Pion-LT/Kaon-LT Collaboration Meeting

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University of Regina, Canada

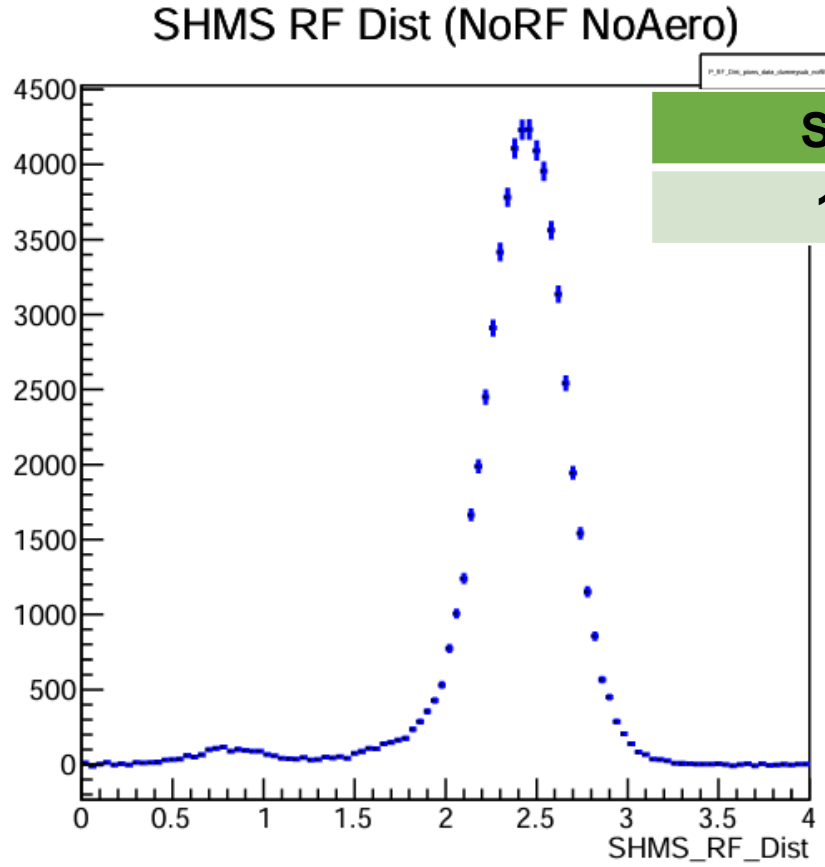
Pre-LTSep Analysis

- **Working on physics setting: Q2 = 3.85, W = 2.02, t = 0.49 (2 epsilons)**

- **The following studies need to be finalized before the LTSep analysis:**
  - **Missing mass offset and cut determination**
  - **Diamond cut determination**
  - **t-resolution check**
  - **t-binning**
  - **phi-binning**
  - **Data yields**
  - **SIMC yields**
  - **Data/SIMC comparison and ratios**
  - **Average kinematics and ratios calculation**

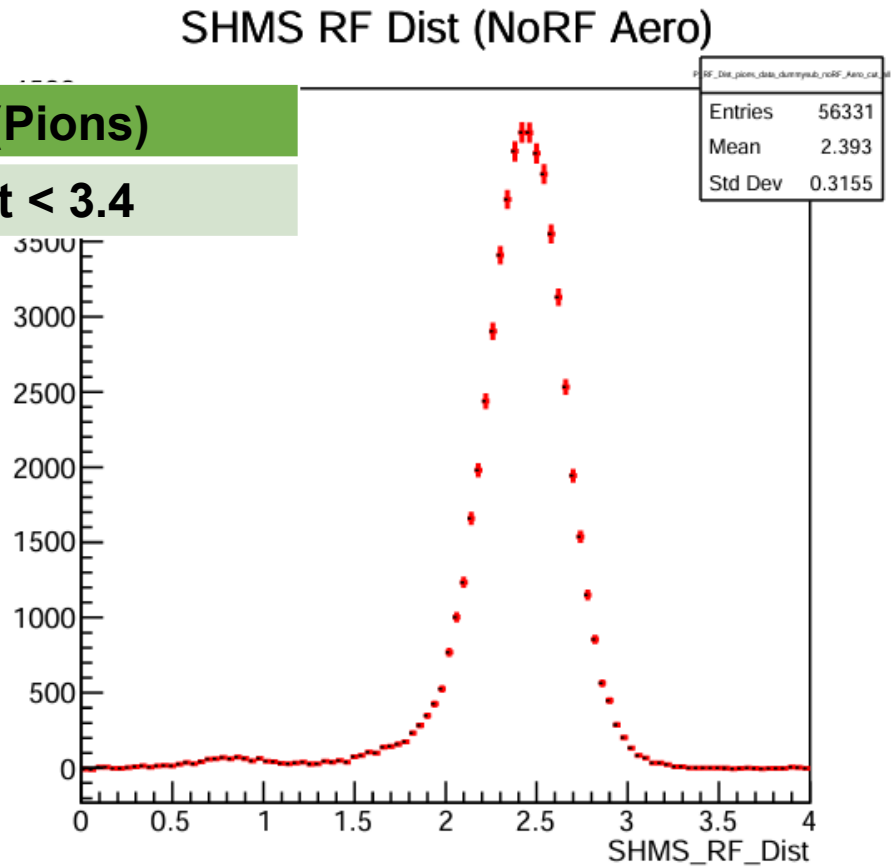
RF Cut Study

- **Finalized RF cut for physics setting** "Q2 = 3.85, W = 2.02, t = 0.49 (2 epsilons)"



SHMS RF Cuts (Pions)

1.2 < P_RF_Dist < 3.4



Accept+HMS_PID+CT+RF

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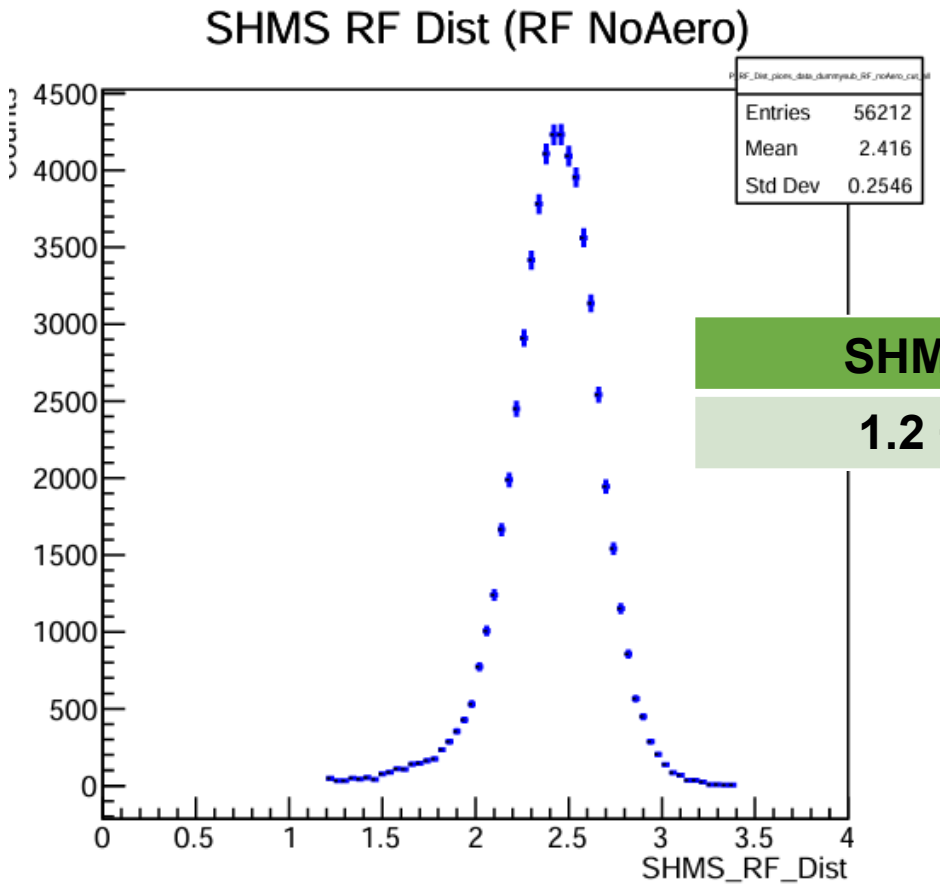

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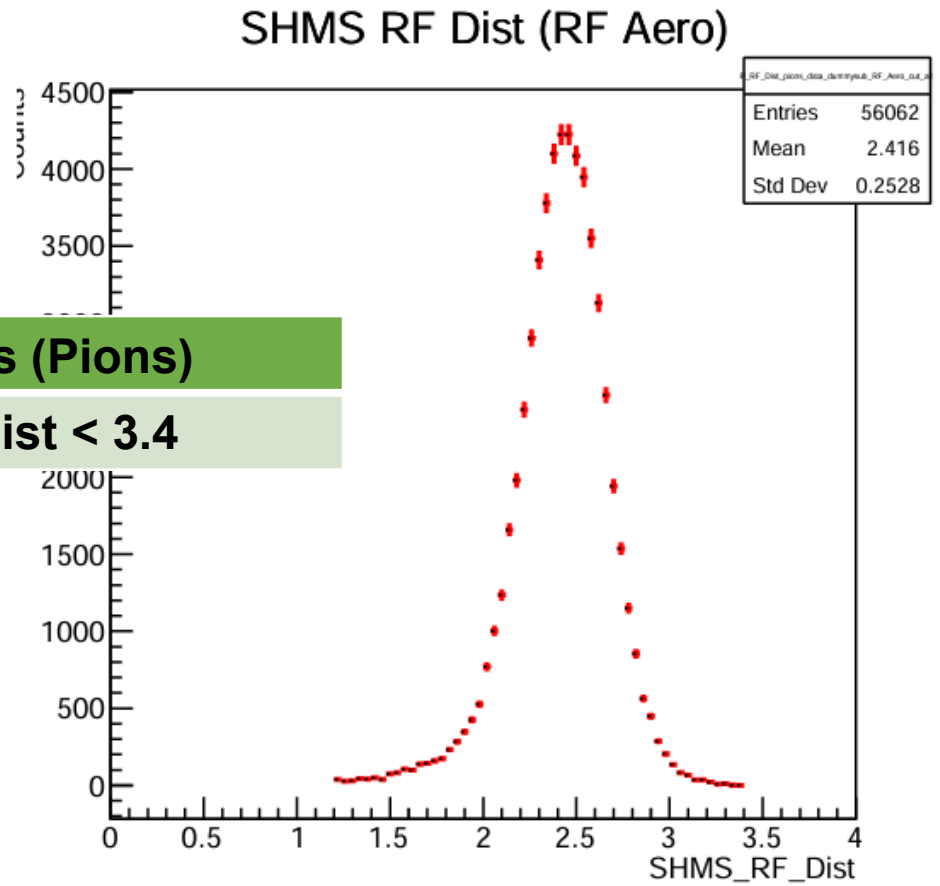

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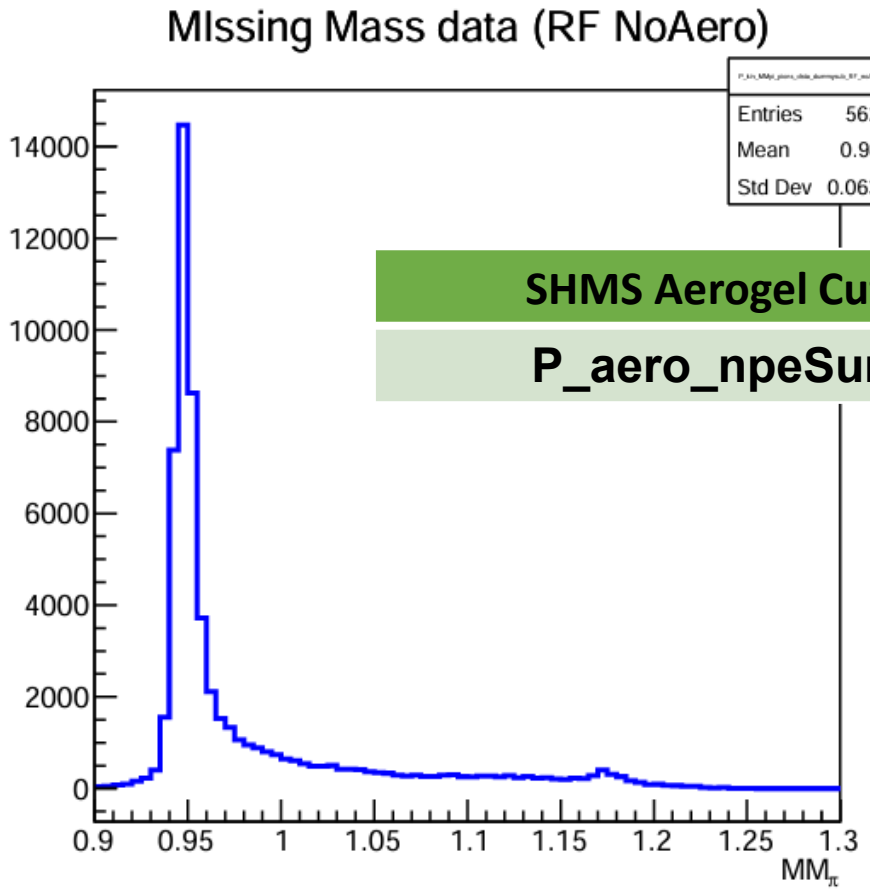
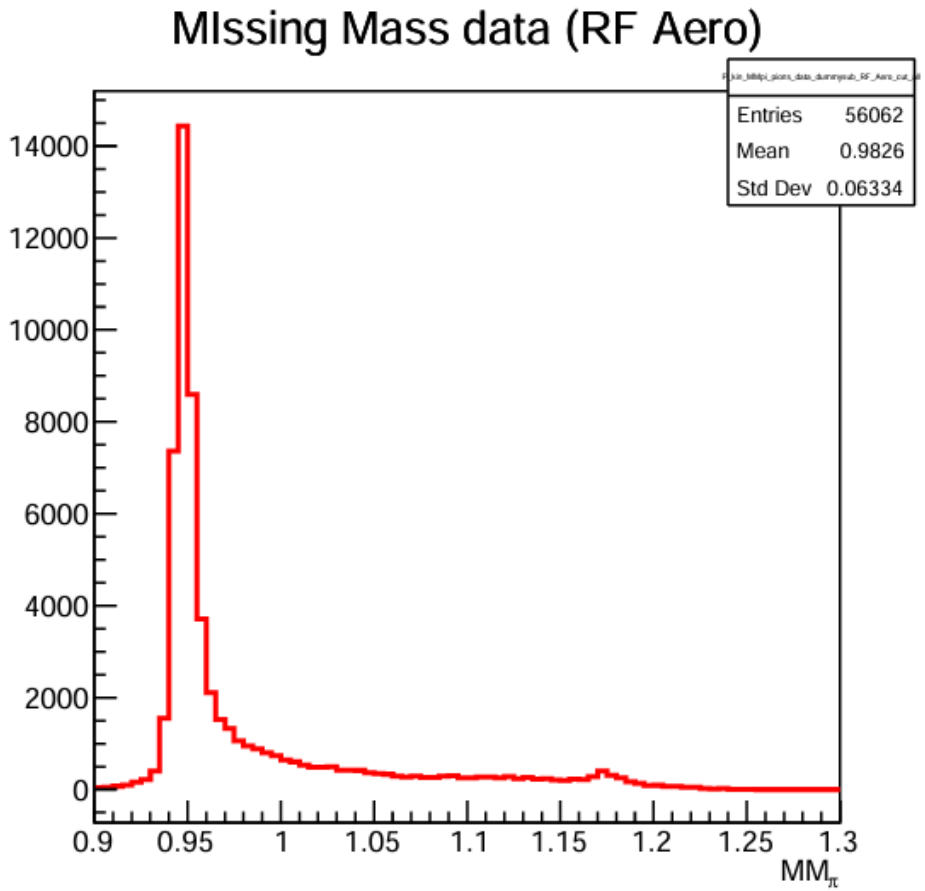
SHMS PID Cut Study

- **Finalized Aerogel cut for physics setting "Q2 = 3.85, W = 2.02, t = 0.49 (loweps – n = 1.030)"**



SHMS Aerogel Cut (Pions)

P_aero_npeSum > 0.5



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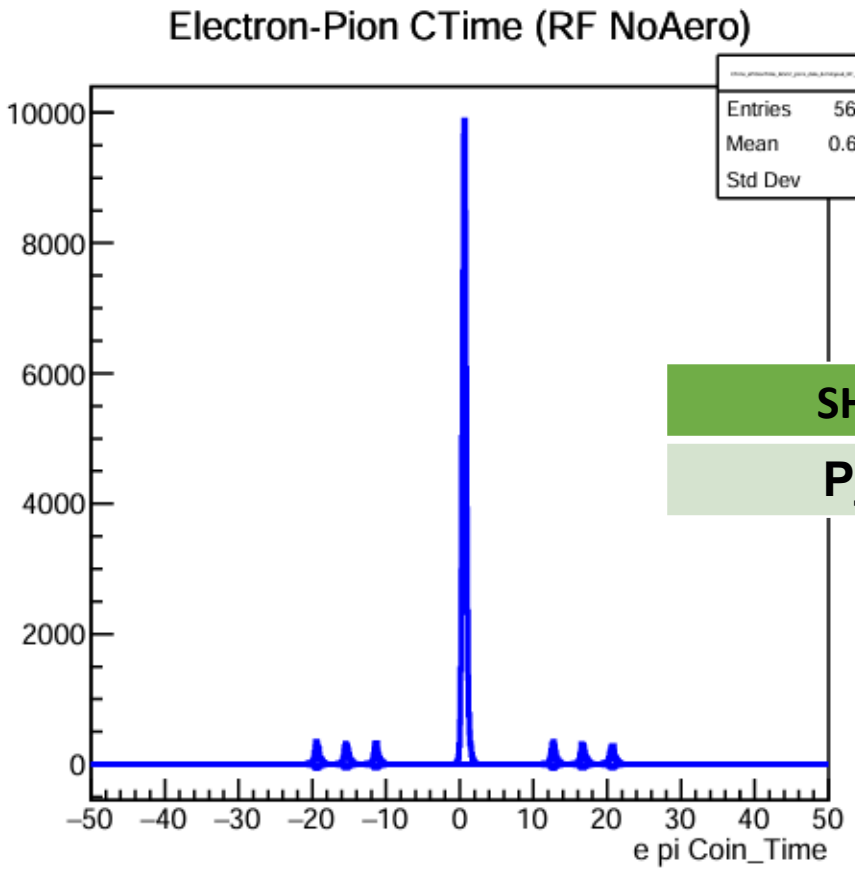

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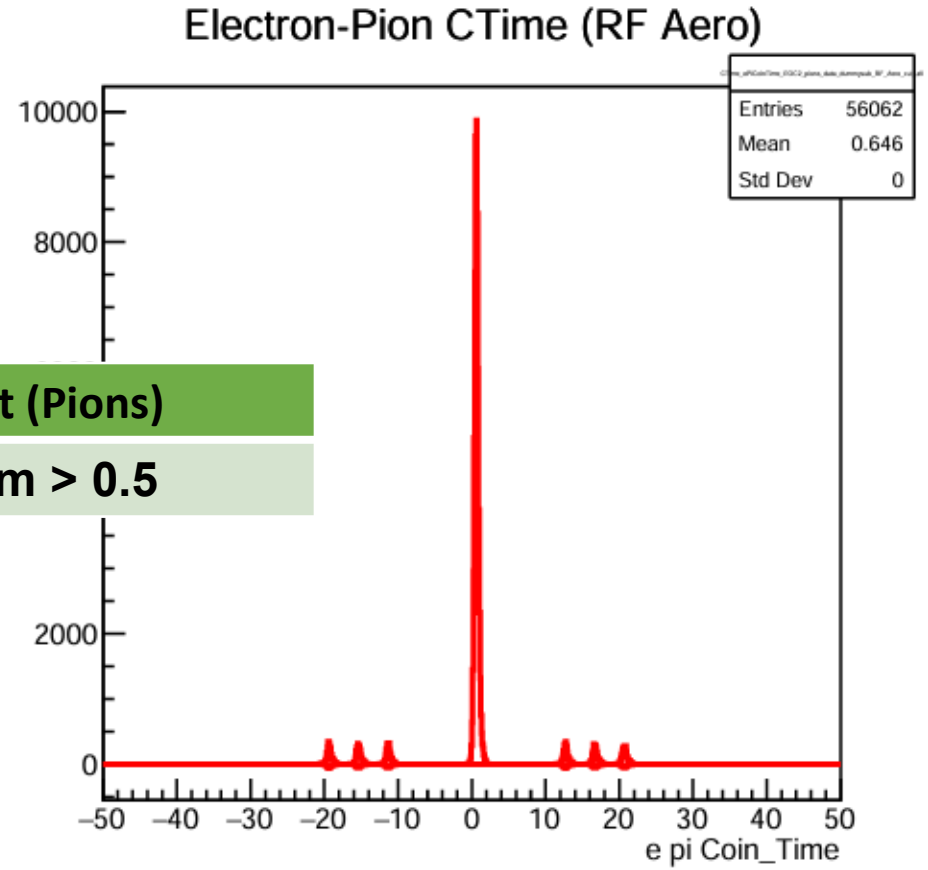

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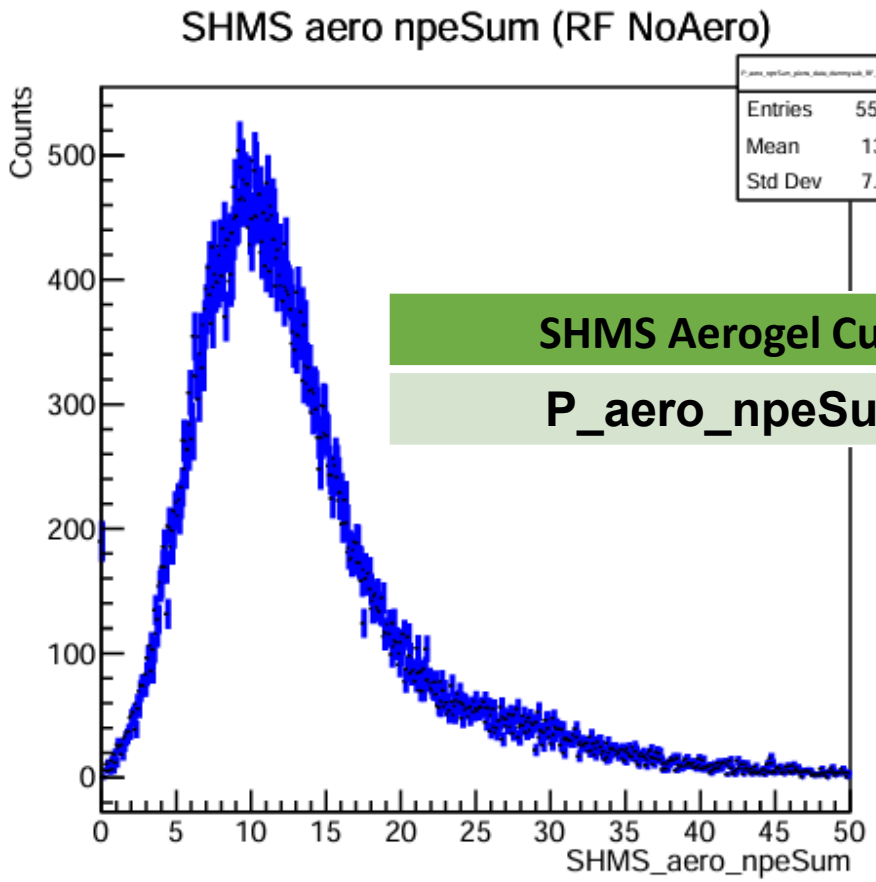

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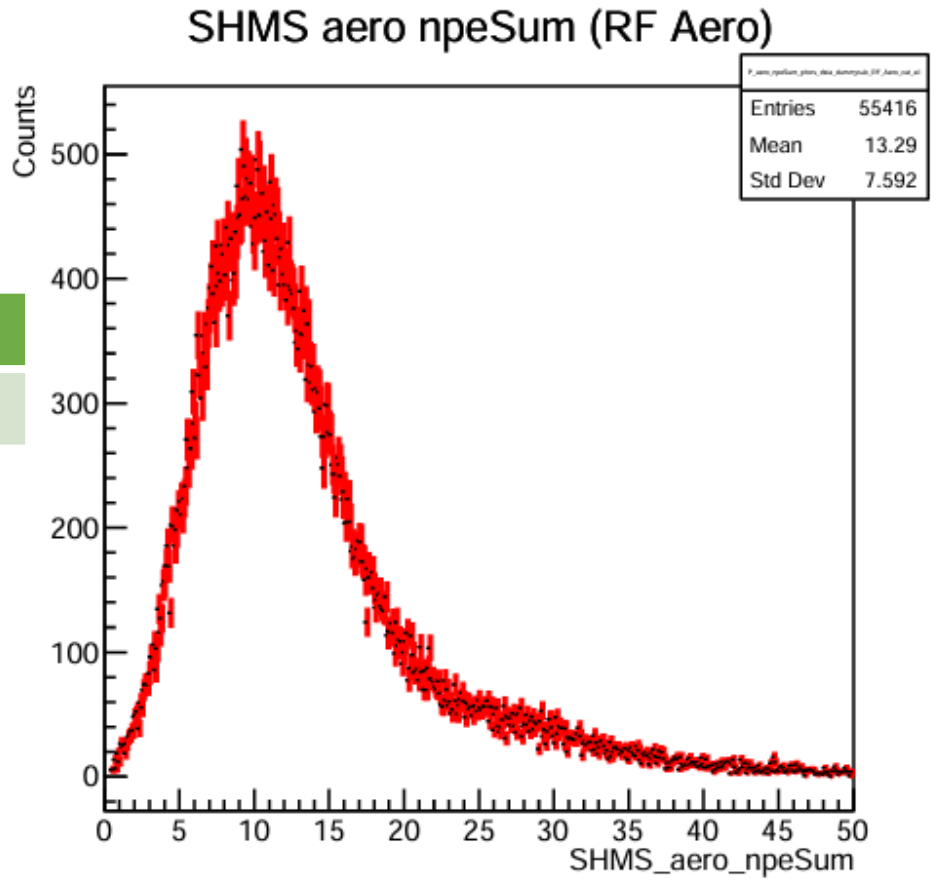

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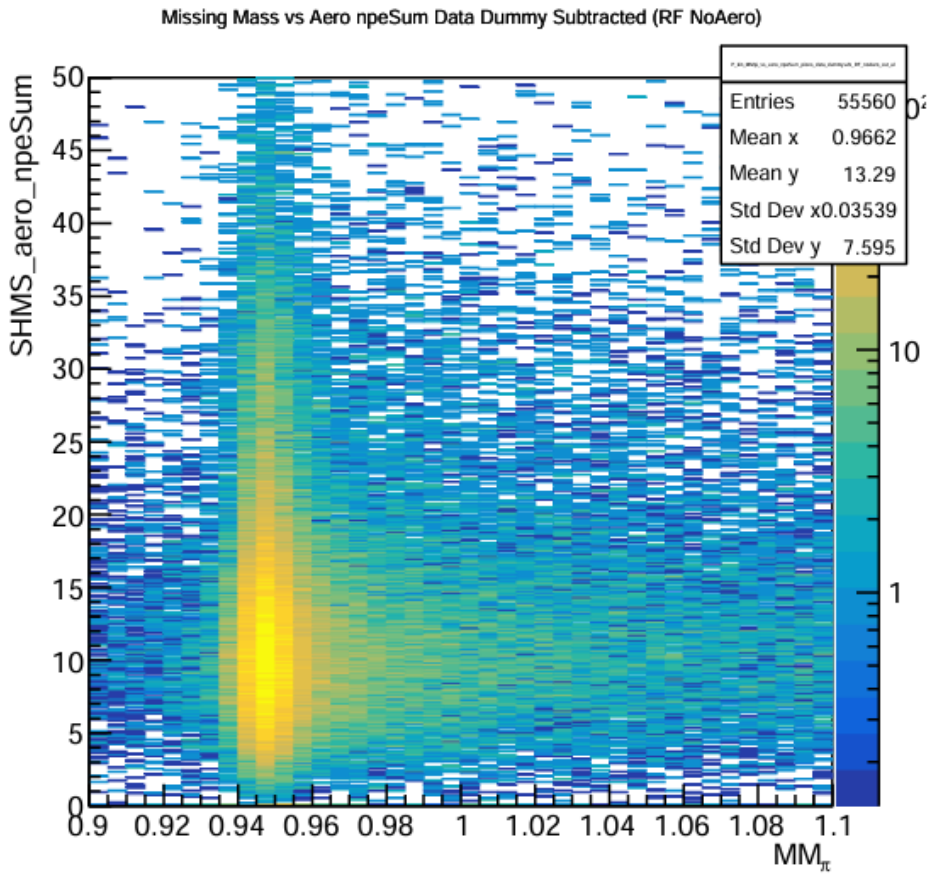

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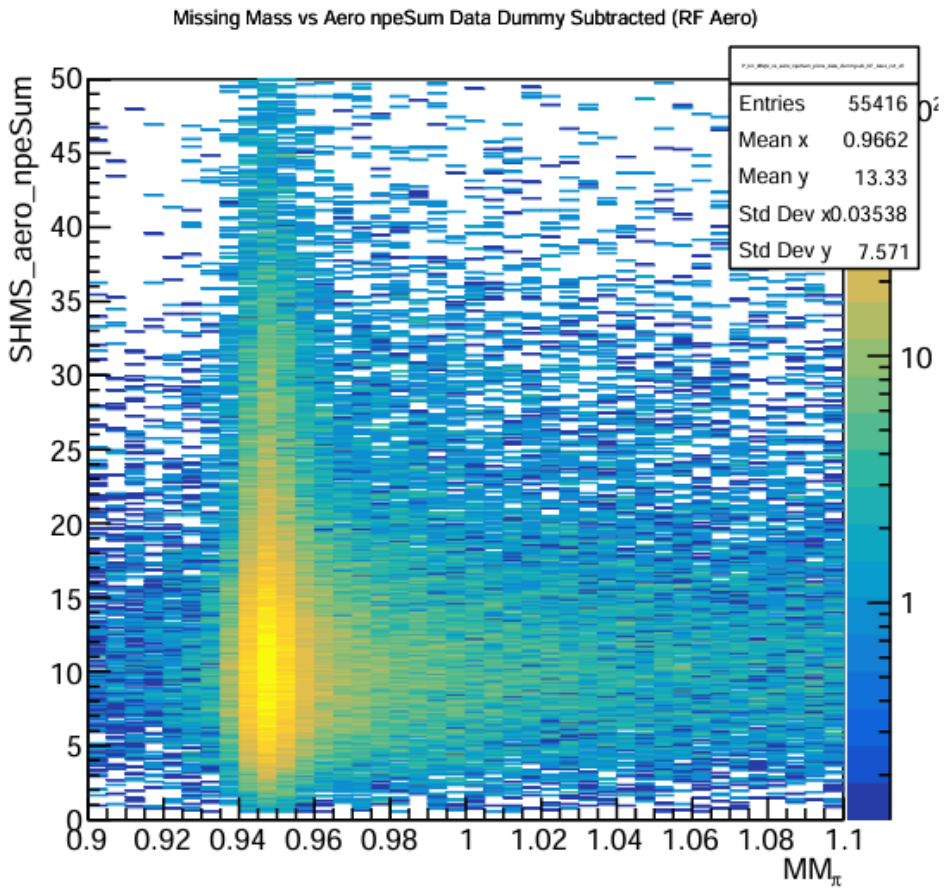

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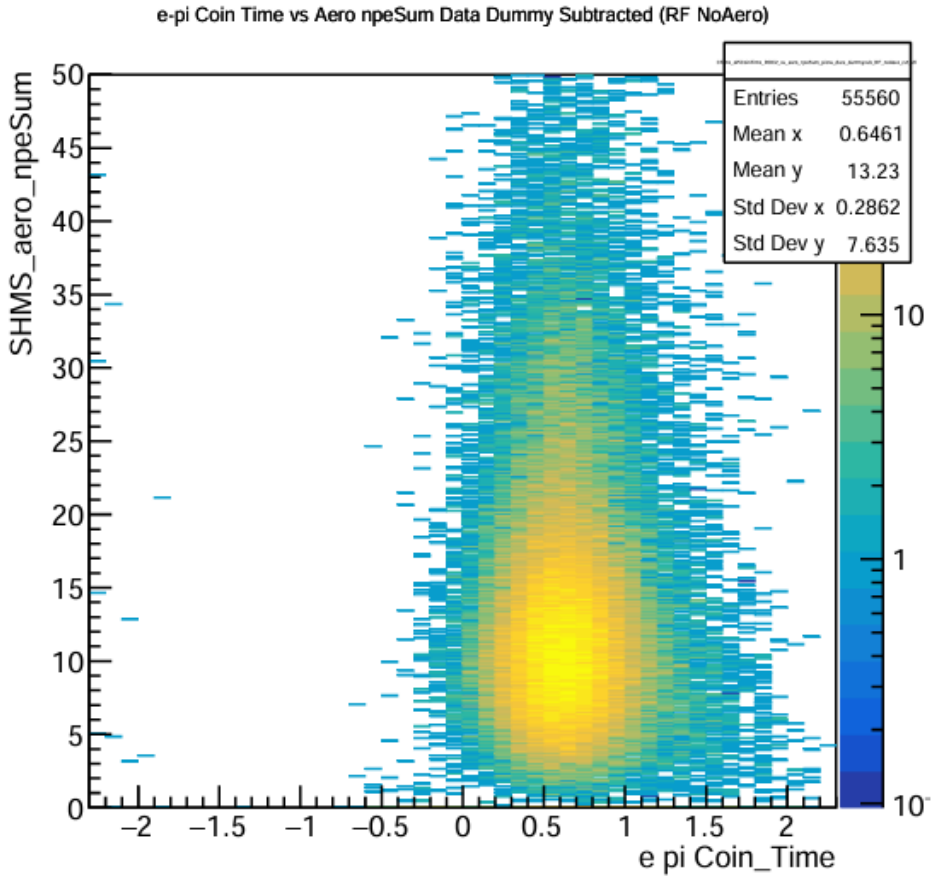

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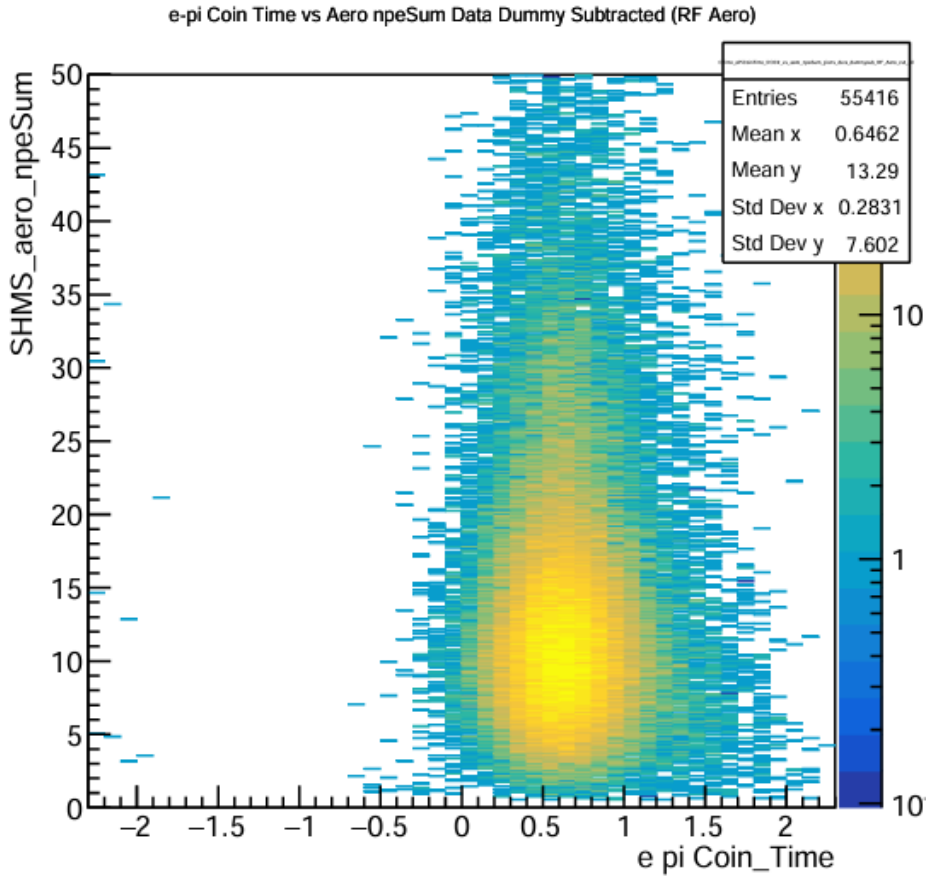

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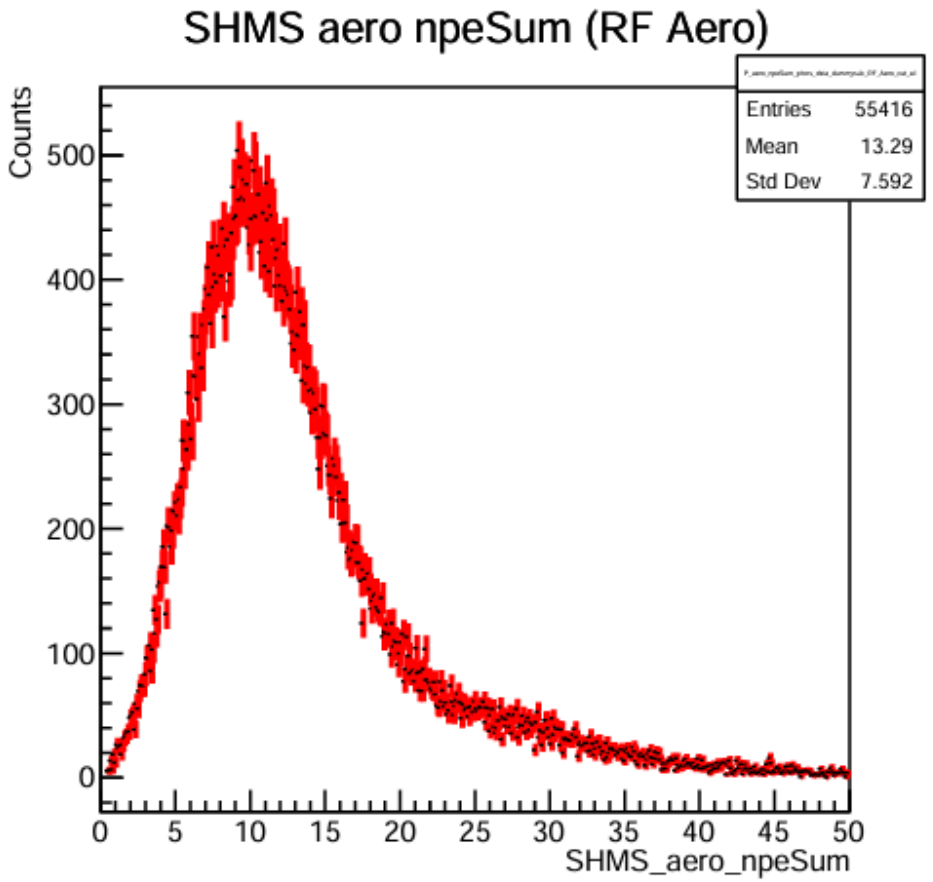
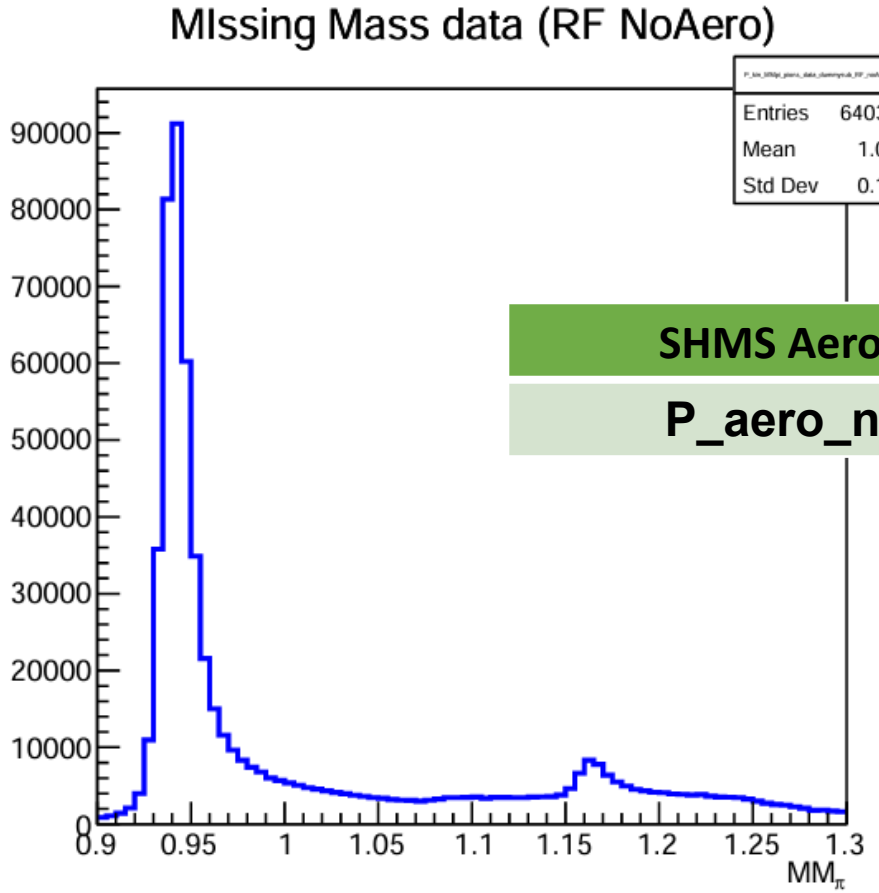


SHMS Aerogel Cut (Pions)
P_aero_npeSum > 0.5

```
==================================================
###### RF Efficiency Calculation #########
Cut applied on Aerogel detector: P_aero_npeSum > 0.50
==================================================
RF Ndid: 58715.17
RF Nshould: 58923.67
RF Efficiency: 0.99646 +/- 0.00024
==================================================
Wrote RF efficiency to /group/c-pionlt/USERS/junaid/hallc_replay_lt/
a.csv
Info in <TCanvas::Print>: pdf file /group/c-pionlt/USERS/junaid/hall
LT_coin_prod_SHMS_PID.pdf has been created using the current canvas
Info in <TCanvas::Print>: Current canvas added to pdf file /group/c-
```

SHMS PID Cut Study

- **Finalized Aerogel cut for physics setting "Q2 = 3.85, W = 2.02, t = 0.49 (higheps – n = 1.011)"**



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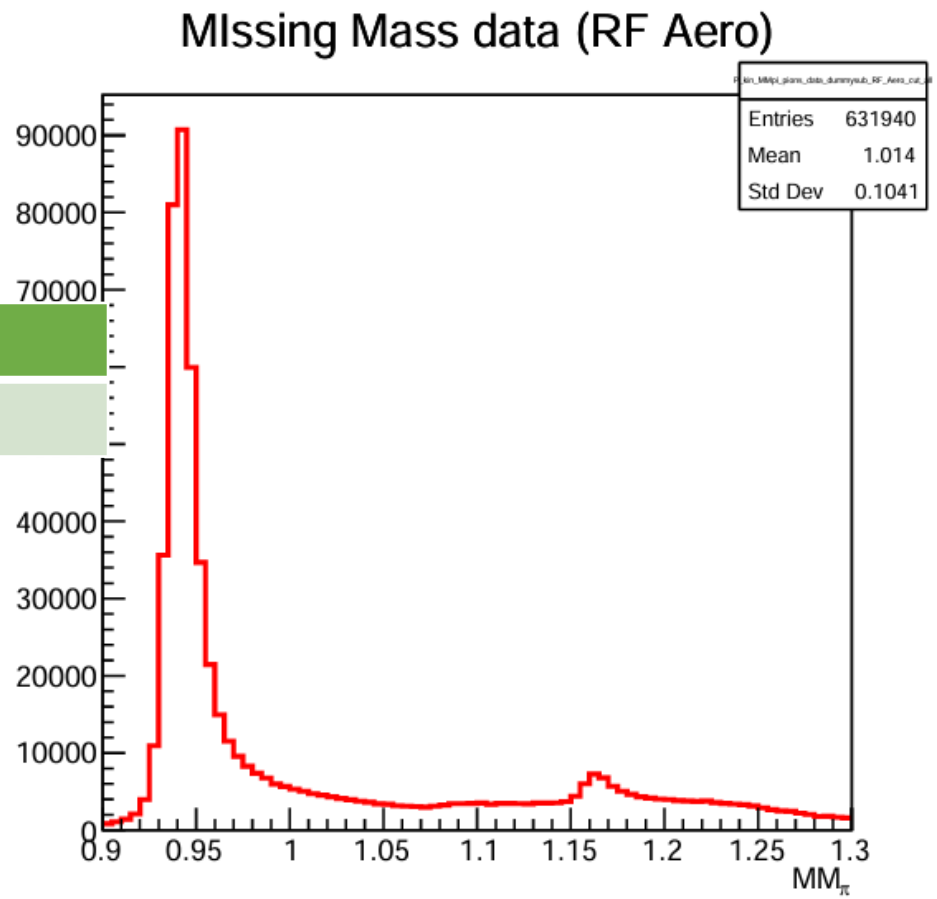

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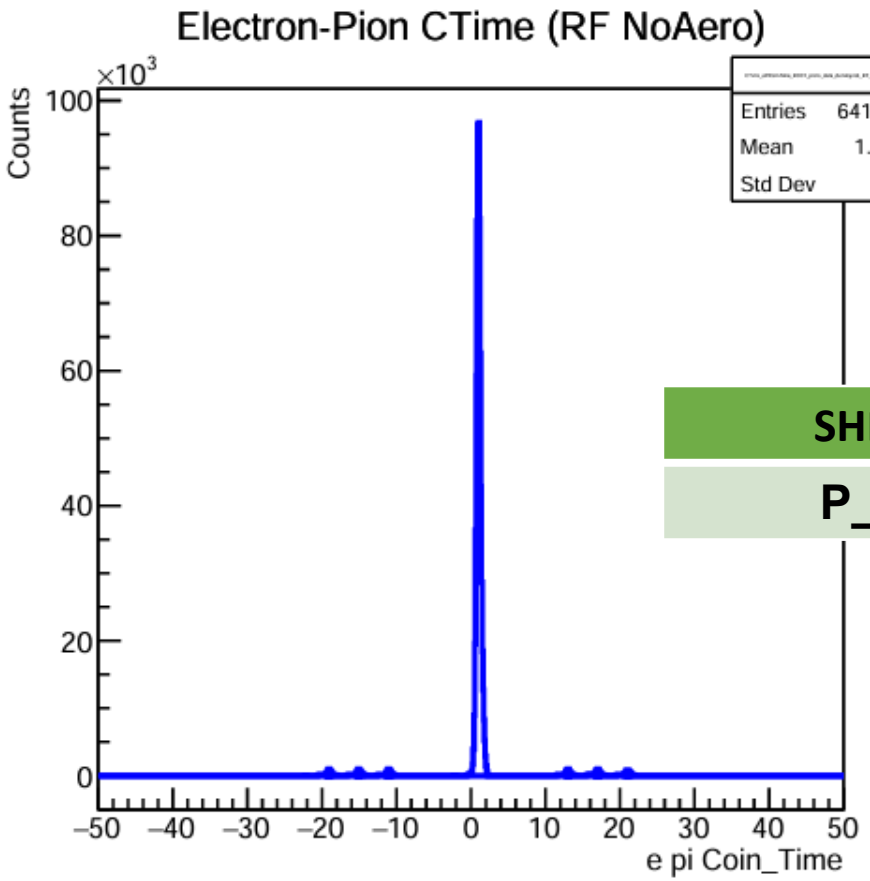

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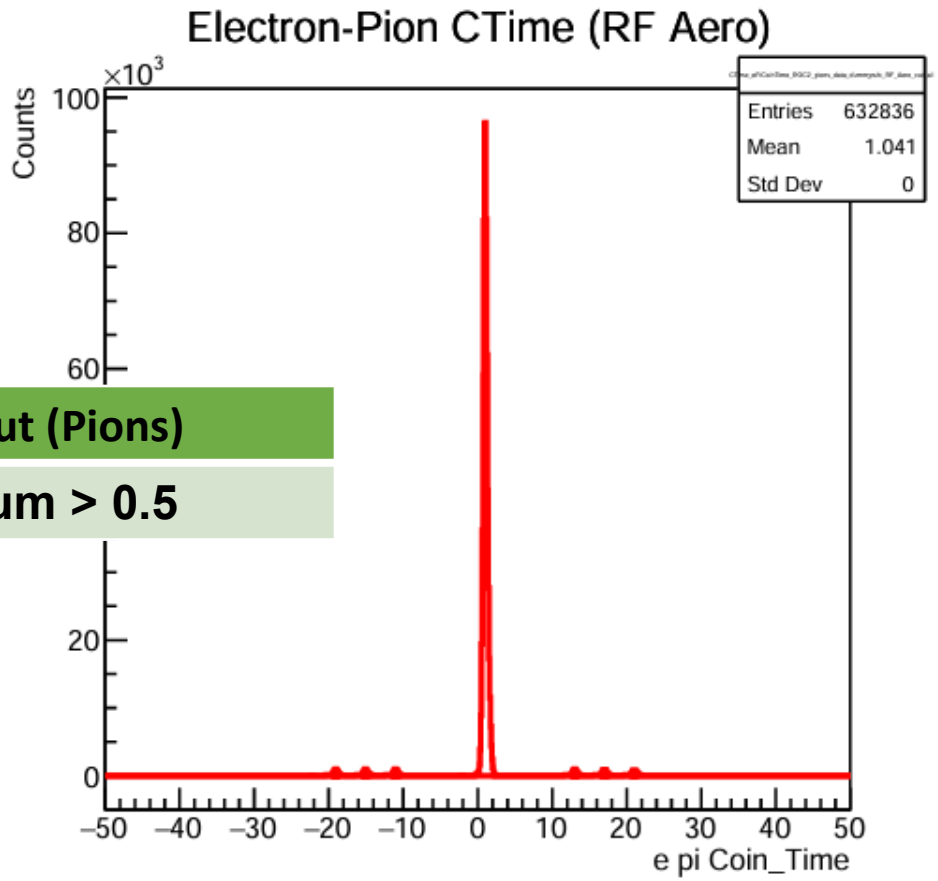

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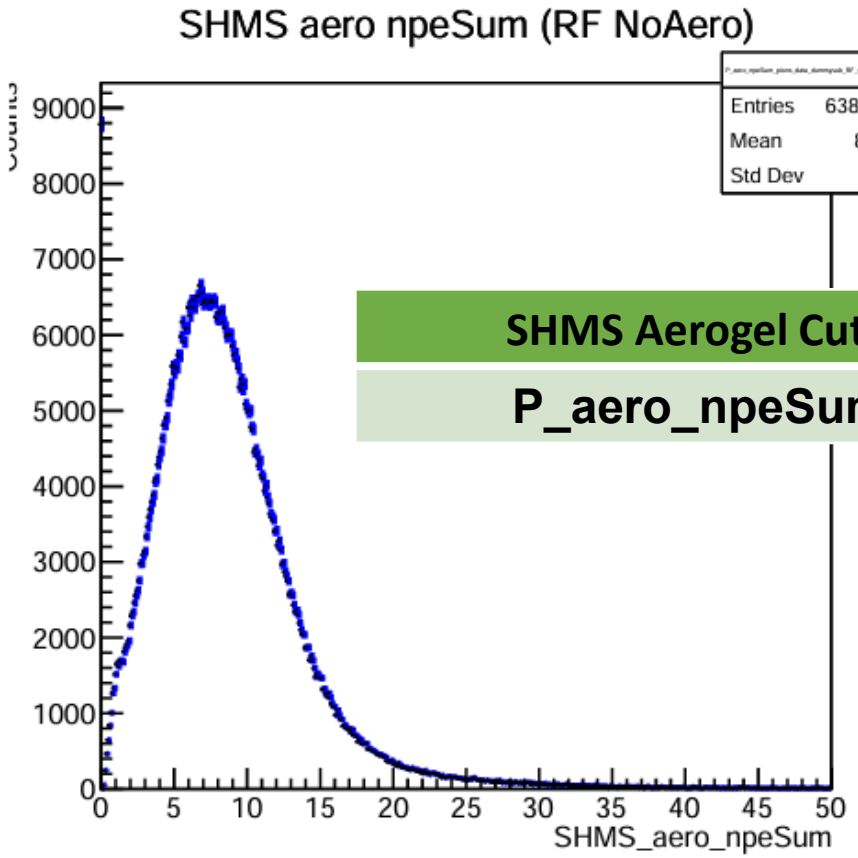

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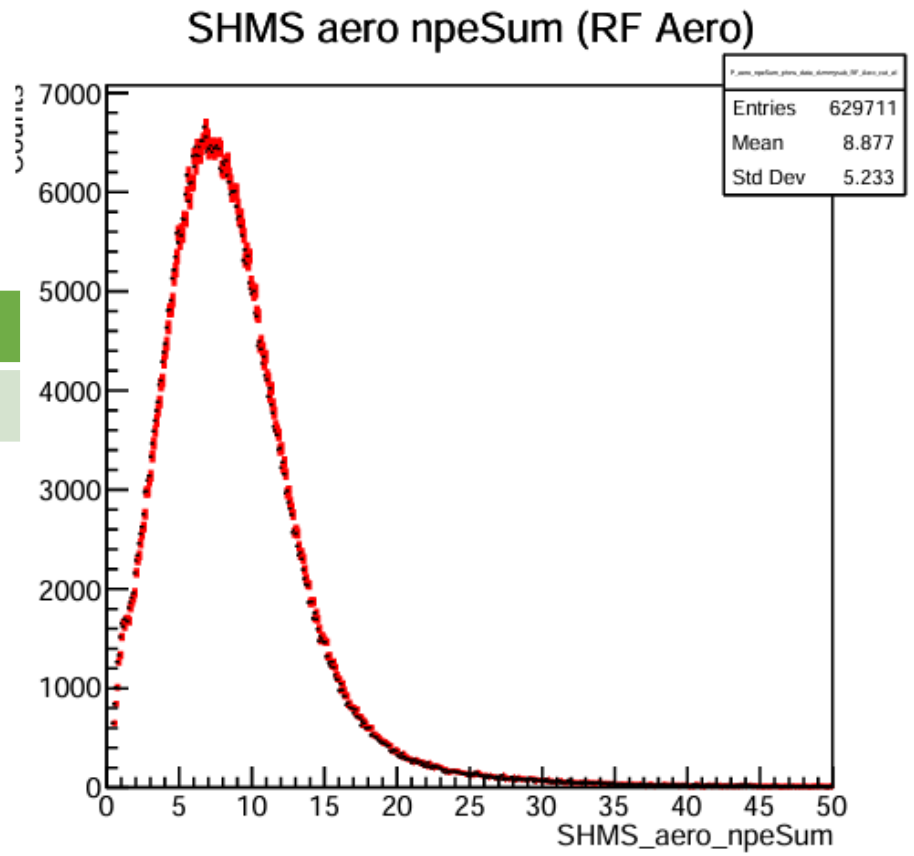

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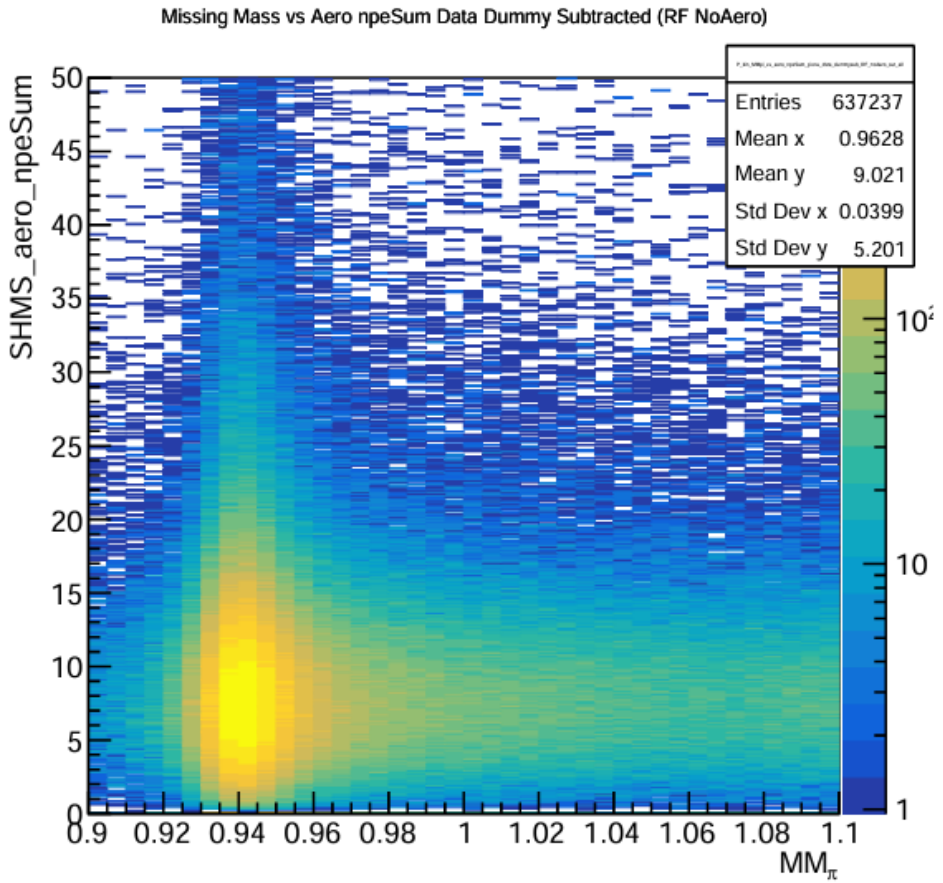

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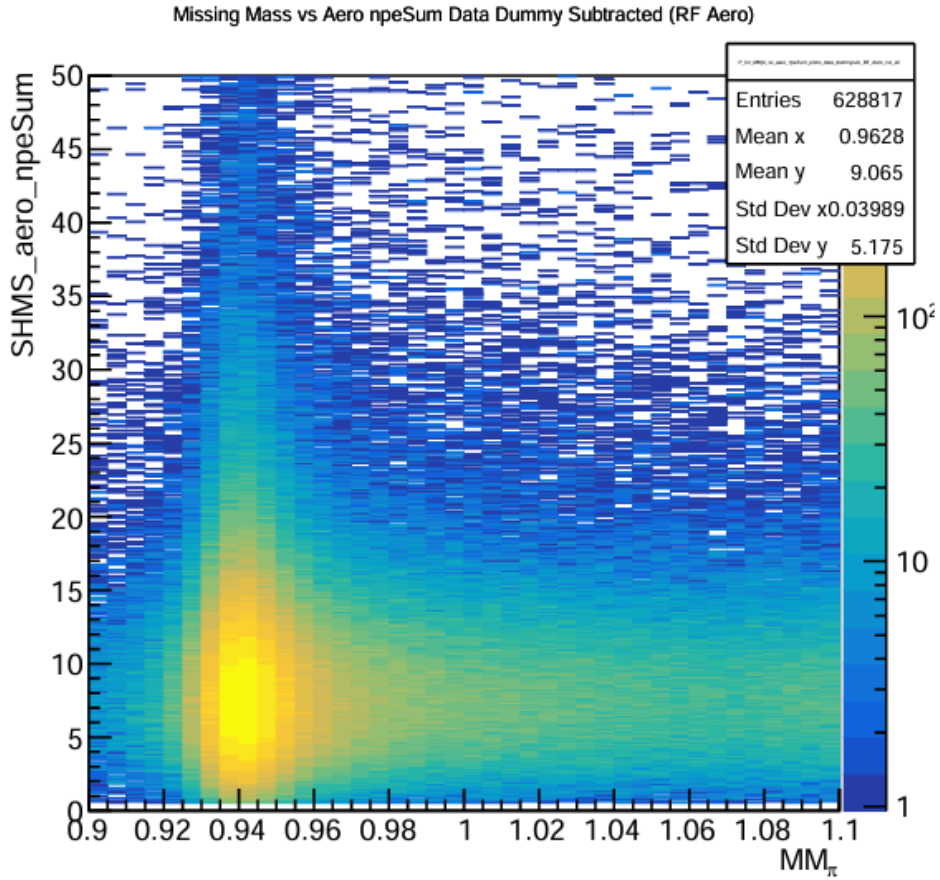

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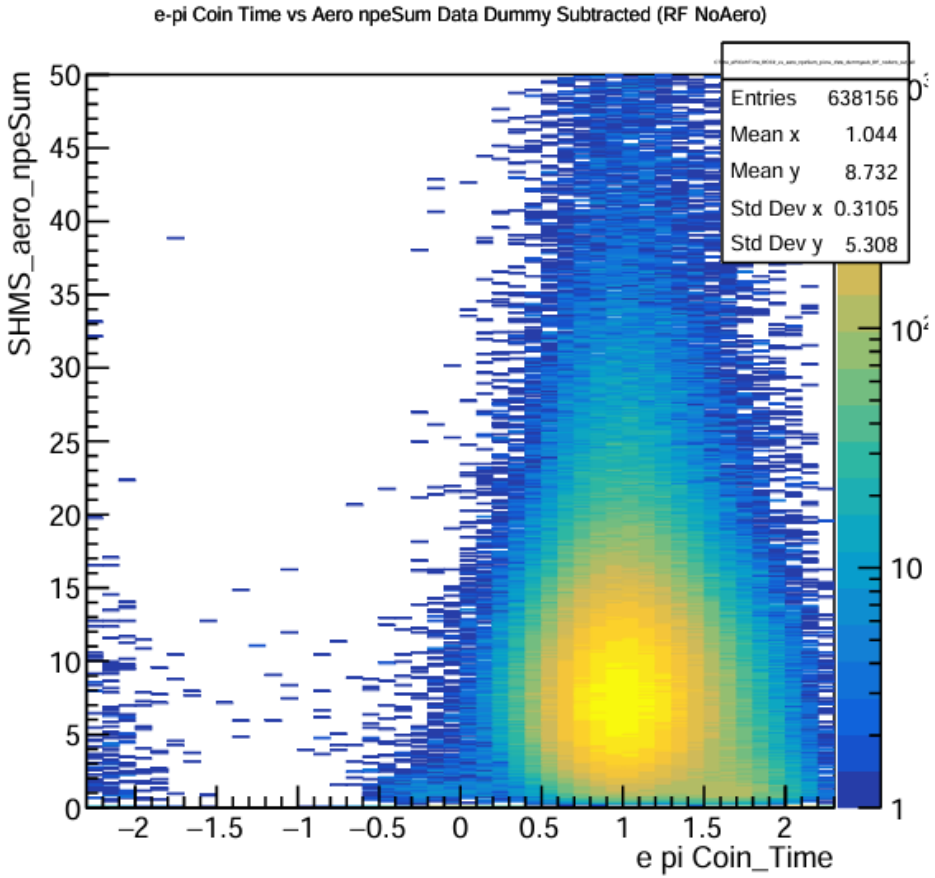

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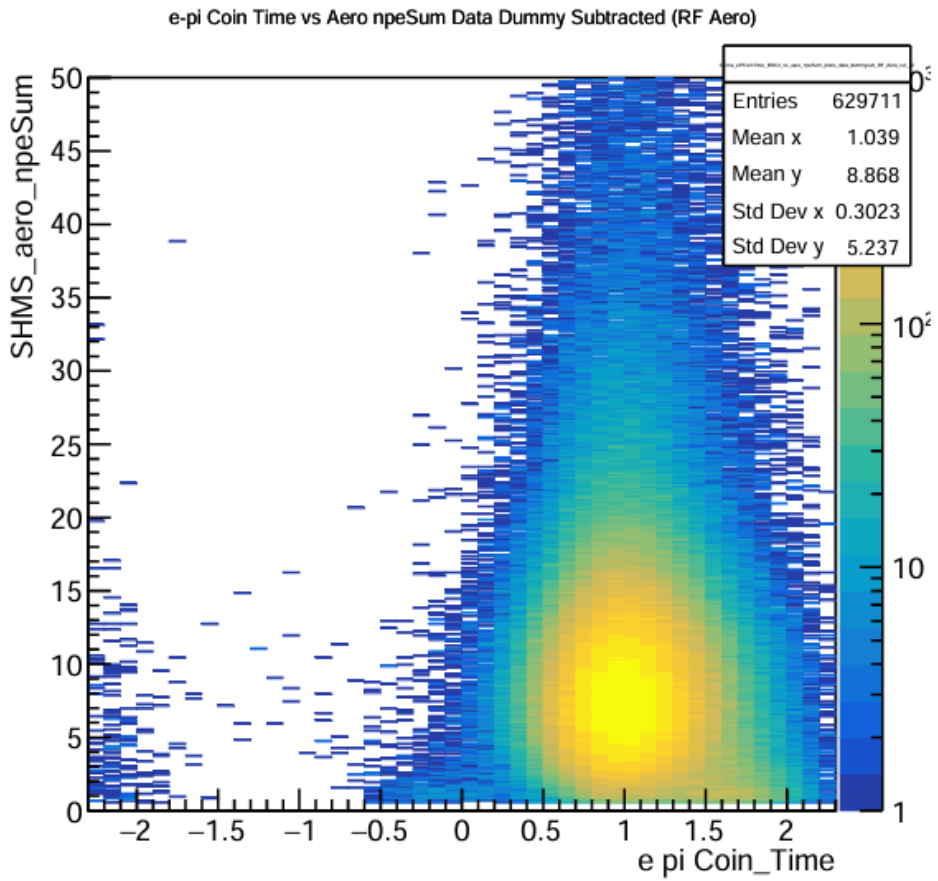

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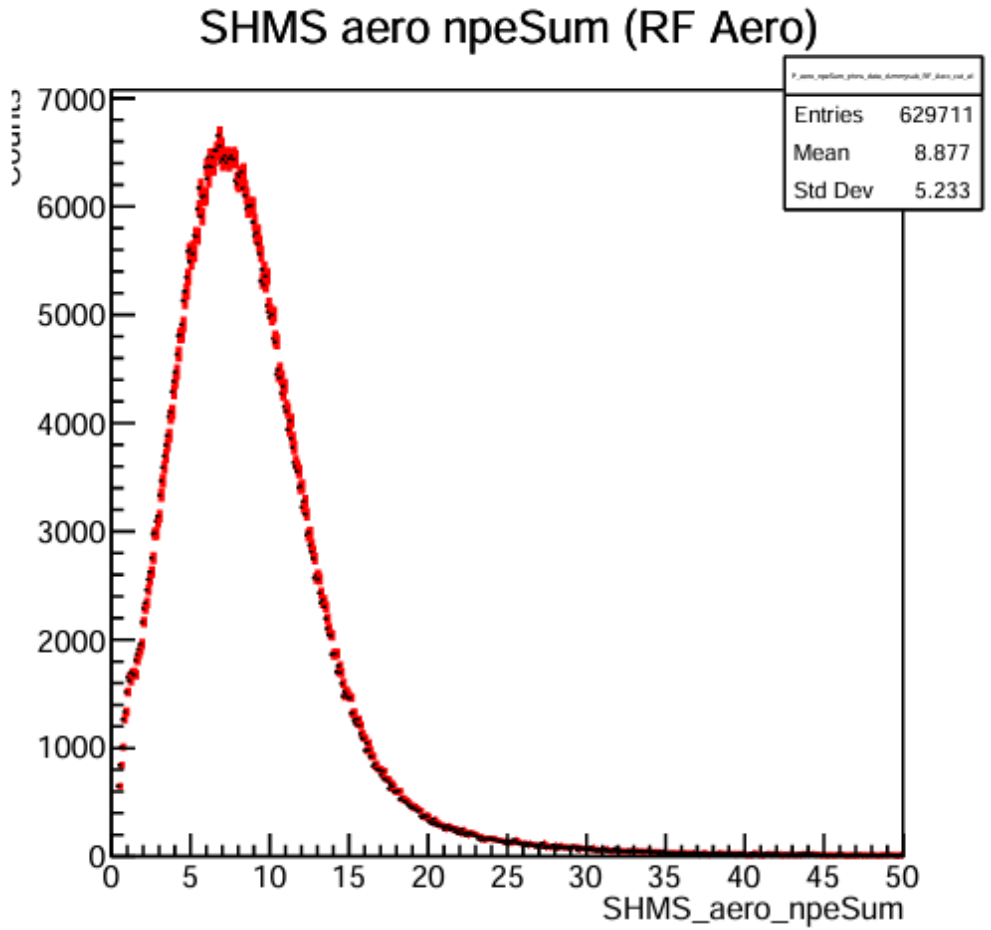

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P_aero_npeSum > 0.5

```
==================================================
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Cut applied on Aerogel detector: P_aero_npeSum > 0.50
==================================================
RF Ndid: 653132.67
RF Nshould: 662692.33
RF Efficiency: 0.98557 +/- 0.00015
==================================================
Wrote RF efficiency to /group/c-pionlt/USERS/junaid/hall
ta.csv
Info in <TCanvas::Print>: pdf file /group/c-pionlt/USERS/
nLT_coin_prod_SHMS_PID.pdf has been created using the cu
Info in <TCanvas::Print>: Current canvas added to pdf fi
_W2p02_t0p49_higheps_PionLT_coin_prod_SHMS_PID.pdf and f
Processing Complete
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SHMS PID Cut Study

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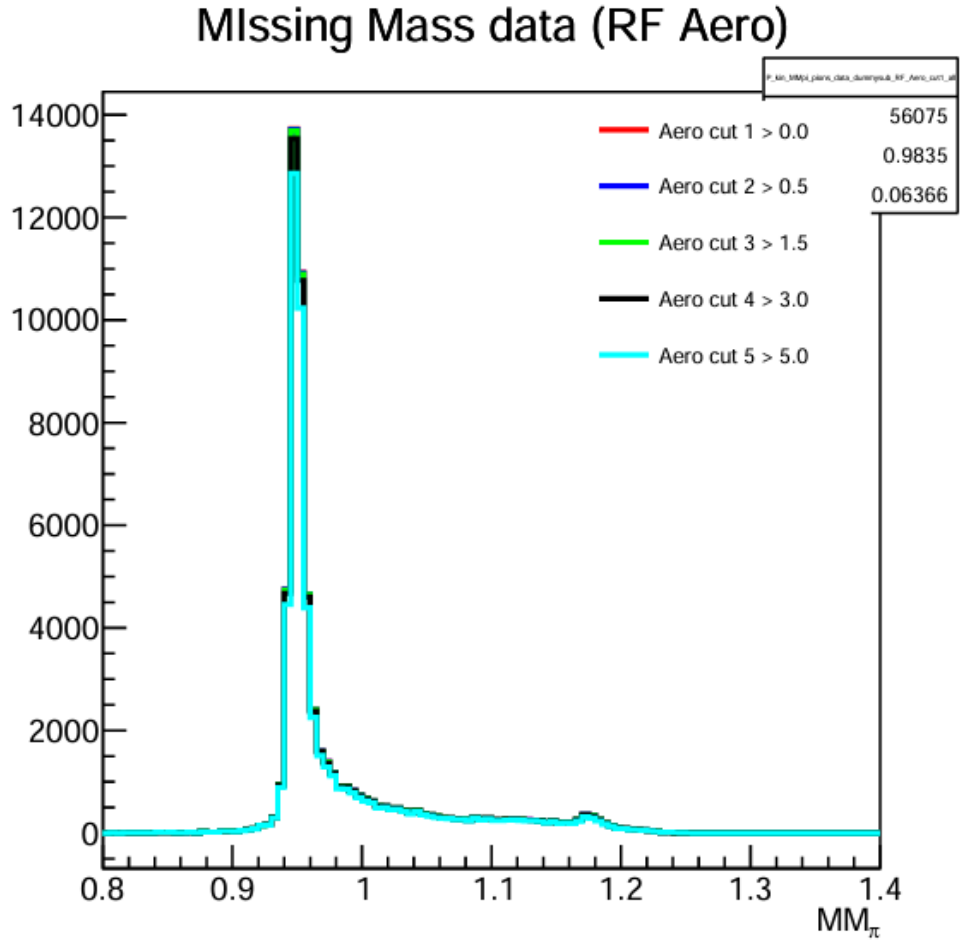

Aerogel Cut	# Events (0.9 – 1.06)
P_aero_npeSum > 0.0	51872
P_aero_npeSum > 0.5	51855
P_aero_npeSum > 1.5	51736
P_aero_npeSum > 3.0	51129
P_aero_npeSum > 5.0	48622

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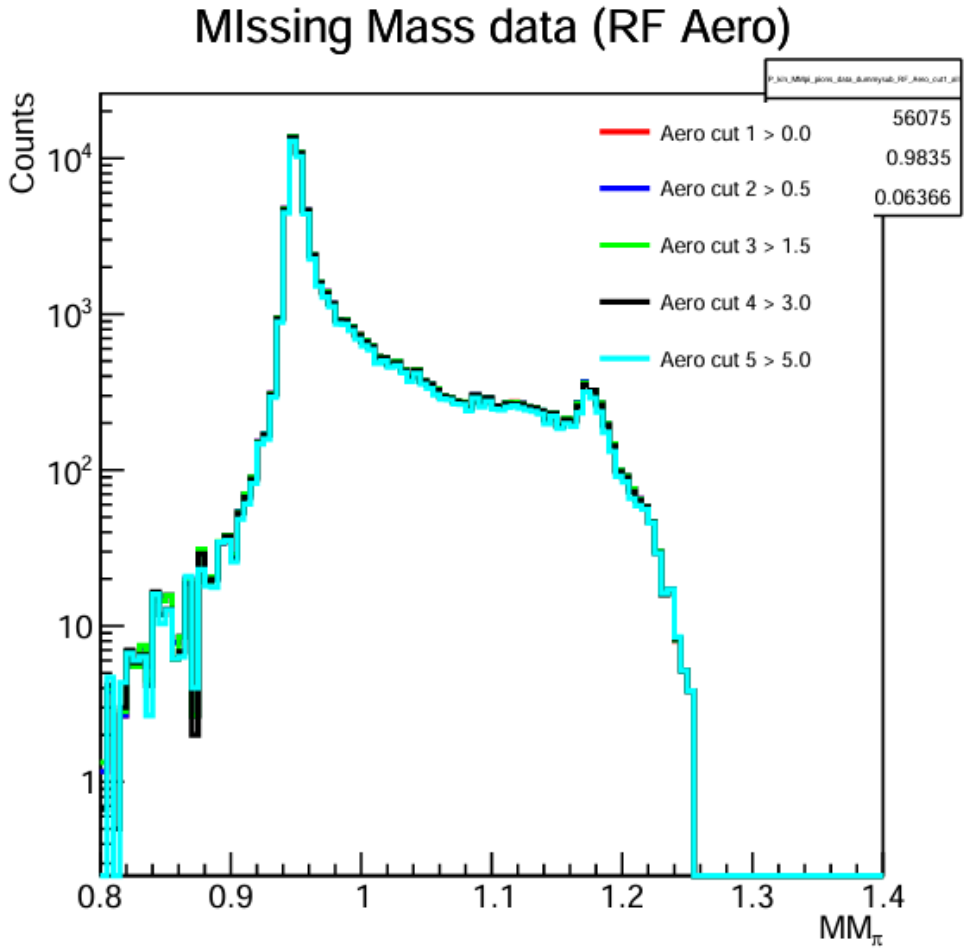

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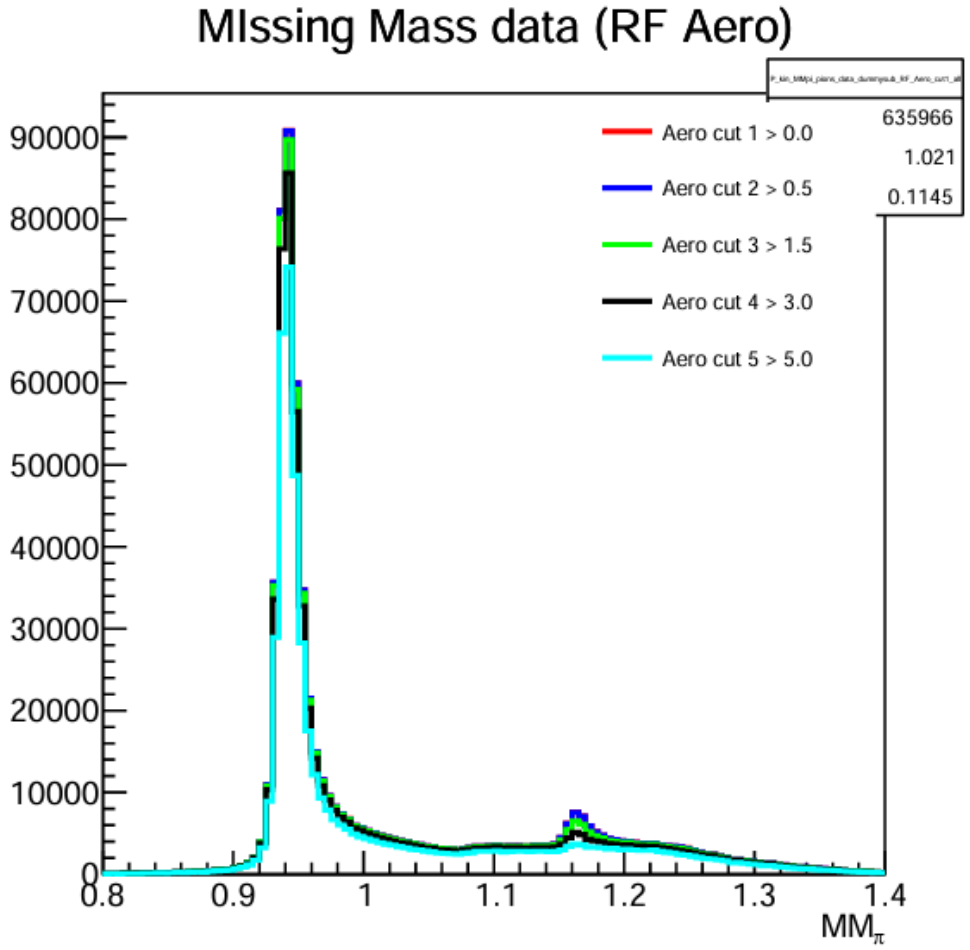

Aerogel Cut	# Events (0.9 – 1.06)
P_aero_npeSum > 0.0	467113
P_aero_npeSum > 0.5	466808
P_aero_npeSum > 1.5	461245
P_aero_npeSum > 3.0	440172
P_aero_npeSum > 5.0	380155

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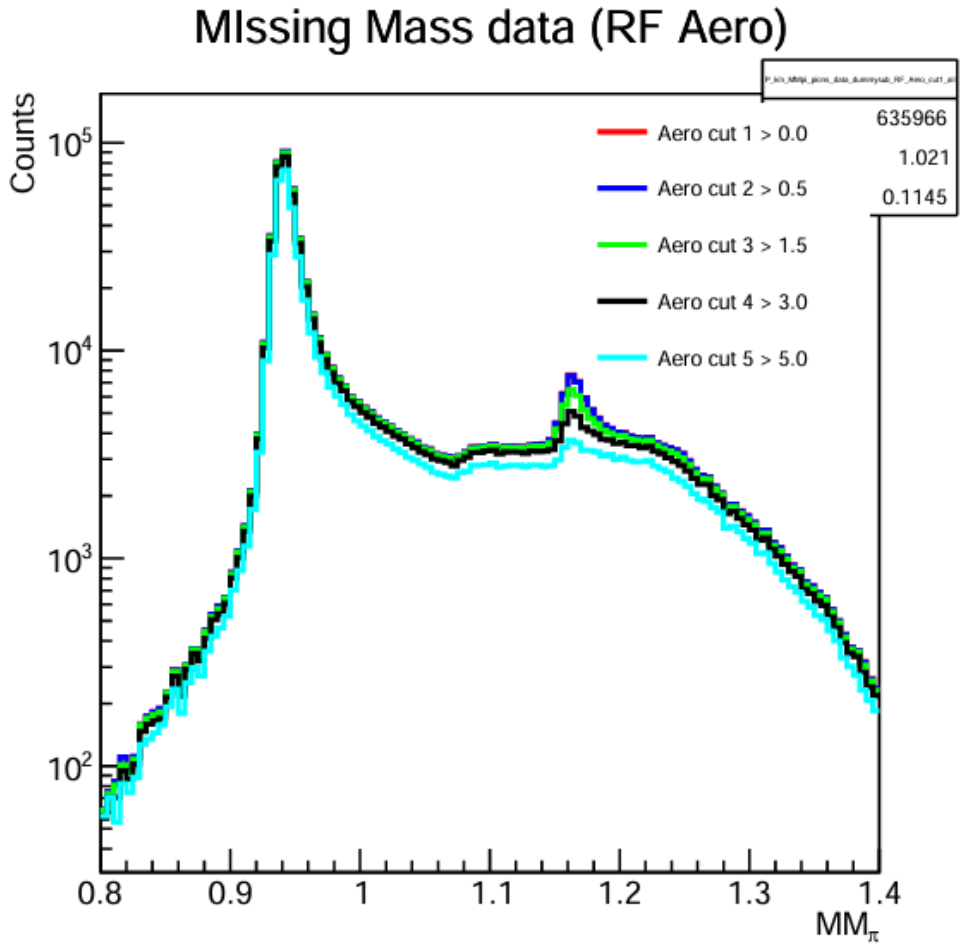

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P_aero_npeSum > 3.0	440172
P_aero_npeSum > 5.0	380155

Pre-LTSep Analysis

- ❑ **Determined RF cut and efficiency for physics setting.**
- ❑ **Calculated pion absorption correction for physics setting.**
- ❑ **Finalized missing mass offsets and cuts.**

- ❑ **In progress:**

- Working on diamond cut.