

Dear organizers

Please forward to the referee my answers to the comments:

1) *Section 3 line #4: It seems to me that the  $v_2$  in pp at both energies are flat with multiplicity. What do you mention only 13 TeV in the statement "For 13 TeV pp collisions there is no apparent..."?*

This statement describes lack of multiplicity dependence of  $v_2$ ,  $v_3$  and  $v_4$  and the energy 13 TeV is mentioned as for 5.02 TeV we show  $v_2$  only. I have changed it to:  
"In  $\sqrt{s_{pp}}$  collisions there is no apparent dependence of  $v_{\{2\}}$ ,  $v_{\{3\}}$  or  $v_{\{4\}}$  on event multiplicity (the last two shown for 13 TeV only)."

2) *The last paragraph in Section 2: I am a bit confused by the discussion here. You observe a smaller  $v_{22}$  with the templet fit than the ZYAM method and I believe you correctly point out why they are so. But you really need to show the fitted F parameter in these proceedings. The F value directly impacts what  $v_{22}$  you extract for the more central collisions. Furthermore, I'm not sure the extracted  $v_{22}$  is the correct modulation for the central collisions because this is the modulation on a pedestal that has already subtracted the pedestal in peripheral collisions. This needs some careful discussion and clarification. Your  $v_{22}$  may be different in definition from the  $v_{22}$  other people are referring to, so attention needs to be exercised in order not to mislead the reader. Depending on the outcome of this, the summary statement: "The new template fit method...allows to calculate the values of... $v_n$ ." may need qualification.*

In the last paragraph in Section 2 I have tried to explain the differences between the methods in a possibly short way (due to the page limit), apparently with limited success. Much more detailed explanation was included in the talk and is available in the presentation on the SQM web page. I have modified the last sentence of this paragraph, which hopefully will make it clearer.

Regarding the values of the F parameter, they are growing with event multiplicity, similarly to the increase of the yield Y - due to the increasing number of pairs. The experimental analyses, rather than on the absolute values of Y, are focused on the "ridge" modulation as an interesting feature in the context of nuclei collisions. Most probably the differences between F values in the template and ZYAM methods would be very small, relatively much smaller than the difference between flow harmonics. We do not think that showing the values of the F parameter could give a real insight to the ridge phenomenon, it might make sense only in comparison to some model predictions.

3) *Second para on p.3: You state that the  $p_T$  value for the maximum  $v_2$  in 1.5 times higher in pPb than pp. However, the maxima seem to me to locate at the same  $p_T \sim 3 \text{ GeV}/c$ . Please change this statement.*

As suggested, the information at which  $p_T$  value the maximum is reached is removed from the statement.

4) *Fig.3 left panels coord labels should be  $v_2(N_{ch}^{rec})$ , etc.*

Personally, I would prefer simple labels  $v_2$ ,  $v_3$  and  $v_4$ , the suggested above form is reasonable as well. However, Fig 3 is an officially approved plot, which unfortunately can not be changed. I guess that the reason to add  $p_{T^a}$  was that  $v_n$  were calculated in a

restricted range of  $p_T$ . Hopefully, the reader can easily see that the  $v_n$  values in the left panels are in fact functions of multiplicity.

Editorial comments:

5) *Introduction line#3: change the sentence into "The observation of the similar shape correlations (called the "ridge"), though with smaller magnitude, in pp collisions...[4] of pp and...[5]. We present these results in this report.*

The change is introduced

6) *Just below Eq.1: and the number of pairs in mixed events -> and that in mixed events*

The correction is applied

7) *Fig.2 caption: -> Dependence of  $v_2$ ...for the template fitting method (left panels) and ZYAM-based method (right panels) [4]. The top, middle, and bottom panels correspond to 13 TeV...p+Pb collisions, respectively.*

This modification making the caption more clear is applied

8) *For the quote around "ridge" please use ``ridge" in LaTeX.*

The quotes are corrected