-The targets used in the experiment are described in L 131. However, they are mentioned earlier in the text. Therefore, I suggest moving L 129-135 to the beginning of the paragraph at L 119.

Answer: Done

-L 180: I think the statistical uncertainty quoted is incorrect. If I understand the procedure correctly, the background uncertainty is dictated by the uncertainty in the normalization factor of the mixed event background. We could discuss this separately if needed.

Answer: Indeed, the background normalization uncertainty is determined from the statistical uncertainty beyond the signal mass range.

Correction to the text: errstat = √hist + (\delta bg)^2, where hist denotes the histogram integral yield within the selected M^2 window and \delta bg is the background normalization uncertainty.

L 239-244 centrality determination: In the event generator, it is easy to divide any distribution into the two centrality classes, 0-40% and 40-100%. It is not clear to me how you do that in the data. Obviously, the data are not sensitive to 100% of the total cross-section, and you do not discuss what fraction of the cross-section is recorded.

Answer: Data signals are corrected for the trigger efficiency measured in data as a function of the number of tracks from the primary vertex. Applying the trigger efficiency in simulation gives its dependence on the event centrality shown below. The trigger efficiency is a smooth function of the event centrality up to 100%.

See the text at L 226-229 in the draft: The trigger efficiency decreases with a decrease in the mass of the target and an increase in the centrality of the collision. More details of the trigger efficiencies evaluation are given in ref. [8]. Add to the text: In particular, the trigger system accepts events in the whole centrality range, as it is illustrated in Fig. 10 of [8].

Below we repeat the procedure for definition of two centrality classes of 0-40% and 40-100% described in Note:

https://indico.jinr.ru/event/4165/attachments/17543/29919/Note_centrality_pdt_text.pdf

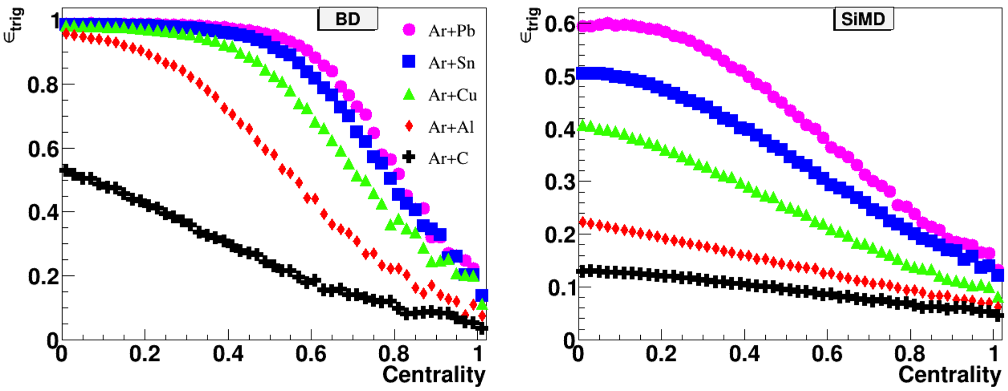


Figure: Trigger efficiency as a function of the event centrality evaluated in DCM-SMM simulation for Ar+A interactions. Left plot: BD detector trigger efficiency, right plot: SiMD detector trigger efficiency. All the data distributions shown below are corrected for the trigger efficiency.

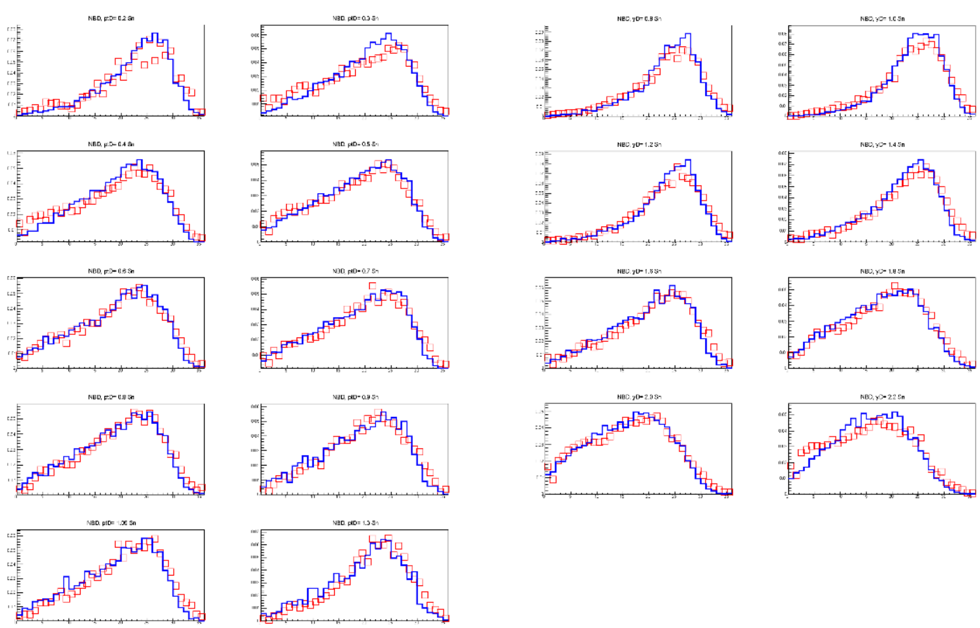


Figure: The probability density function (PDF) distributions of NBD hits in experimental and simulated events with identified deuterons for 10 bins in pT (left plots) and 8 bins in rapidity y (right plots). Data and simulated distributions are normalized to 1 in every pT and y bin.

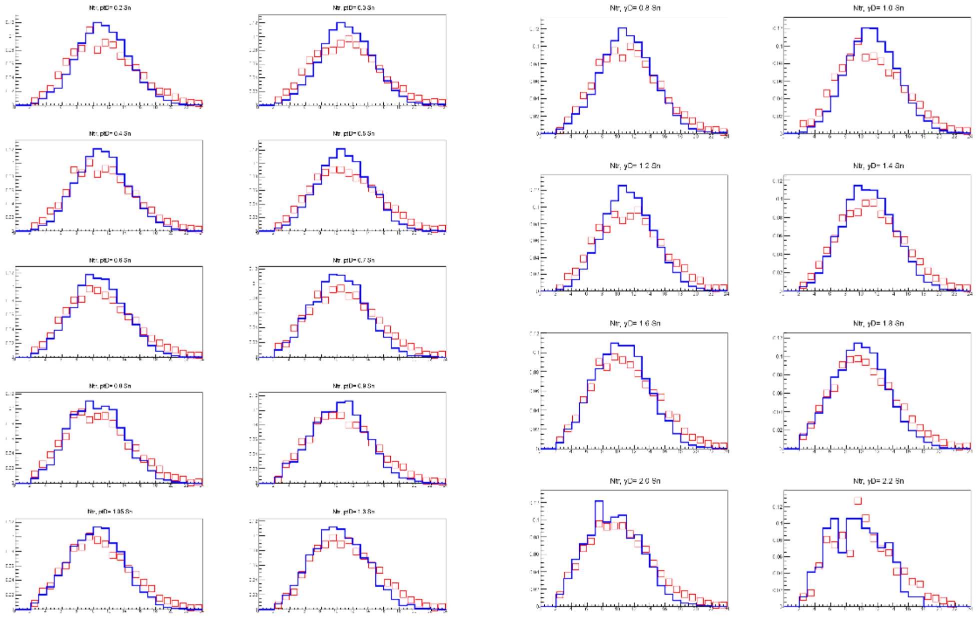


Figure: PDF distributions of the number of tracks Ntr in the vertex in events with identified deuterons (ToF-400) for bins in p_T (left set of plots) and in *y* (right set of plots). Blue histogram - DCM-SMM simulation, open red symbols – data.

→ The shape of the PDF distribution of NBD and Ntr in data and simulation are in reasonable agreement.

1.Cumulative distributions for every pT and y bin are build from the distributions of Ntr and NBD in data and simulation. Examples of the cumulative distributions of Σ(Ntr<=i)/Σ(Ntr all) and Σ(NBD<=i)/Σ(NBD all) integrated over all pT and y bins are given in Figure below.

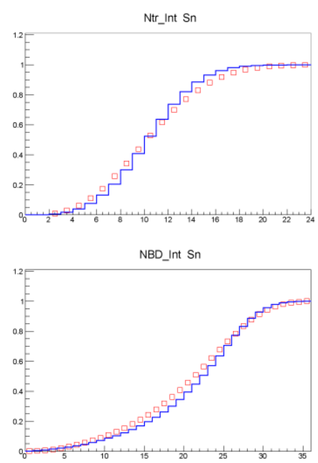


Figure: Cumulative distributions of Ntr and NBD in events with identified deuterons integrated over all pT and y bins. Blue histogram – DCM-SMM simulation, red open symbols – data.

2.Using results of DCM-SMM simulation, the fraction (probability) of reconstructed events, which belong to the centrality classes 0-40% and 40-100%, is calculated.

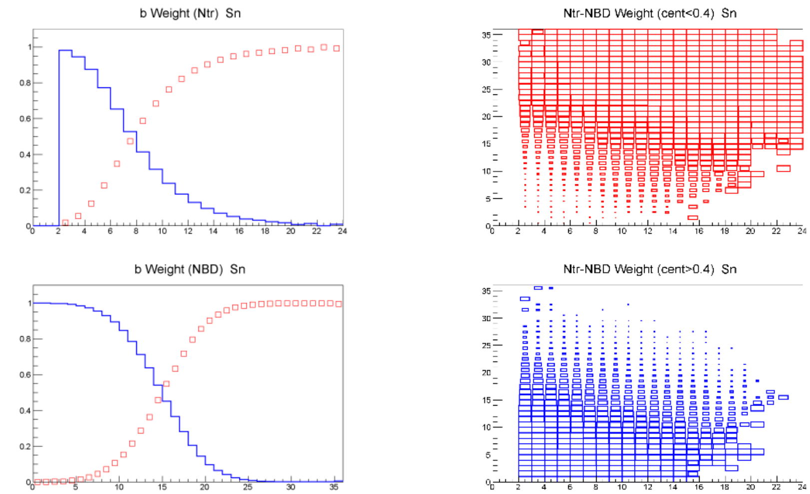


Figure: Probability of events with centrality 0-40% and 40-100% as functions of N(tracks) , N(BD) and as a two-dimensional distribution N(tracks) / N(BD).

The probablity distributions of events with centrality 0-40% and 40-100% are transformed from the NBD/Ntr bins in simulation to the NBD/Ntr bins in data with the same value of the cumulative factor. The result of the transformation of the probability distribution of events with centrality 0-40% is shown as a function of the NBD hits for bins in pT and y in Figure below.

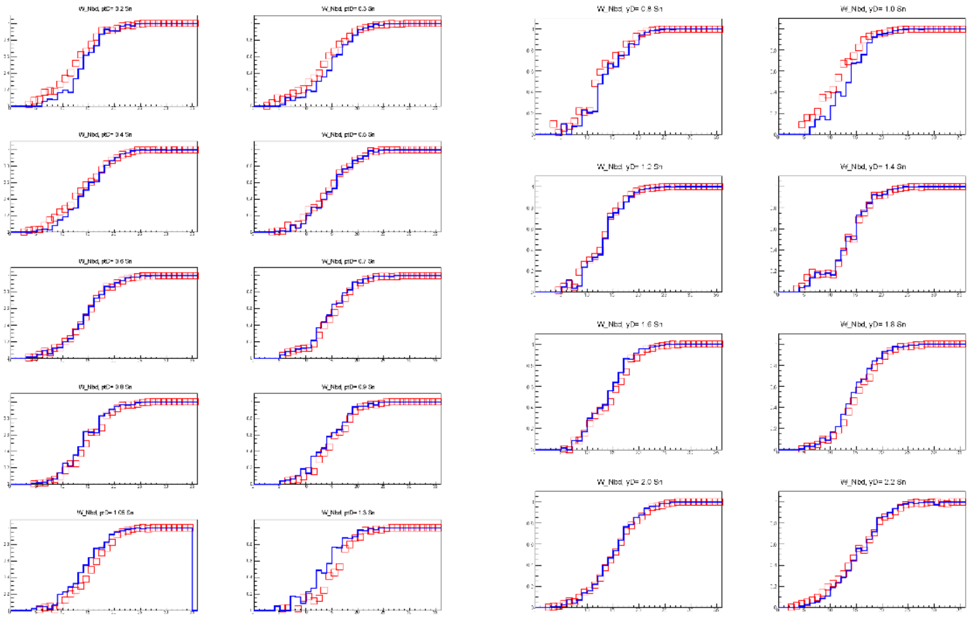


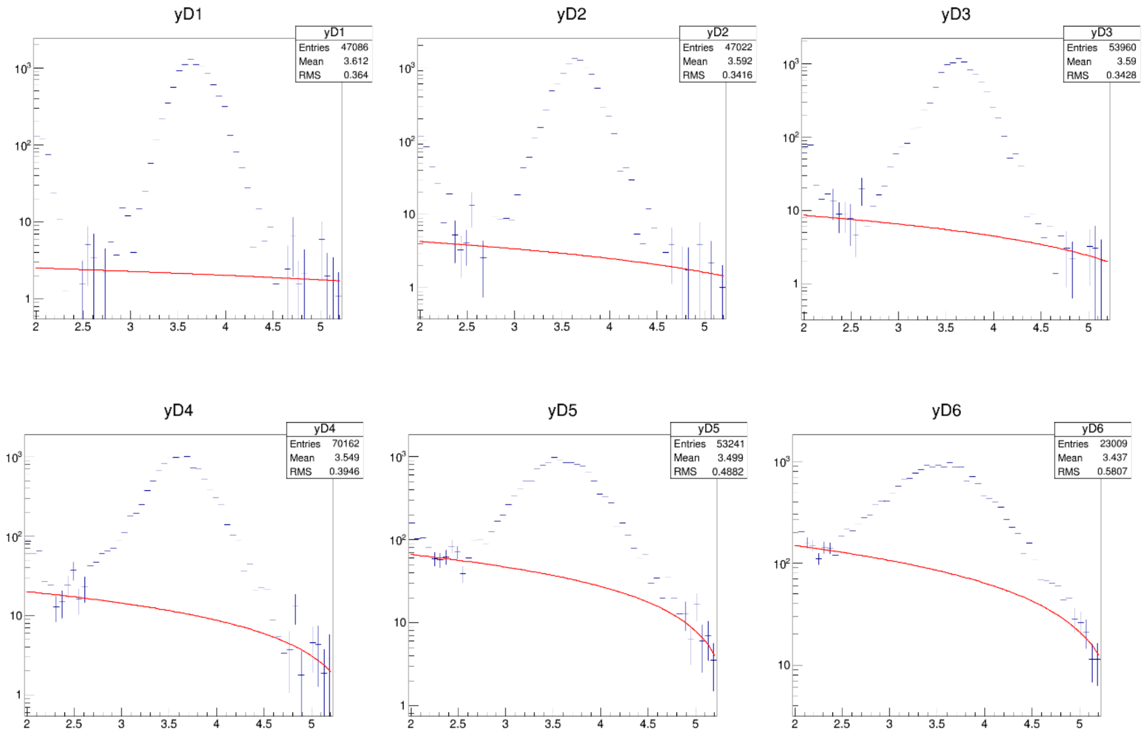
Figure: Probability distribution of events with identified deuterons with centrality 0-40% as a function of the NBD hits for 10 bins in p_T (left set of plots) and *y* (right set of plots). Blue histogram - DCM-SMM simulation, open red symbols – data.

L 269-303: the discussion of the systematic uncertainties is somewhat chaotic, particularly in what refers to the trigger efficiency. I made some changes and some reshuffling of the text, as you can see in the attached file.

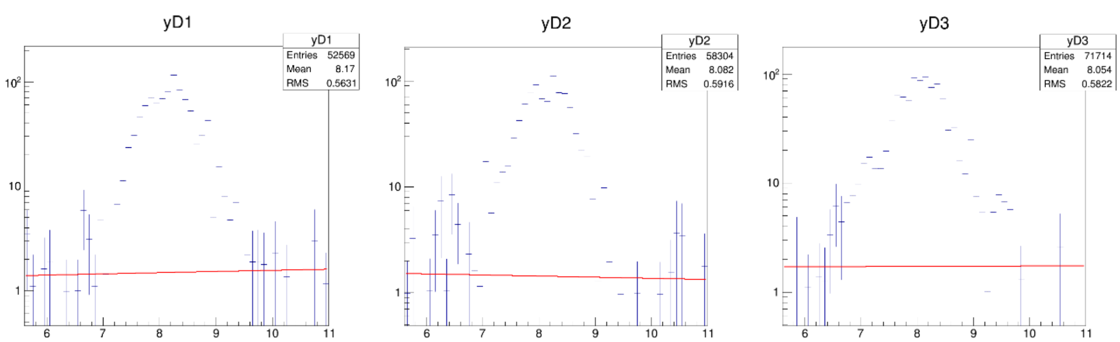
Answer: OK

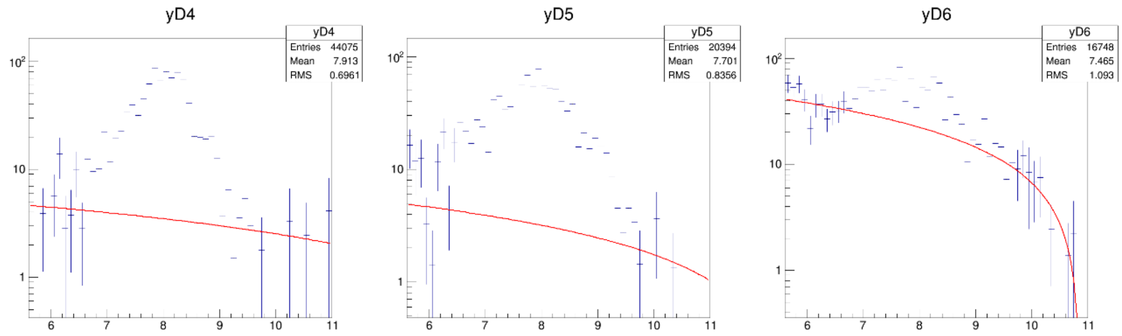
L 279: do you really mean a linear function? The background in Fig. 2 appears linear but in a semi-log plot.

Answer: A simple linear fit reasonably describes the background in the short ranges of the M2 spectra beyond the proton, deuteron and triton peaks.



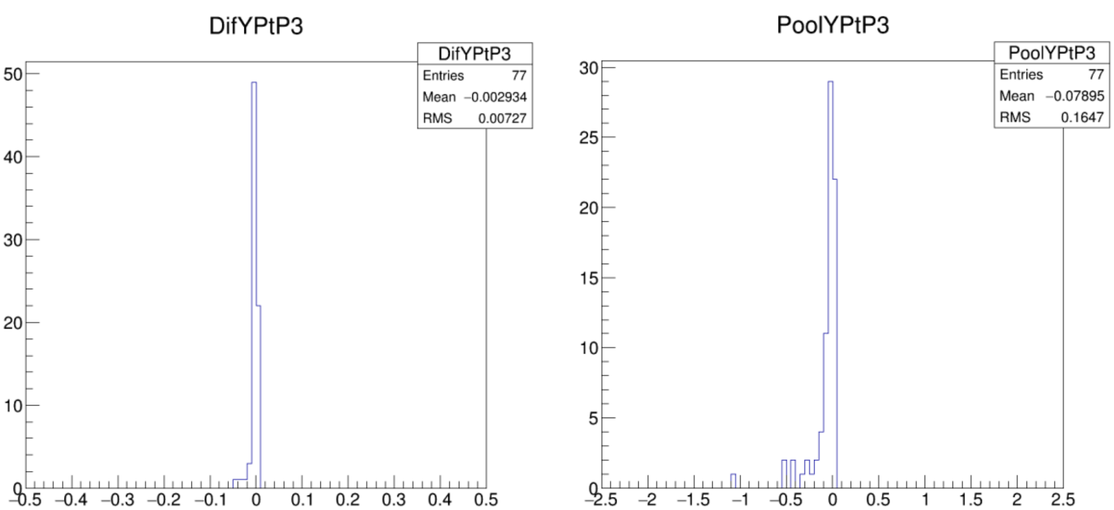
Data spectrum of mass squared in bins of y_{lab} of *deuterons* identified in ToF-700 in Ar+Sn interactions. The background is defined by a linear fit beyond the signal M2 range.



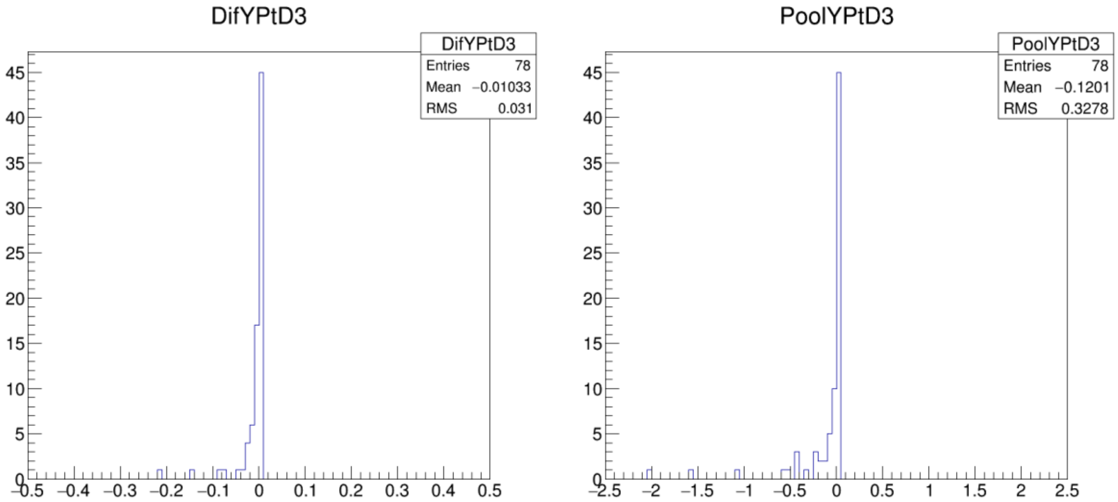


Data spectrum of mass squared in bins of y_{lab} of *tritons* identified in ToF-700 in Ar+Sn interactions. The background is defined by a linear fit beyond the signal M2 range.

The difference in the signal with the background defined by a simple linear fit (A· M2 + B) and by an exponential fit (A · exp (B·M2) + C) is within 1% (Diff distributions for protons and deuterons below). The difference is around 10% of the statistical error (Pool distributions for protons and deuterons below).



Left plot: Relative difference in the signal of protons obtained with a linear fit and an exponential fit of the background. Right plot: Difference in the signal of protons obtained with a linear fit and exponential fit of the background normalized to the statistical error (pool distribution).



Left plot: Relative difference in the signal of deuterons obtained with a linear fit and an exponential fit of the background. Right plot: Difference in the signal of deuterons obtained with a linear fit and exponential fit of the background normalized to the statistical error (pool distribution).

L 316-7: I think the values of T_0 should be listed in the paper or plotted as done for dN/dy.

Answer: we prefer to give all T_0 and dN/y values in a separated file on the BM@N web page and give a reference to it in the paper. Otherwise we should include into the paper a big table with 8 (y bins) x 5 (targets) x 3 (p,d,t) x 2 (centrality class) = 240 numbers with errors only for the T0 values.

L 356-376: there is a lack of clarity or even confusion among the denominations of the mean transverse energy. Figs 11 and 12 have exactly the same label in the ordinate, although they refer to different quantities.

The mean transverse energy is clearly defined in eq.3. I suggest using <E_T> as the label in the ordinate of Fig. 11. For clarity, in the caption of the figure, you could specify again that <E_T> = < m_T> - m.

Similarly, in Fig. 12, I suggest using the label <E_T(y*=0)>

Answer: We prefer to keep < m_T> - m as a label in Fig.11 and specify

E_T> = < m_T> - m in the caption. In Fig.12 we use the label <E_T(y*=0)> as you suggest.

L 371: what is the motivation for this functional form? Could you give a reference?

Answer: In the Boltzmann approach, temperature T has a simple dependence on the rapidity for an isotropic emitting source: T(y*=0)/cosh(y*). This parameterization is used to describe the dependence of the transverse mass slope parameter T on the rapidity y* in cms. The mean transverse mass is closely related to the slope T.

See examples of the T0/cosh(y*) parameterization:

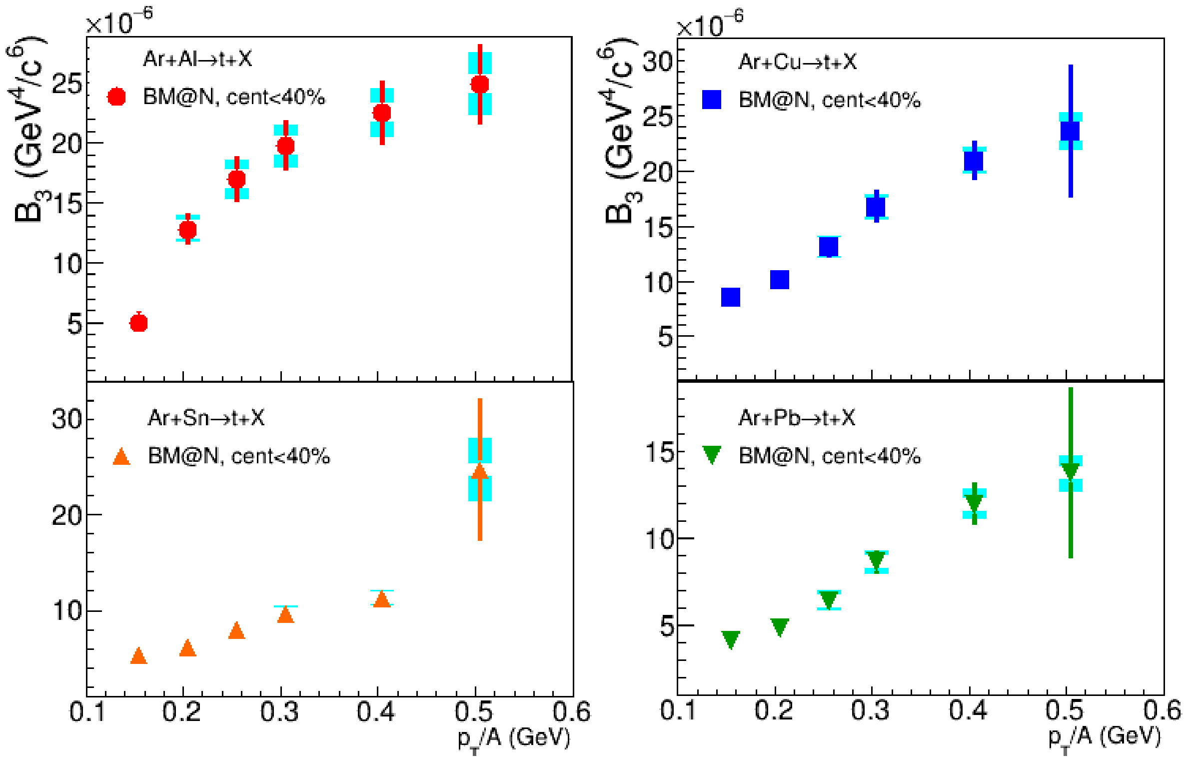
HADES, Phys.Rev.C 82 (2010) 044907, https://arxiv.org/pdf/1004.3881
FOPI, Phys.Rev.C 76 (2007) 024906, https://arxiv.org/pdf/nucl-ex/0703036
E896, Phys.Rev.Lett. 88 (2002) 062301, DOI: 10.1103/PhysRevLett.88.062301

L 404-407: Could you specify the energy of the EOS, NA49, and STAR measurements?

Answer: Done

L 439-440: The statement: "The B_2 and B_3 values at low p_T are smaller for heavier targets compared to lighter targets." appears to be correct for B2 but not for B3. Or is the vertical scale of B3 for the Sn target correct?

Answer: the vertical scale of B3 for Sn is corrected, see figure below.



L 441-447: How different are the B(pt=0) values extracted from the exponential fit from the values extracted from a linear fit? As mentioned in the text, the pt dependence of B2 and B3 shown in Fig. 13 looks more linear than exponential.

Answer: the difference in B(pt=0) extracted from the exponential and linear fits is up to 0.8 of the values for B2 and B3. The exponential fit is motivated from the model prediction that is why we use an exponential fit.

L 445-446: This sentence on scaling the errors is unclear to me.

Answer V.: Following the recommendations of the PDG group for averaging and fitting

(see J. Phys. G 37, 075021 (2010), Introduction, 5.2 “Averages and fits”),

the quoted error of an average of several values or a fit parameter should be increased by a scale factor S if chi2/ndf in the averaging/fitting procedure is greater than 1 (but not a very large!). The recommended definition of S:

S = sqrt(chi2/ndf)

The reasoning of this scaling is that a large value of chi2 in the averaging/fitting procedure is likely to be due to underestimation of some (or maybe all) errors of the data points. In this case, the fit parameter error can be increased by S, or alternatively, the fit procedure can be repeated with the data errors scaled up by S.

The sentence is rewritten as the following:

If the fit gives $\chi2/ndf > 1$ the uncertainty of the parameter $B_A(p_T = 0)$ is increased up by a factor \sqrt(χ2/*ndf)* following recommendation of the PDG group [].

L 461: "... for deuterons and tritons." Do you mean "...for C_d and C_t" ?

Answer: Indeed, it shoud be C_d and C_t. Corrected.

L 467-472: Instead of: "It is found ...energies", I suggest writing: "Fig. 15 exhibits a weak increase of the coalescence radii as a function of the center-of-mass energy in the nucleon-nucleon system. The results reported here also indicate no dependence of the coalescence radii with the system size within the experimental uncertainties."

Answer: Done

Fig.16: The text says that what is being plotted is the baryon density as given by the expression in L 475. The legend in the figure is in contradiction with that.

Answer: The item legend changed to “data”

Fig.16 left panel: Please check the numbers or the scale on the vertical axis. Something seems unphysical here. The total net baryon is a conserved quantity. However, the integral of dN/dy, as plotted in the left panel gives a total baryon number of app. 210! This is a factor of 2 higher than the total baryon density of the colliding Ar and Cu nuclei. I don't believe that there are so many baryon-antibaryon pairs produced at this low energy, as correctly mentioned in the text.

Answer: We present the baryon rapidity density dn/dy in Fig.16, that is the number of baryons in a rapidity bin divided by the bin width. The width of the rapidity bin is delta_y = 0.2, so that, the total baryon number for the rapidity distribution shown in Fig.16 is 210 * 0.2 = 42.

L 521-534: You state that R_dp is related to <f_p> but you do not specify what this relation is. Without that, it is hard to follow the subsequent explanation.

Answer: You are right, this description is somewhat misleading. Nucleon phasespace density <f_p> is related to the ratio of the invariant yields of deuterons and protons in corresponding momentum bins (equation 10), while R_dp is defined as the ratio of dn/dy values. To avoid confusion I commented the lines with a possible interpretation of the saturation of R_dp (lines 526-534).

L 536: "the particle ratios..." what particle ratios are you referring to?

Answer: changed to “Here the ratio of deuterons to protons is obtained in …”

Table 7: specify what the quoted errors are.

Answer: the quoted errors are the quadratic sum of the statistical and systematic errors.