for transport coefficients ?????

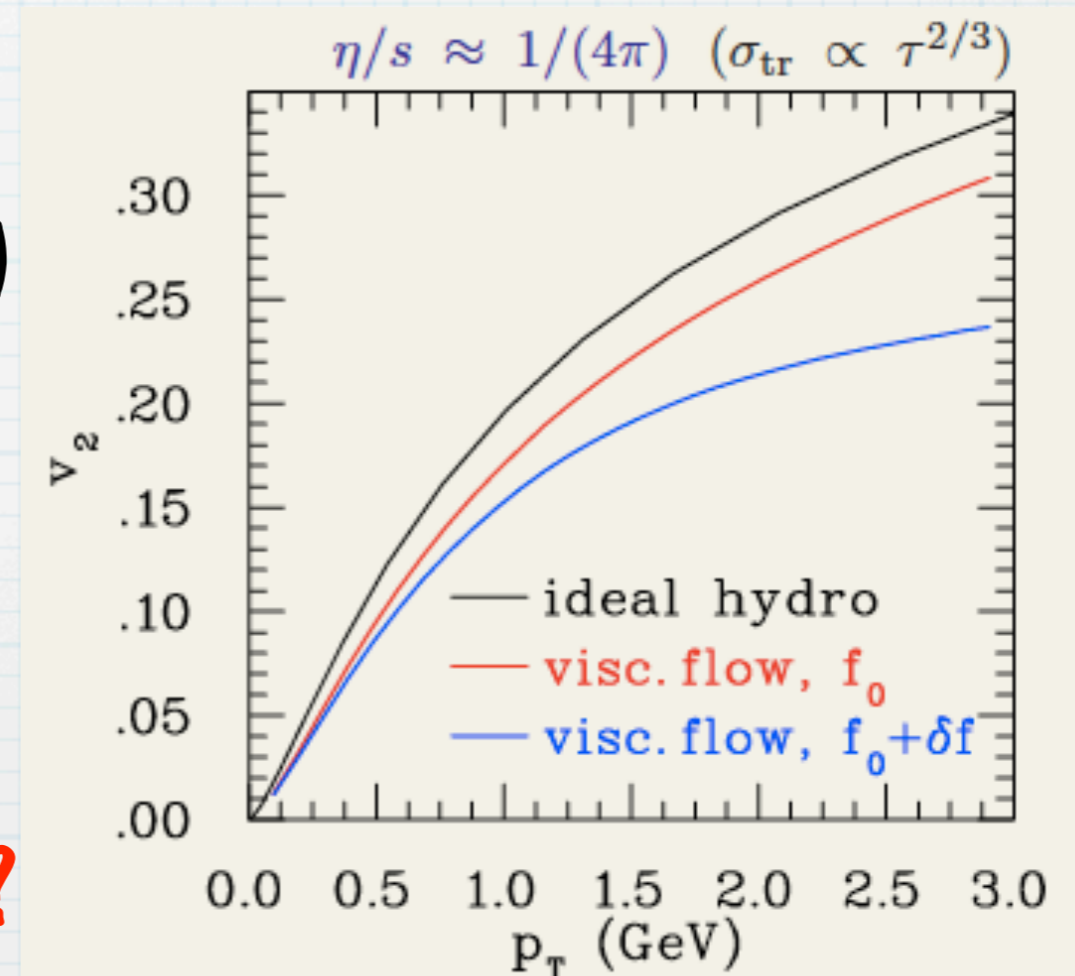
One seems to get away for thermal quantities: e-3p doesnt care about pions

What was that comment again about volume corrections ?

How far can you push (2nd order visc.) hydro into the hadronic phase ?

No sensitivity to plasma viscosity (seriously) ?

How do you go from hydro to cascade ?



Questions on choosing your experiment

Why are we focussed on RHIC, the SPS spends much more time in the hadronic phase ?

Also question to Pasi: if we had a first order phase transition at $\mu_B \neq 0$, would we not be spending a lot of time in the mixed phase ?

We can learn about pure hadronic effects e.g., ρ broadening see NA-60 ?

Can we set up an effective field theory description for this phase, like the VMD model ?

Question to Krzysztof, what will happen to Marek's horn if there are all these new resonances