Quarkonia and heavy flavor meeting, 07/24/23, 10am

Anne emailed after the meeting to remind us that any plots, even from simulation, require a note and collaboration approval before they can be shown. Please see our twiki for templates and instructions, https://wiki.sphenix.bnl.gov/index.php/PubBoard

Introduction – Conveners

Jin - The RHIC & AGS users meeting is next week and we have a practice session for Antonio's talk
Cameron – I think it's tomorrow at noon
Jin – That was my recollection.
(Link to practice - https://indico.bnl.gov/event/20026/)

Jakub is requesting a new jet sample. Chris is OK with this but we need a new steering card with the properties we require

b-hadron v2 and RAA with sPHENIX- Zhaozhong Shi

Slide 2
Dennis – On the MVTX display, if some part of the EMCal is not read out, it is not displayed, that's not the case here?
Zhaozhong – Correct, we load the entire MVTX detector even if there are no hits in that area

Slide 3
Dennis – For the plot on the bottom right, is this with the INTT only?
Zhaozhong – Yes
Dennis – The reconstruction of the beam spot is ambiguous as to how it was selected and reconstructed. Do you plan to update this plot? Maybe with the MVTX?
Zhaozhong – Yes
Jin – In this plot, there is a lot of combinatorial and no alignment so to reach a preliminary plot will require a lot of work. To add the MVTX will be even more work. A better idea would be to add an event display with the MVTX & INTT

Joe – The tracking group will be updating the tracking plots as these ones are a year and a half old with lots of development since

Jakub – A lot of these plots will be shown in Yasser's poster on HF and the MVTX. We should try to avoid overlap.
Cameron – Agreed, I think if Zhaozhong combines MVTX information with the INTT (and TPC, TPOT) then there will be no overlap

Slide 4

Jin – Do these plots have a note or collaboration approval?

Zhaozhong – No

Jin – We would need to have these plots approved before we can show them publicly. If you have a note then it may be OK

General

Cameron – I think it is important to demonstrate how the trackers unlock HF for us but we should have maybe 25% of the poster about detectors and use the rest of the space to emphasize the physics which will be unique to your poster. I can link approved notes for figures to use in case we have no approved plots in time:

- sPHENIX BUP 2022
- MVTX proposal
- sPH-HF-2017-002

Jin – It's always good to show run 23 performance.

b-jet tagging at sPHENIX- Jakub Kvapil

Slide 5

Jin – This is a very nice new plot to approve. It would be good to do this with pile-up events so we can show we can operate in run 24. Do we have a plan to do this? Even if it's a track-based approach?

Jakub – We found a bug in PF where it only uses the first vertex in the record and I'm not comfortable with trying to fix this so close to the conference. I don't want to change to track based which won't show our particle flow capabilities and will take lots of time to implement

Cameron – Dennis, for simulation-only plot approval, we don't need a note, only slides?

Dennis – I'll check with the publication board

Update – The answer is you DO need a note, even for simulation-only plots.

Jakub – Should the range here be +/- 40 or +/- 30?

Cameron and Dennis – I prefer +/- 40

Jin – The LHS of these plots is not a true trail as there are no real constituents in this region but it's useful for modelling and normalization

Slide 6

Joe – My personal opinion but be careful comparing the purity vs efficiency between 2017 and now as the tracking and geometry are so different. A 10% difference is probably reasonable.

Slide 7

Jin – As you have a question mark here, the Jet TG has a detailed study and I think the Q_hat is 18 GeV

Slide 8

Jin – I agree that it is extremely important to show the tracking performance before the tagging performance. The tracking group will have updated plots soon.

Cameron – As this is on heavy flavor jets, should we make our own plots with tracks only from jets or secondaries?

Jin – I think the performance should be roughly the same when we look at the uncertainties but it is still good to cross check

Slide 9

Dennis – The fraction of neutrals plots are from Particle Flow?

Jakub – Yes

Dennis – Particle Flow is still in its infancy and I would be uncomfortable showing the neutral fraction plots at this stage

Joe – Can we do this at the truth level so we don't show the reco. Performance?

Jakub – Yes but I worry that we'd only be showing truth which won't give an accurate representation or show our performance.

Slide 11

Dennis – On the EMCal fix, I would argue to use all statistics rather than chop out jets between -1 <= phi <= 2 as this issue won't affect your uncertainties.