Dear PC members

Thank you for this nicely written draft and for these interesting results. In this draft (2019-08-28-lamkpublication_v6) the results of the first measurement of the scattering parameters of ΛK (ΛK^+, ΛK^- and ΛK^0_S) pairs in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TV, obtained by a femtoscopic analysis of ΛK correlation are presented. The used method, the analysis and the results are clearly described.

In the following some general questions or comments:

1) It is not clear what criteria have been used for the determination of the cut on DCA. For Kaons transverse DCA and longitudinal DCA to primary vertex should be smaller than 2.4 and 3.0 cm, respectively. For Lambda and K^0_s the DCA should be lower than 0.5 and 0.3 cm, respectively. Why this so large difference between the V0 and the Kaon track?

2) Line 128 and 133. Why the invariant mass cut to eliminate mis-indentified K0S and Lambda are equal? In strangeness analyses they are different, the one for mis-indentified Lambda is about 5 MeV/c^2.

3) Fig.2: Comparing the labels in Fig.2, the figure caption and the corresponding text describing this figure, it is not straightforward to follow the differences between the various polynomial fits. The dashed curve is the fit with THERMINATOR, properly scaled to match the data, but then the last sentence in the figure caption refers to another polynomial fit (solid line)? In the label inside the plot this is called "ALICE bgd fit", and in lines 322-323 it is said "fit polynomial scaled to match the data". Could everything be described more clearly to avoid some misunderstanding?

4) No uncertainty is quoted in Tab.4. Is really used enough statistics to have 3 significant digits?

5) Line 332. What criteria is used to determine the k* region of the normalization?

6) In Fig. 2 and Fig.3 you use the same notation for the vertical axis, i.e. C(k*). Probably the one of Fig.2 is C(k*$_{\Lambda K}$), while the one in Fig.3 is C_fit(k*) described in eq. 13. Probably you need to use a different notation for the two plots and/or to spend some more words in the caption of the Figures.

7) You describe with high accuracy how the systematic uncertainties are estimated. However you don't quote in any part these systematic uncertainties. You should discuss how large are the systematic uncertainties and what of the performed variations gives the largest contribution.

8) Always about the systematics. You use a table (Table 5) to describe all the used cuts for the estimation of the systematic uncertainty. Probably these details could be avoided.

9) No comment is done about the obtained d_0 values, reported in Fig. 4.

10) Fig.6: In the left plot the quantity reported on the vertical axis is called RC_00(K*), however in the caption and in the text (line 464) it is called C_00(K*). Is a symbol missing or is it correct like this?

11) Fig. C1: In the middle and lower plots the meaning of the vertical dashed lines is not reported

12) Fig. C3: Also here, similarly to Fig.6, the figure caption reports C_00 but a different symbol is used in the plot. Is that correct?

Minor suggestions:

- Line 207: Rf_0 is said twice.
- Line 318: It is not clear the numerator of what fraction you speak
- Fig.1: Since the difference between dotted and dashed vertical lines is not clearly visible unless it is much zoomed in, one could also specify the colour to distinguish between the two, i.e. "vertical dotted (red) lines" and "vertical dashed (green) lines"-
- Fig. 2 There are some points that are in strange position or simply too high or too low for the existing scale. Please modify the figure.
- Fig. 2 The vertical line on the left of the scale is missing.

- References: In all the references there is the same inversion i.e. ," instead of ",

Best regards
Angela for the Catania Team