NPI group Comments

General comments:

Figure references in the text look strange with parentheses (i.e.. L 236), we suggest e.g. Fig. (1) -> Fig. 1 etc.. Put a space between a number and the percent sign (i.e. L 456 -> 4.4 %). Be consistent with symbol usage (p\_T vs transverse momentum, x\_F vs Feynman-x, FASTJET vs FastJet ...), please unify across the text. Please use non-breakable spaces (~ in Latex) in front of units so that they are not separated from the number. This occurs on lines 251, 286, 295, 335, 520, 588, 670, and the caption to Fig. 6.

Done

Line-by-line:

L 118 200 and 500 GeV -> 200 GeV and 500 GeV

Done

L 121 compared with -> compared to  
Done

L 130 state of the art -> state-of-the-art  
modified with other comments in the new version  
L 135 neutral-hadron production (hyphen)  
Done

L 138 leading-order QCD (hyphen)  
Done  
L 165 ETQS-function -> T\_a,f (to avoid repetition)

Done  
L 166 Suggest to put the relation on a separate line.  
Done  
L 195 On the other hand, the Collins asymmetry is...  
Done  
L 205 transverse single-spin asymmetry ->TSSA  
Done  
L 223 add reference to STAR  
Done   
L 239 introduce "towers", i.e. lead glass blocks (towers)  
Done  
L 244 Move description of inner towers before description of the outer ones.  
Done  
L 248 greater -> more  
Done  
L 252 The blue beam is not yet explained at this point. We would either write clockwise-circulating RHIC beam (blue) or move the piece of information about the direction of RHIC beams and Feynman-x from Chapter IV "Results" somewhere in front of this paragraph.  
Related sentences were modified.  
L 261-262 make clear whether polarization uncertainty is absolute or relative  
The percentage symbol is put at the end, so it is absolute as a convention. We add one sentence in the beginning of “Results” section: “ Please note that there is a general scale uncertainty of 3.0/3.4% for 200/500 GeV data from beam polarization for all spin asymmetries in this section, which are not included in the plots.”. See lines 574-576 in the new version.

L 290 momentum, p\_T -> momentum (p\_T)  
Done  
L 294 Beam Beam counters -> Beam Beam Counters  
Done  
L 295 for 2011 -> for 2011 data, same with 2015  
Done  
L 336-337 Suggest to put each cut on a separate line (without eq. numbers)  
Done  
L 341 A fit has been done in the figure -> The data were fitted  
Done  
L 358 jet reconstruction -> the jet reconstruction  
Done  
L 358 In this analysis, jet reconstruction ... (comma)  
Done  
L 358-359 In this analysis jet reconstruction is ->In this analysis, the jet reconstruction is  
Done, changed to “In this paper, the jet…”  
L 363 then, -> and  
Done  
L 372 add "that" after "sense"  
Done  
L 375 the EM-jet -> an EM-jet, otherwise specified -> specified otherwise  
Done  
L 464 define p\_L  
Done  
L 558 consider defining and using p\_T earlier  
Done  
L 568  ... at high-pT.   -> at high pT (no hyphen, i.e. high-pT particle is OK but this is a different situation pT should stand in the place of a noun, I think).  
Done  
L 588 in the region 1 -> in the region 1 GeV/c  
Done  
L 612 The jet reconstruction parameter R ... -> The jet resolution parameter R ...  
Done  
L 632 J. Cammarota et al. do not need to be mentioned here since no other authors of calculations are specified in the text  
Done  
L 644 pi0's -> pi0 mesons  
Done  
L 653 with function -> as a function  
Done  
L 671 statistics -> (statistical) uncertainties  
Done  
L 673-674 Different spacing between paragraphs than in the rest of the text.  
Done  
L 709,711,712 use mathematical expressions (M\_{gamma, gamma} < 0.2 GeV/c^2 and so on)  
Done  
L 729-730 we think it would be good to mention explicitly in the Conclusion (Section V0) that the jT dependence could help to further constrain TMD models and we would like to call for predictions in this observable  
Done  
L 748 rising at low pT and then saturating at higher pT (no hyphens)  
Done, also modified per other comments.  
  
Equations:  
  
Eq. 1 It should be explicitly noted that x = M\_gamma gamma

The equation here meant to show the function form that meant for the shapes. Although we feed the M\_gamma gamma into ’x’ eventually, but the description of function does not need to reflect that.

Eq. 4 f\_sig and A\_N are numbers, so the operation in this equation is multiplication. The star symbol is typically used for convolution which might be confusing in this case. We suggest not to use it here.

Done  
  
Figures:  
  
Fig. 2:  
  
   Caption:  
  
       mass -> invariant mass  
Done  
       energy between 38 to 43 GeV ->  energy 38 GeV < Egg < 43 GeV  
Done  
       fitted -> fit  
Done

   Figure:  
  
       Increase marker size.  
Done  
       Put fit lines into legend with argument "l" to remove gray frame in legend.  
Done  
       Center x axis legend.  
Done  
       Add y axis legend (Counts).  
Done  
       Missing STAR label.  
Done  
       Missing collision system label  
Done  
Fig. 3:  
  
   Figure:  
  
       The legend text seems too small. (200 GeV and 500 GeV)  
Done  
       Large space between < and eta\_jet.  
Done  
       Fraction (%)  
Done with Fraction [%], in consistency with Fig. 8  
       Might be better to define a substitute for "Fraction" and "Photon number"  
We cannot come up with better description  
       Missing STAR label  
Done  
       Missing collision system label  
Done  
Fig. 4:  
  
   Caption:  
  
       asymmetry -> asymmetry (A\_N)  
Done  
       Feynman-x -> Feynman-x (x\_F), or just x\_F  
Done  
   Figure:  
  
       Might be missing indication of polarization of one of the beams in p+p label (missing arrow at second "p").  
Only one beam is polarized for this analysis. So it is correct.  
       Rotate the y axis legend (A\_N) in upper panel so that it is the same orientation as in bottom panel.  
Although it is not consistent with the bottom panel in this way, but we think it does look more comfortable for the reader. So we would like to keep it.  
       The axis numbers seem too small - use the same style as for previous figures.  
Done  
       consider changing the "THEORY" label to something more explicit  
We tried a bit, and think the current choice is OK, so not changed.  
       Reduce ticks of the y axis in the bottom panel - e.g. as is in Fig. 6.  
Done  
       for the <pT> use the appropriate Latex symbol \langle, \rangle not < > signs  
Done  
Fig. 5:  
  
   Figure:  
       Rotate the y axis legend (A\_N) as mentioned for previous figure.  
Same as above  
       Missing spaces before/after < symbols  
Done  
       Missing minus for negative value of y axis.  
Done

       Suggest to decrease range of y axis - too much empty space in the bottom of the plots.  
 Done

       consider changing the "THEORY" label to something more explicit  
Same as Figure4  
       for the <pT> use the appropriate Latex symbol \langle, \rangle not < > signs  
Done  
Fig. 6:  
  
   Figure  
  
       Missing spaces before/after </> symbols  
Done  
       The legend seems to cover the error bar of RHICf data point at approx. x\_F = 0.42.  
Done  
       Missing collision system label  
This is just a comparison of results in Fig. 4 with previously published results.

Fig. 7:  
  
   Figure:  
  
       Reduce ticks of the y axis in the bottom panel - e.g. as is in Fig. 6.  
Done  
       consider changing the "THEORY" label to something more explicit  
Same as Figure4  
       for the <pT> use the appropriate Latex symbol \langle, \rangle not < > signs  
Done  
  
Fig. 8:  
  
   Caption:  
  
       in the mass region 0-0. 3 GeV -> 0 - 0.3 GeV/$c$^2  
Done  
   Figure:  
  
       fraction -> Fraction  
Done  
       Missing collision system label  
Done  
Fig. 9:  
  
   Figure:  
  
       kT -> k\_T  
Done  
       Missing spaces before/after </> symbols in legend (Multiplicity > 2)  
Done  
       Numbers at beginning of axes overlap (1 and 0.1)  
Done  
       consider changing the "THEORY" label to something more explicit  
Same as Figure4  
Fig. 10:  
  
   Figure:  
       kT -> k\_T  
Done  
       Missing spaces before/after </> symbols.  
Done  
       Suggest not to plot text/legend over theory graphs.  
Tried to move the legend to the left  
       consider changing the "THEORY" label to something more explicit

Same as Figure4  
       left part of the legend make properly the spaces around "<" signs in the line with eta\_jet, eta\_pi acceptance  
Done  
Fig. 11:  
  
   Figure:  
  
       kT -> k\_T  
Done  
       The legend covers error bar of last black point.  
Done  
       left part of the legend make properly the spaces around "<" signs in the line with eta\_jet, eta\_pi acceptance  
Done  
       The lower error bar for the same point not visible.  
To visualize the whole error bar would waste a lot of the space in vertical direction. So I adjust the legend to show the upper part of the error bar and it should be OK for the reader to understand the scale of it.  
       Spaces before/after <>.  
Done  
  
References:  
ref. [35] is incomplete

ref. [35] is another STAR pA paper under reviewing process (will be submitted before this paper). It is left in such way for temporary record. It will be dealt with once it appear in arXiv.