Missing Mass Correction Update

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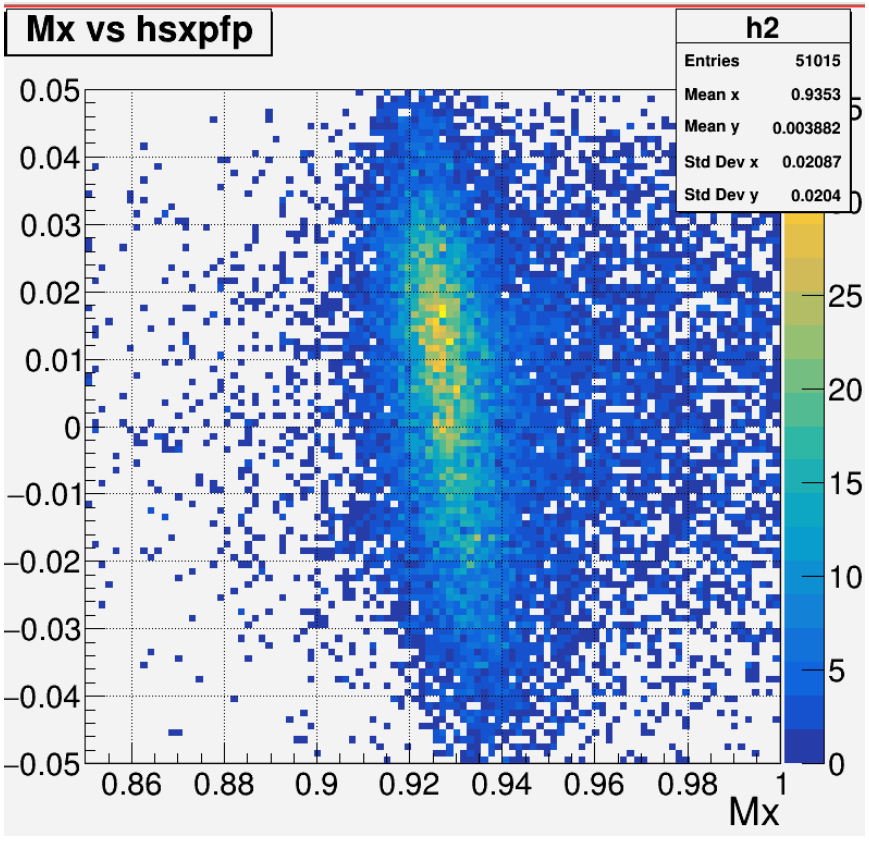
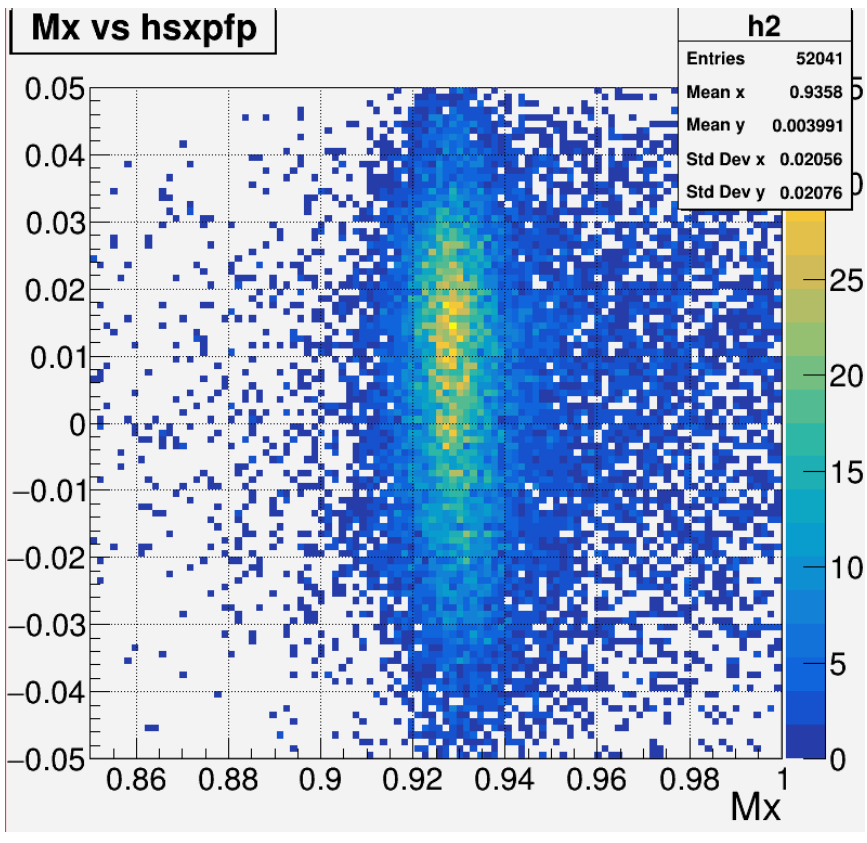
Dave's Missing Mass Calculation

No correction



With correction

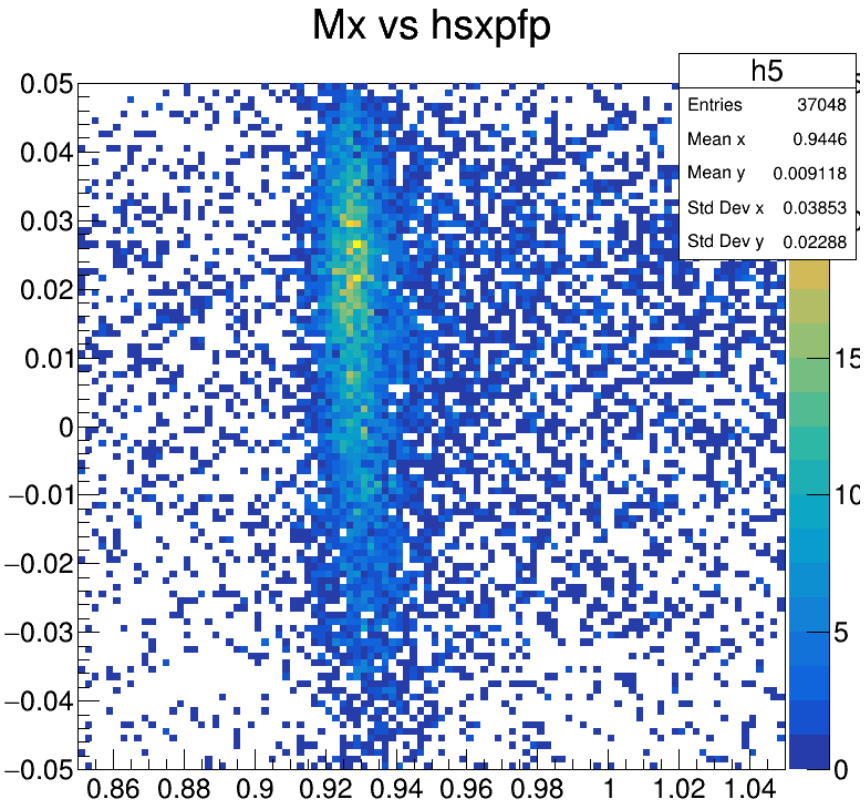


- Dave calculated M_X based on the old analyzer from the 6 GeV era
- With this calculation of M_X, there is a linear relationship between M_X and *H.dc.xp_fp* which is corrected

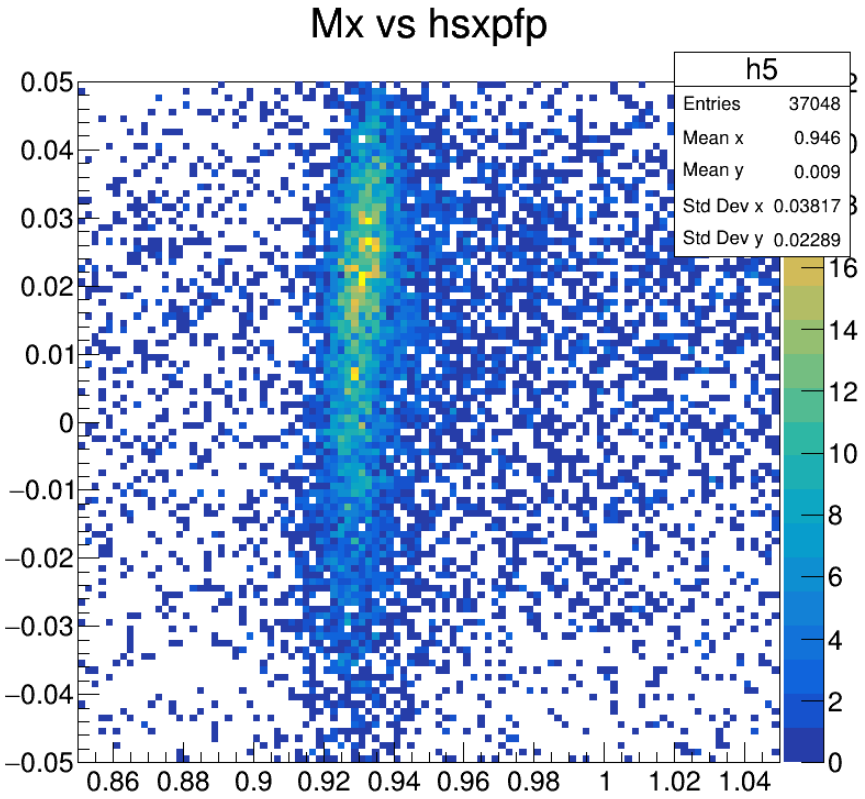
Plots: Q^2=4.4, W=2.74, P_{HMS}=4.712

Alicia's Missing Mass Calculation

No correction



With correction

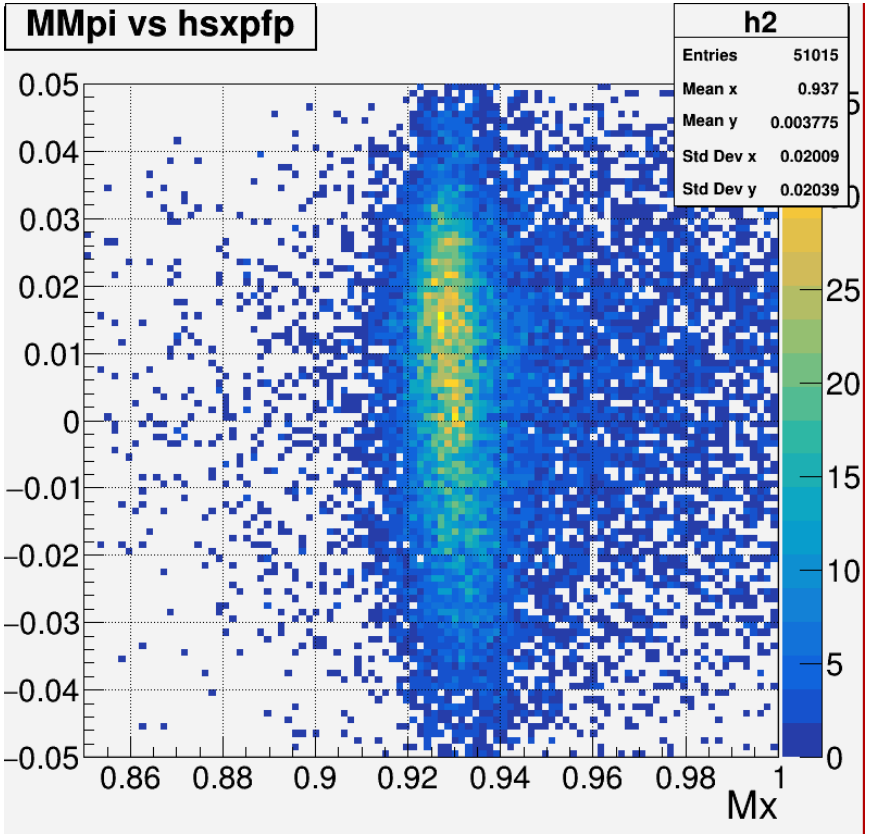


- Alicia wrote a calculation of M_X based on **recon_hcana**
- The correlation between M_X and *H.dc.xp_fp* is much smaller, and is now overcorrected

Plots: Q^2=4.4, W=2.74, P_{HMS}=4.712

Missing Mass from hcana

No correction

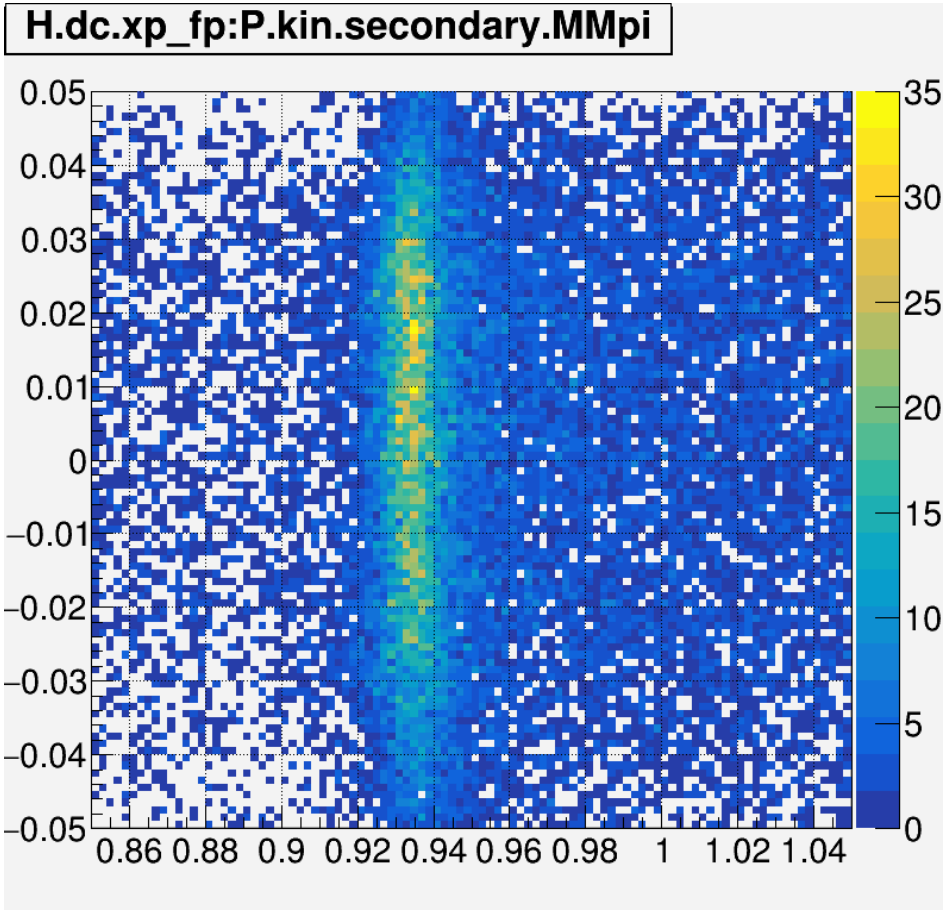


- When using *MMpi* directly from **hcana**, the correlation with *H.dc.xp_fp* seems nonexistent or negligible
- Correction does not seem to be necessary

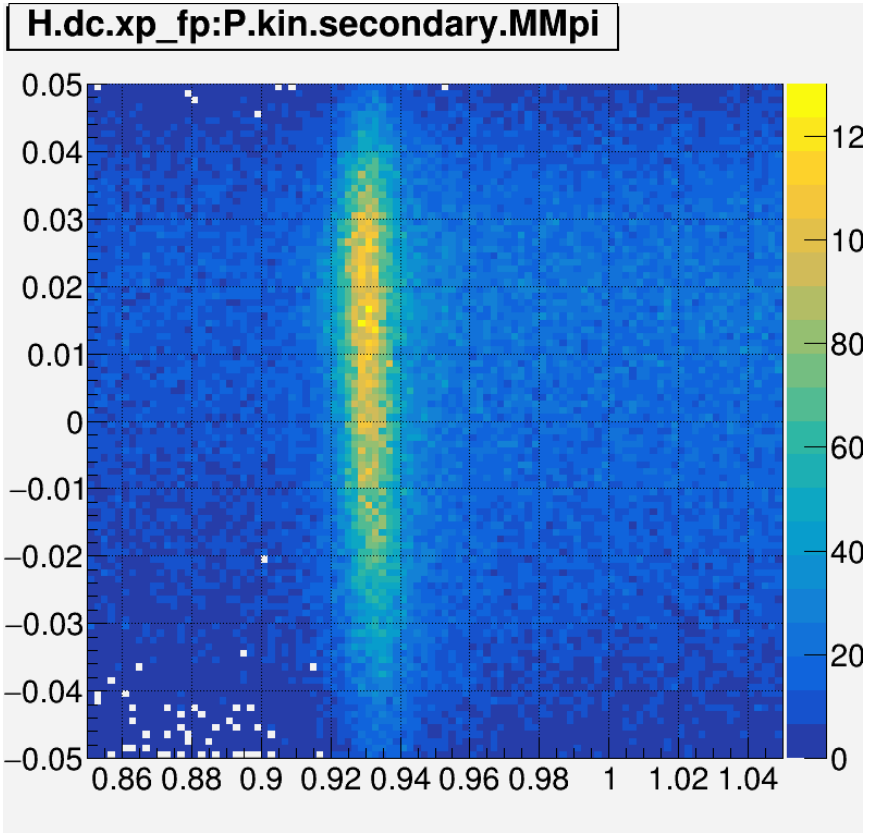
Plots: Q^2=4.4, W=2.74, P_{HMS}=4.712

Other Kinematics from hcana

Q^2=5.5,W=3.02, P_{HMS}=3.266



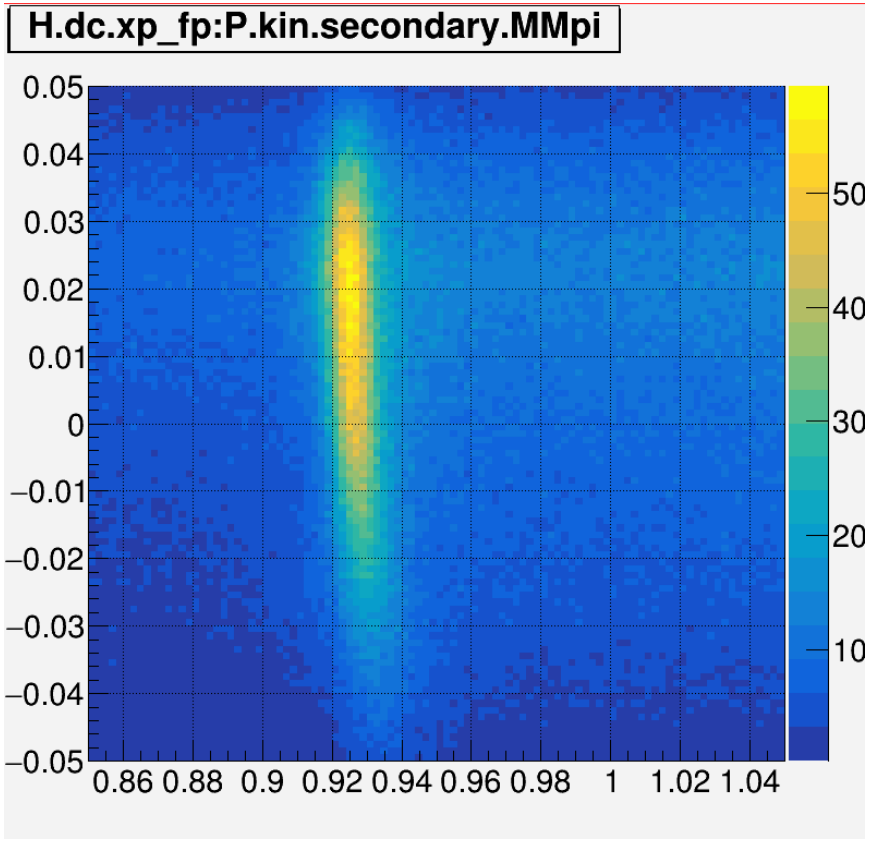
Q^2=3,W=3.14, P_{HMS}=4.204



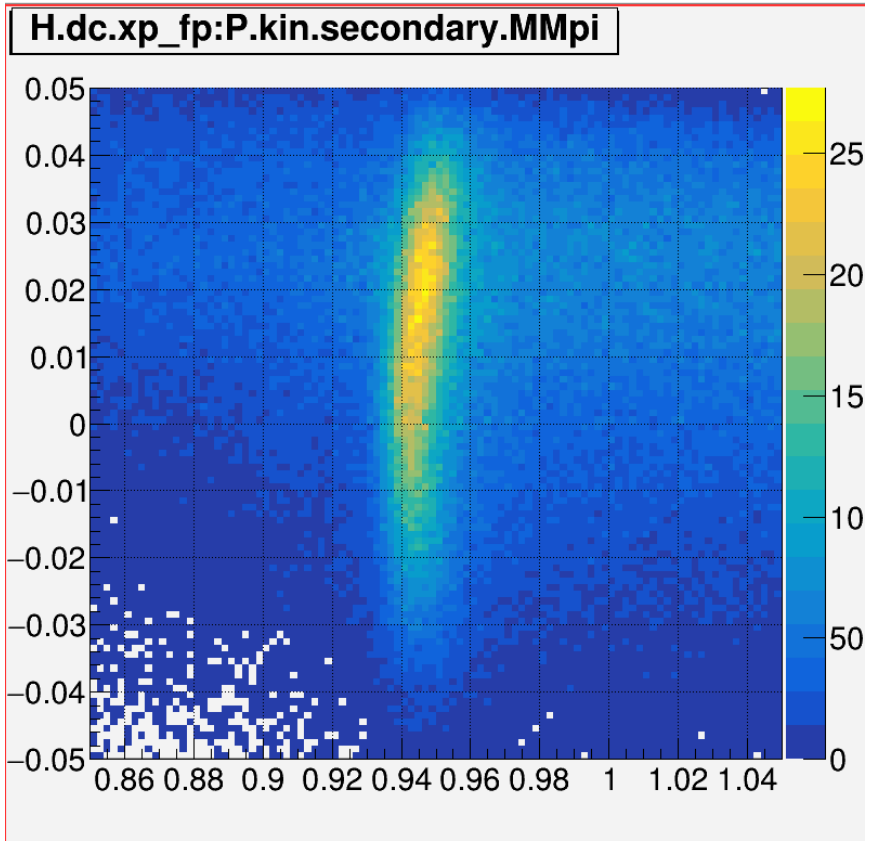
- Correction does not seem to be necessary for the settings with P_{HMS} <5.0

Other Kinematics from hcana

Q^2=2.1, W=2.95, P_{HMS}=5.292



Q^2=3, W=2.32, P_{HMS}=6.590



- For higher HMS momentum, there is a clear relationship between *MMpi* and *H.dc.xp_fp*
- Relationship is non-linear: may have to re-visit exactly what correction to apply

Conclusions

- Analysis of settings with P_{HMS} <5.0 can proceed without correction
- May need new correction for P_{HMS} >5.0: requires understanding difference between each missing mass calculation