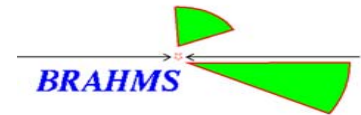


Beam Use Proposal
Considerations and preparations.
June 5, 2003



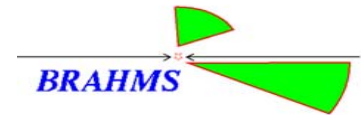
F.Videbæk
Physics Department
Brookhaven National Laboratory

Overview



- Considerations
- Brahms Physics
- Straw man model for Baseline physics
- Lower energy run.
- Preparing the RBUP.
- Discussion

Considerations



The PAC Meeting is September 29-30, 2003.

The Beam Use Proposals

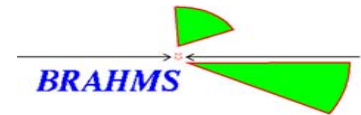
(BUPs) due on August 29, 2003, close-of-business.

The present running of RHIC where a switch-over of beam species clearly takes more than 2+3 weeks, the expected DOE NP funding which has 26 weeks for physics running, has caused T.Kirk to pronounce at several occasions that it is un-wise (realistic) to plan on more than one specie per running period.

In addition CA-D has a project for snake-upgrade (construction?) in the AGS that will not be completed for the next years running. A likely scenario is thus that the FY04 running will be heavy ions (Au-Au).

This was also implicit, though not guaranteed, in the PAC recommendation from the previous RBUP meeting.

The Proposals has to be strong and clear to fend off the growing suspicion that RHIC is moving toward a two experiment facility.



As by CDR..

Au-Au complete survey

i.e. Centrality and rapidity dependence
Energy dependence.

Light Ion Physics

How important is this considered by the coll.

pp, pA comparison

Other issues has emerged

Physics

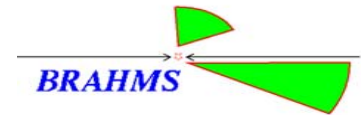
High p_t and flow has emerged as important.
Gluon saturation may (or may not be important).
Opportunities for spin physics in Brahms (An).

RHIC performance

Less running time(28 weeks expected in Fy04 vs nominal 37 an 30(31) in FY 03.
More difficult species (energy) switching

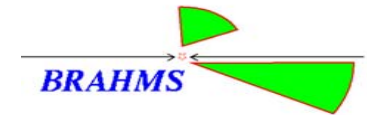
Collaboration

With the present collaboration the most important part of the Baseline physics should be completed in the next two (three?) run-periods due to LHC commitments.

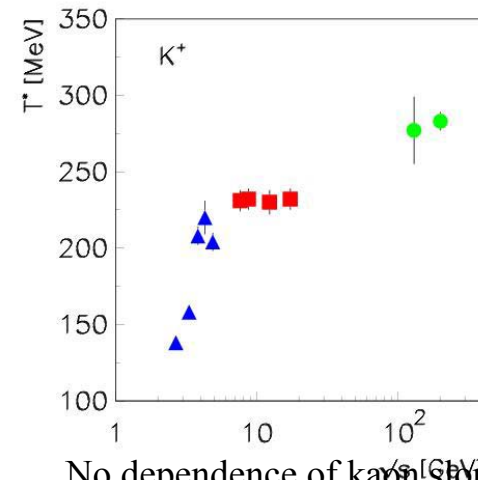


- RUN-4
 - Beam: Au-Au at 200 GeV.
 - Physics program
 - Centrality dependence at a **few** rapidities.
 - Few to ensure high quality and statistics
 - Push overall distribution to higher rapidities
 - Additional 3 and 2.3 deg running
 - Is flow possible? If not ensure it can be done. This will strengthen our case considerably.
 - Other energies ? Maybe a quicker switch-over. See subsequent discussion.
- RUN-5
 - If there is no **pp** in run-4 it is almost a certainty the beam will be pp at 200 GeV (STAR/PHENIX and RIKEN program).
 - Physics
 - Complete comparisons ? Particular if the dA/pp analysis shows a need for this.
 - Ann transverse polarization. This is a feasible measurement; An idea from B.Fox is to request this be a dedicated Brahms run (~1 week) with high luminosity and long life-times at the
- Light Ion
 - Run-5 or Run-6 ?
 - Physics
 - High pt comparisons (at large y ?
 - N_{part} , N_{coll} dependencies

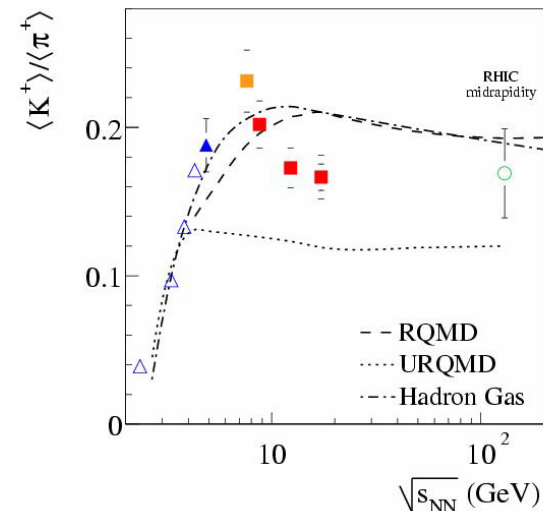
Lower energy (Energy scans')



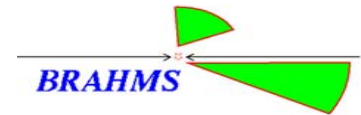
- Other experiments and theorist (B.Muller and Guylassy (both on PAC)) are making statements to this importance.
- In particular Berndt is pushing this need by a non-electronic letter to Kirk+spokesperson that lower $\sqrt{s_{NN}}$ is crucial based on SPS results.
 - No dependence of kaon slope parameters on energy at SPS
 - Sharp maximum for K^+/π^+
 - Do also hear Mareks talk on Saturday.
- I am note here to defend these results but to point out arguments that has to be discussed.
- Too R_{AA} at intermediate energies.
- Are we interested in a run at intermediate energy say $\sqrt{s_{NN}} = 56$ GeV (below transition?) or above
- In that case what can we do?



No dependence of kaon slope parameters on energy at SPS

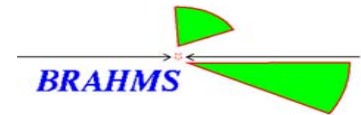


Preparing for the RHIC BUP



- I really want people involved in this process at an early stage.
- Have subgroups responsible for working out material for
 - 200 GeV measurements
 - Lower energy estimates
 - Light HI.
 - Pp
- A work group is for us a few people that looks into this and come with a report in the time-frame of end July so a consensus can be reached and the final document prepared in August.
- It is crucial for BRAHMS this gets done well!! So get involved if you care.

Discussion



Follow-up to the points I made.

1. Program and prioritization
2. Who will take the lead?
3. Other issues relate to running in run-4 and run-5.