



Intermittency update

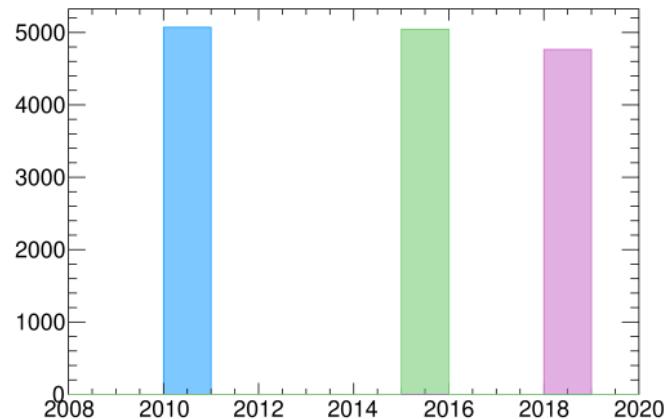
PAG-EbyE - 2025-10-25

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Department of Physics, University of Jammu

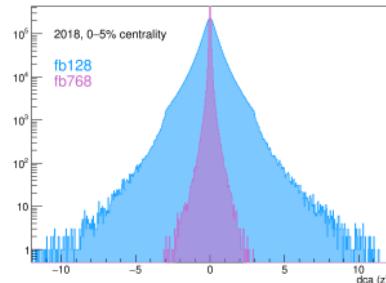
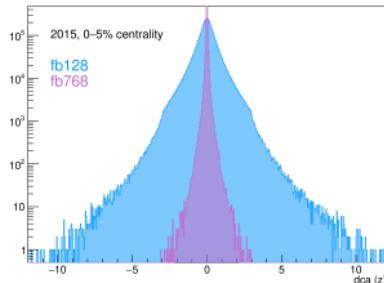
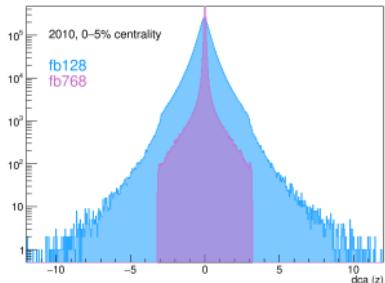
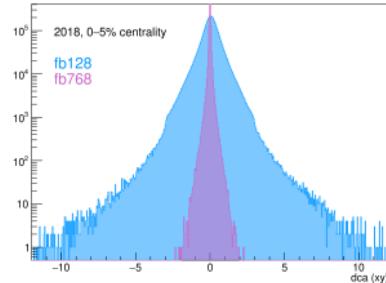
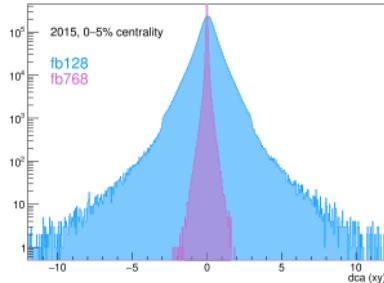
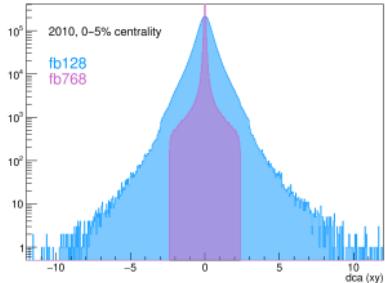
Filterbits QA

Dataset

- Comparison of filterbit QA results.
- HIJING three datasets: **2010 (2.76 TeV)**: LHC11a10a_bis, **2015 (5.02 TeV)**: LHC20j6a, **2018 (5.02 TeV)**: LHC20e3a.
- ~ 5000 events for each dataset.
- Centrality: 0–10%.
- $|v_z| < 10$, $|\eta| < 0.8$.



DCA_{*xy*, *z*} comparison



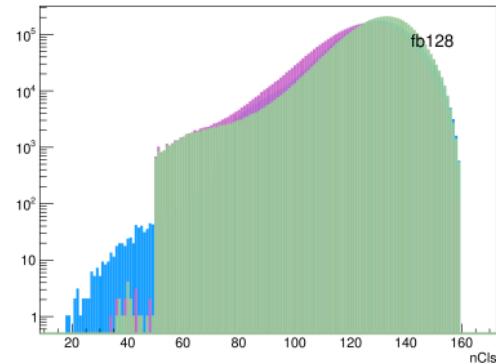
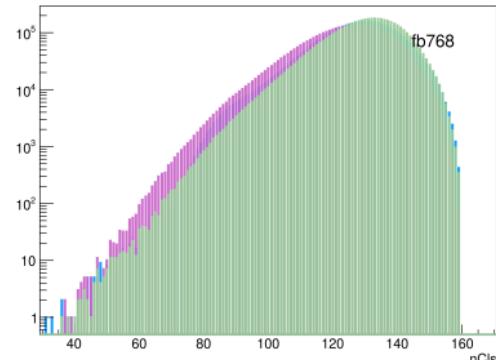
TPC #clusters comparison

Definition of fb128.

$|dca_{xy}| < 2.4, |dca_z| < 3.0,$
 $TPCNClusters > 50,$
 $\chi^2_{\text{per TPC cluster}} \leq 4.$

- The method used to check filterbits in AODs:

```
AliAODTrack *track =  
    static_cast<AliAODTrack  
*>(fAOD->GetTrack(i));  
track->TestFilterBit(128);
```

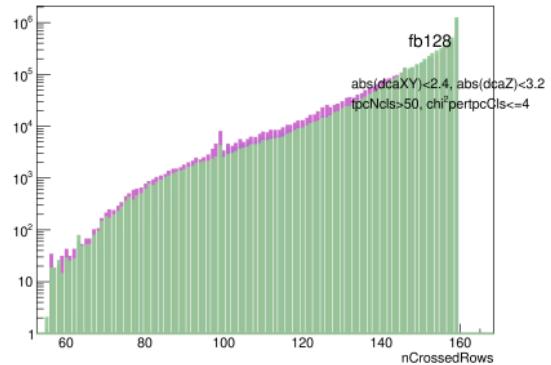
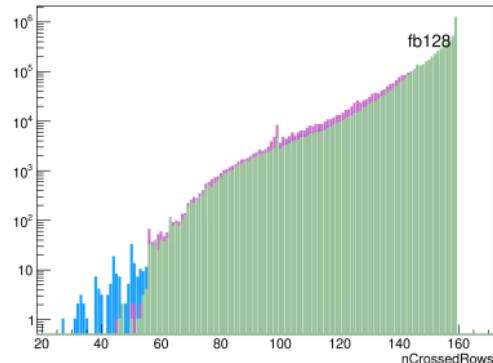


TPC #crossed rows comparison

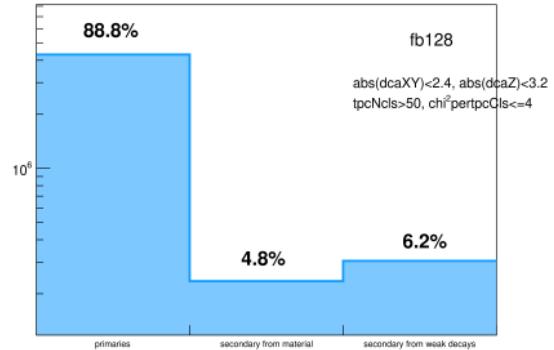
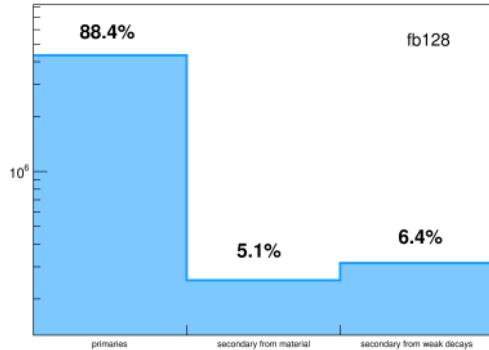
- The method used to check filterbits in AODs:

```
AliAODTrack *track =  
static_cast<AliAODTrack  
*>(fAOD->GetTrack(i));  
track->TestFilterBit(128);
```

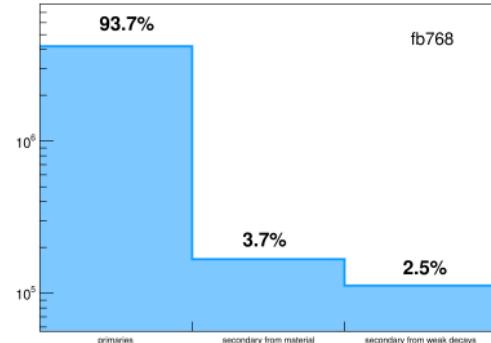
- does not work for 128.
- Applying cuts manually does work.



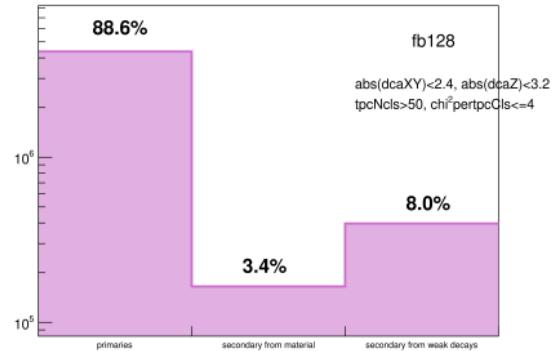
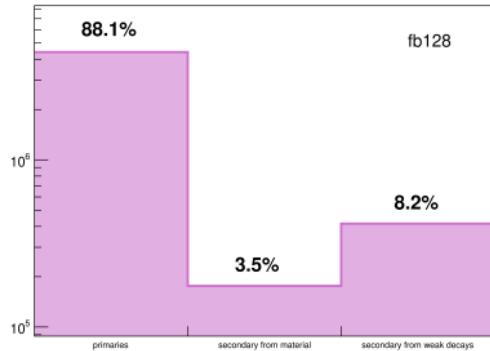
Contamination in filterbits



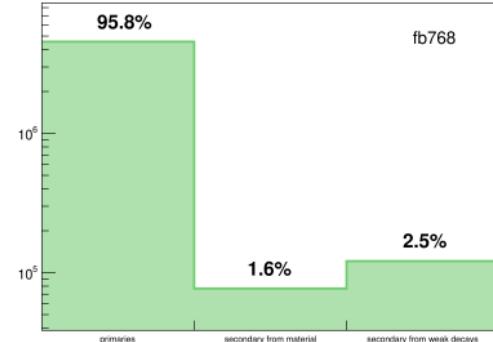
- for 2010 dataset.
- secondaries from material and weak decays both larger in fb128.



Contamination in filterbits



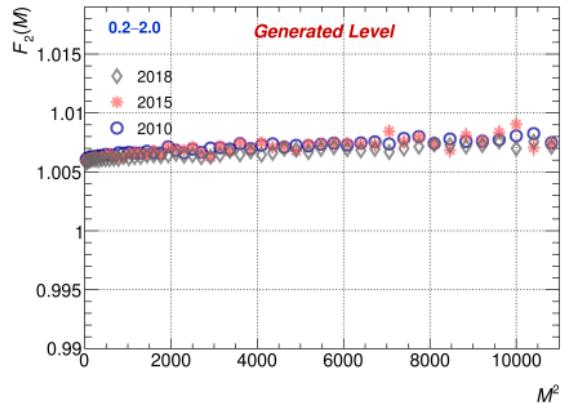
- for 2015/2018 dataset.
- secondaries from material and weak decays both larger in fb128.
- fb768 works fine with less contamination.



HIJING Closure

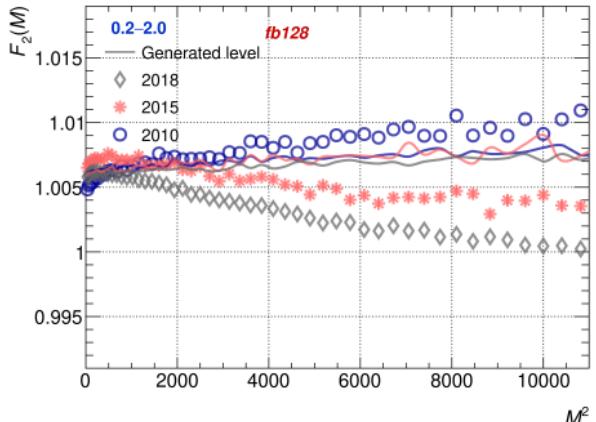
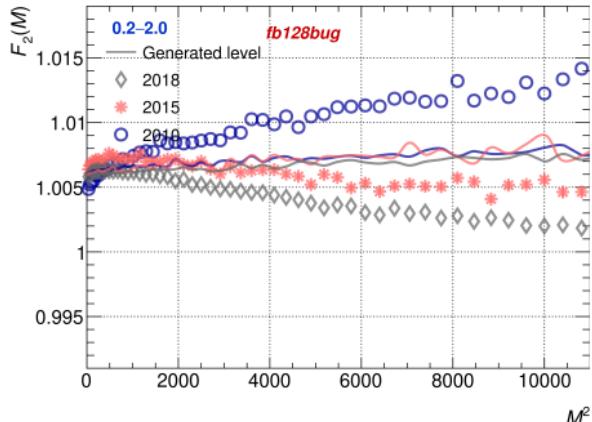
Dataset

- HIJING:
 - **2010 (2.76 TeV)**: LHC11a10a_bis,
 - **2015 (5.02 TeV)**: LHC20j6a,
 - **2018 (5.02 TeV)**: LHC20e3a.
- 0–5% centrality, $|v_z| < 10$, $|\eta| < 0.8$.

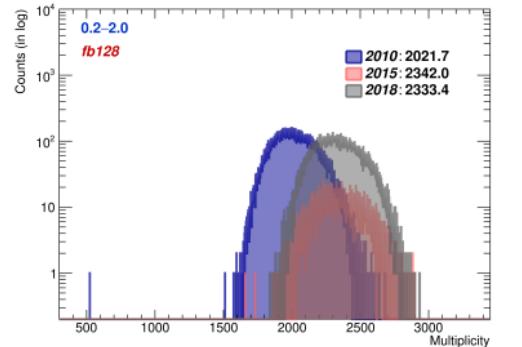


Generated Level ($0.2 \leq p_T \leq 2.0$)

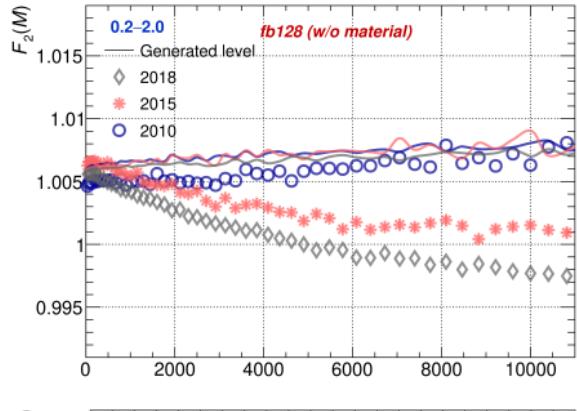
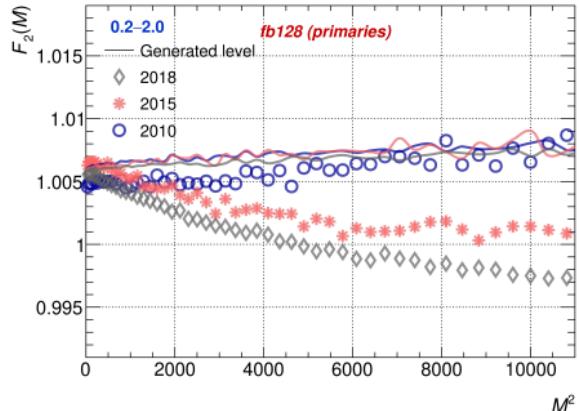
fb128 ($0.2 \leq p_T \leq 2.0$)



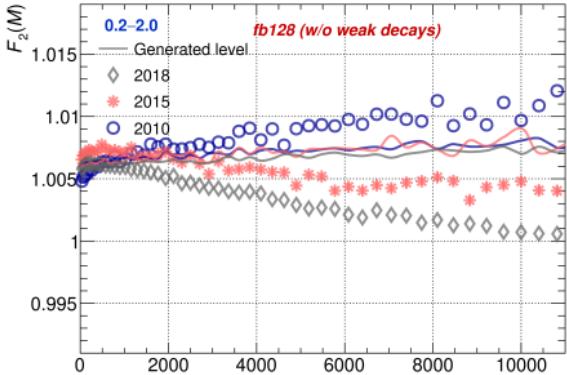
- *fb128* (right) is the actual closure (with cuts in *fb128* applied manually).
- Closure for 2010 better than 2015/2018.



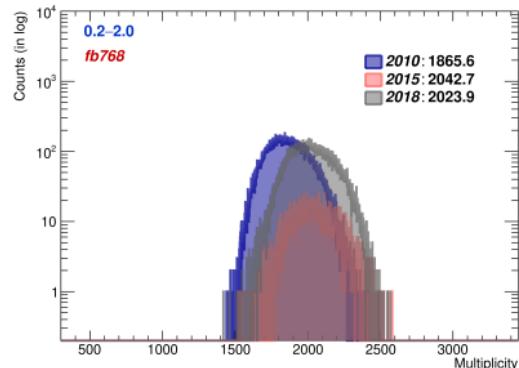
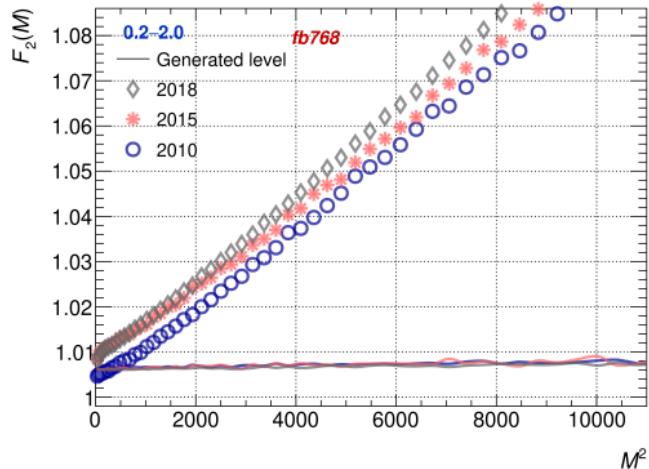
$\text{fb128} (0.2 \leq p_T \leq 2.0)$



- Closure for 2010 better than 2015/2018.

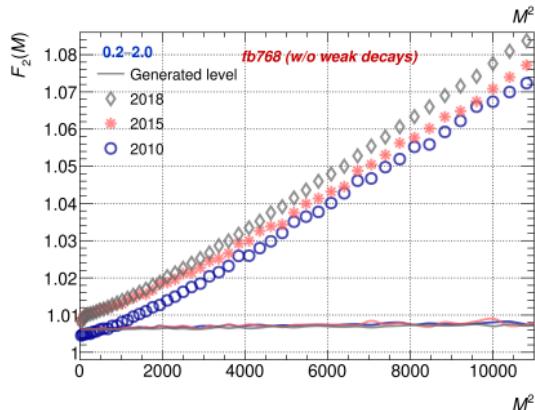
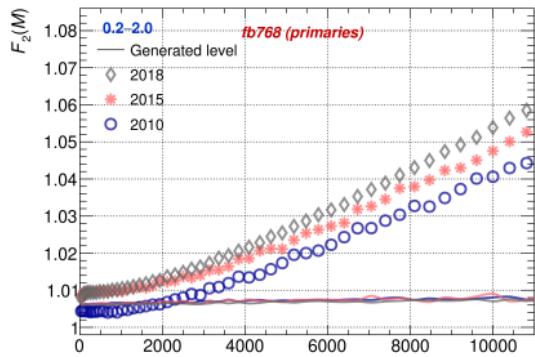
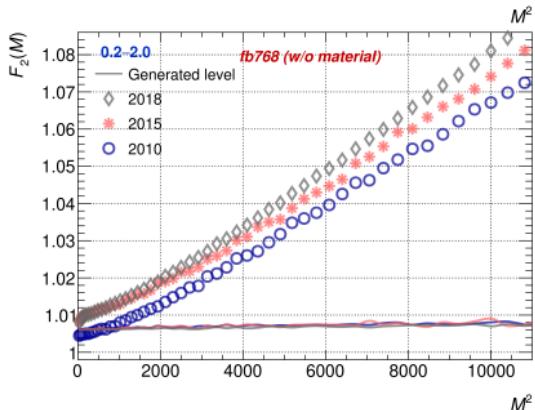
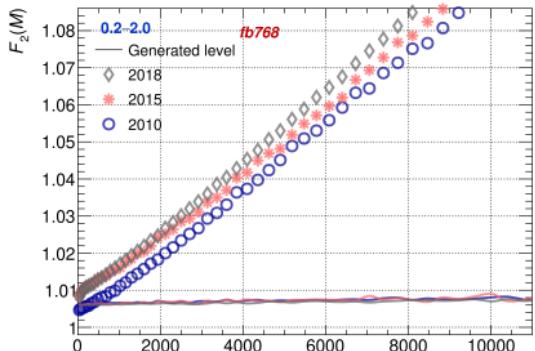


$fb768$ ($0.2 \leq p_T \leq 2.0$)



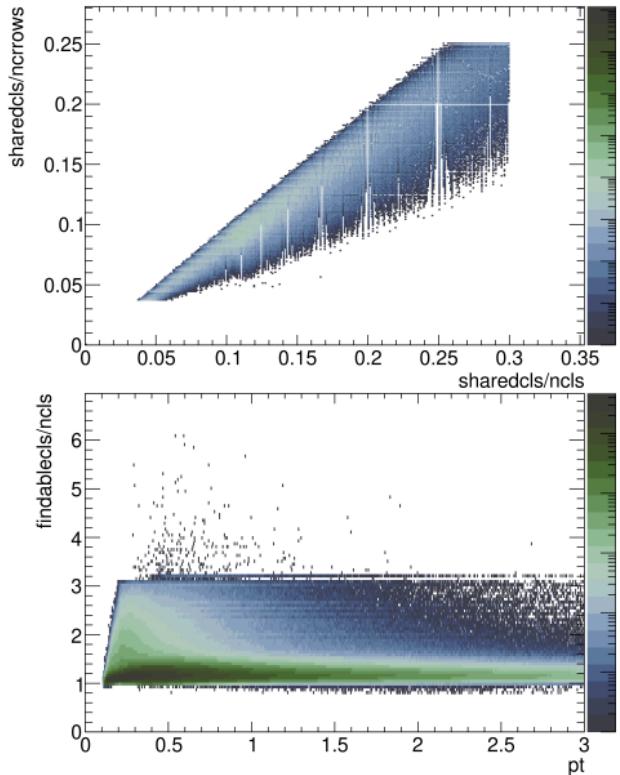
- $fb768$ does not show good closure for 2010, 2015/2018.
- the trends for all the datasets are alike.
- stricter cuts can improve the closure.

$\text{fb768 } (0.2 \leq p_T \leq 2.0)$



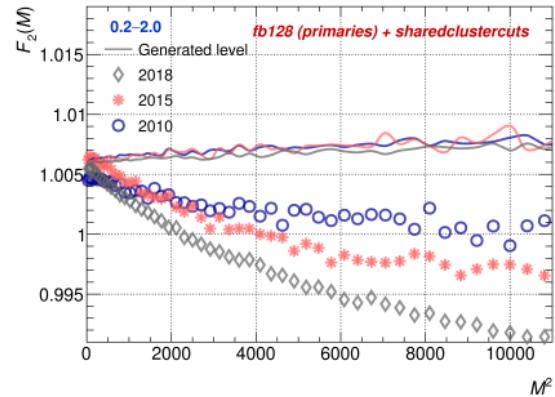
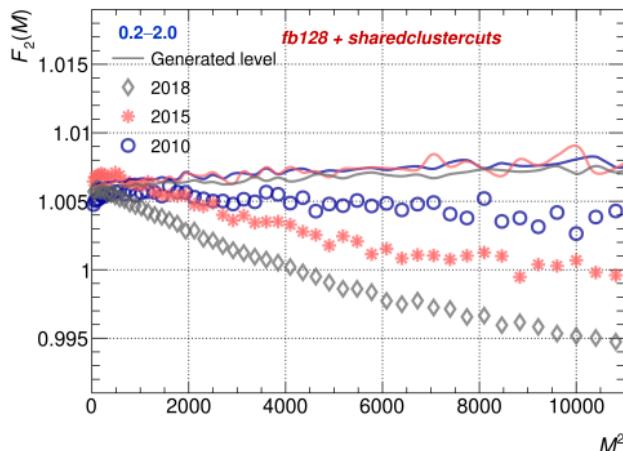
TPC clusters cuts

- An additional set of cuts to reduce track splitting/merging effects.
- $\#\text{sharedclusters}/\#\text{clusters} \leq 0.3$.
- $\#\text{sharedclusters}/\#\text{crossedRows} \leq 0.25$.
- $\#\text{findableclusters}/\#\text{clusters} \geq 0.8$.



cuts taken from analysis note: <https://alice-notes.web.cern.ch/node/1653>.

$\text{fb128} (0.2 \leq p_T \leq 2.0) \text{ with TPC clusters cuts}$



- Closure worsens for all the datasets.