

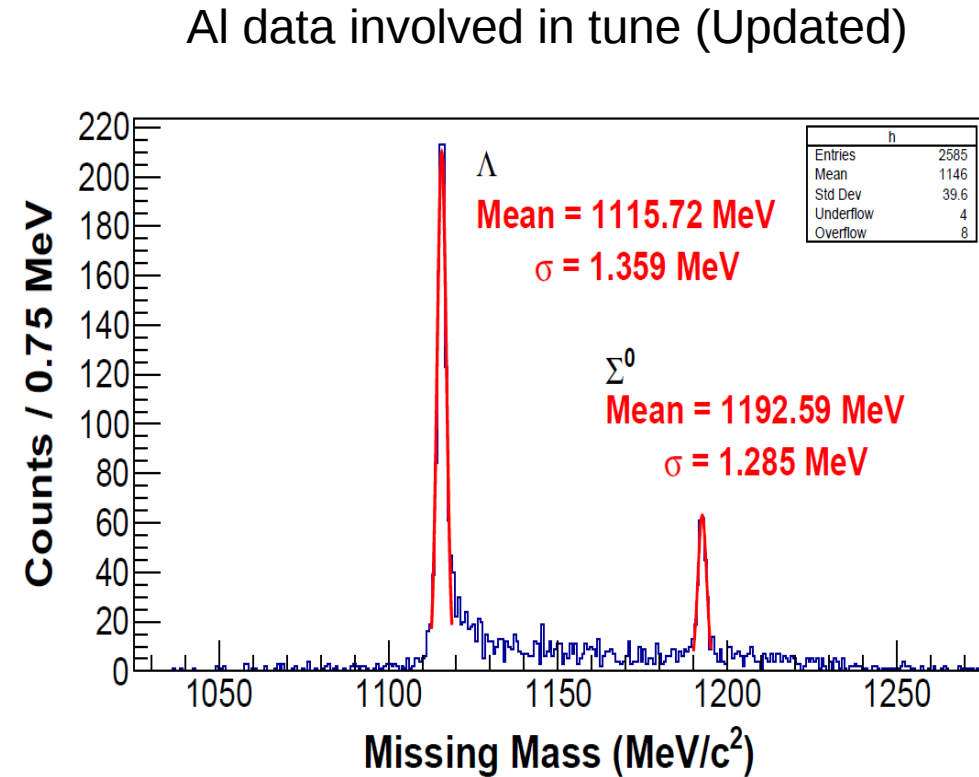
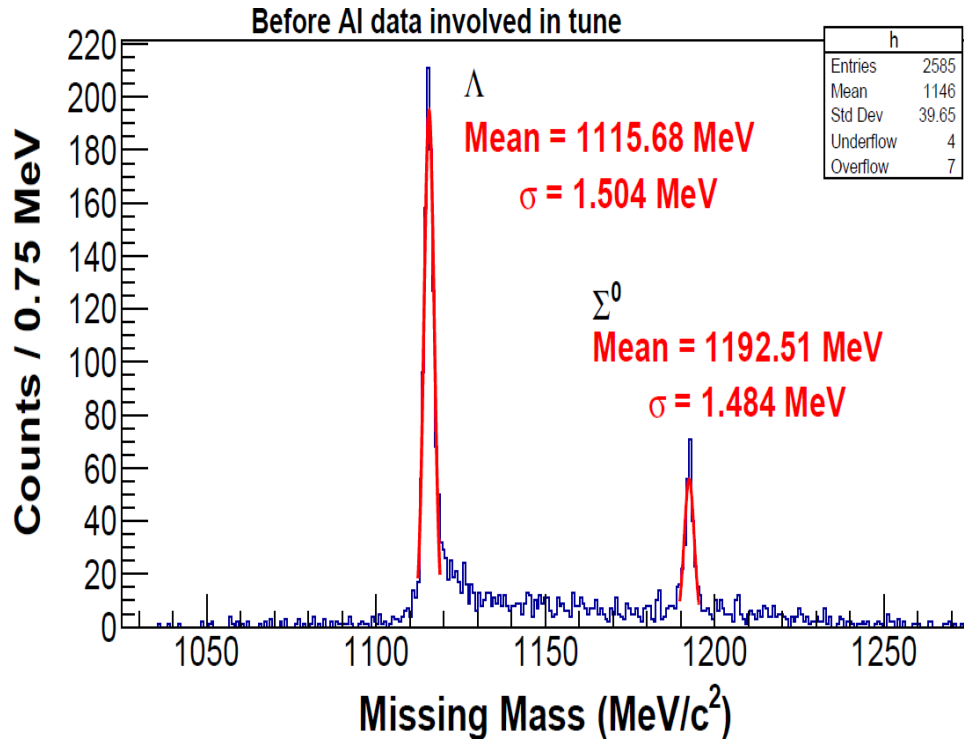
nn Λ Analysis Meeting

July 13, 2021

Bishnu Pandey

Hampton University

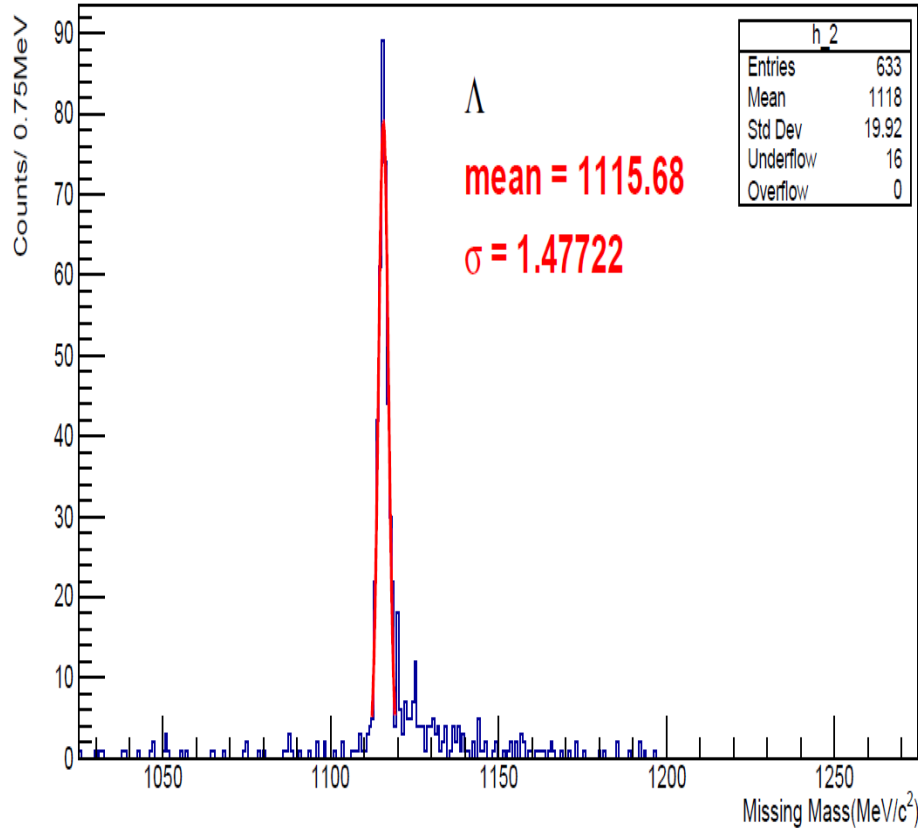
Comparison: Before and After AI data involved in tune



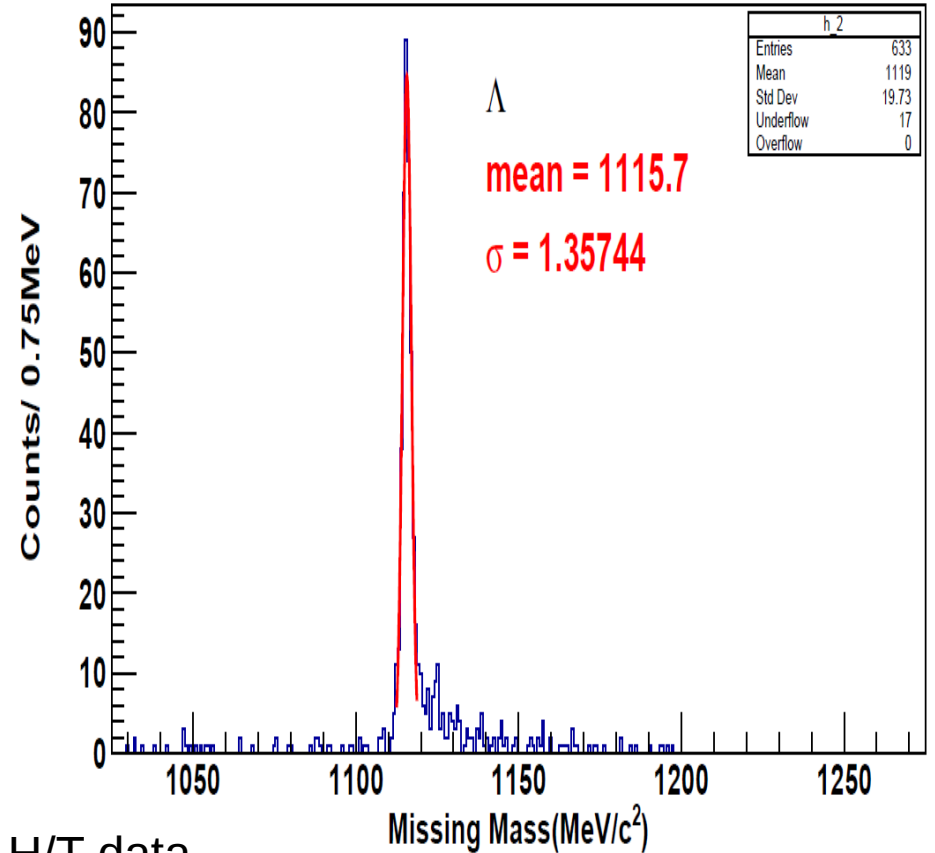
- The momentum matrices are tuned by involving the AI data in the matrix tune.
- The resolution improved by about 10%.

Comparison Continue

Before AI data involved in tune



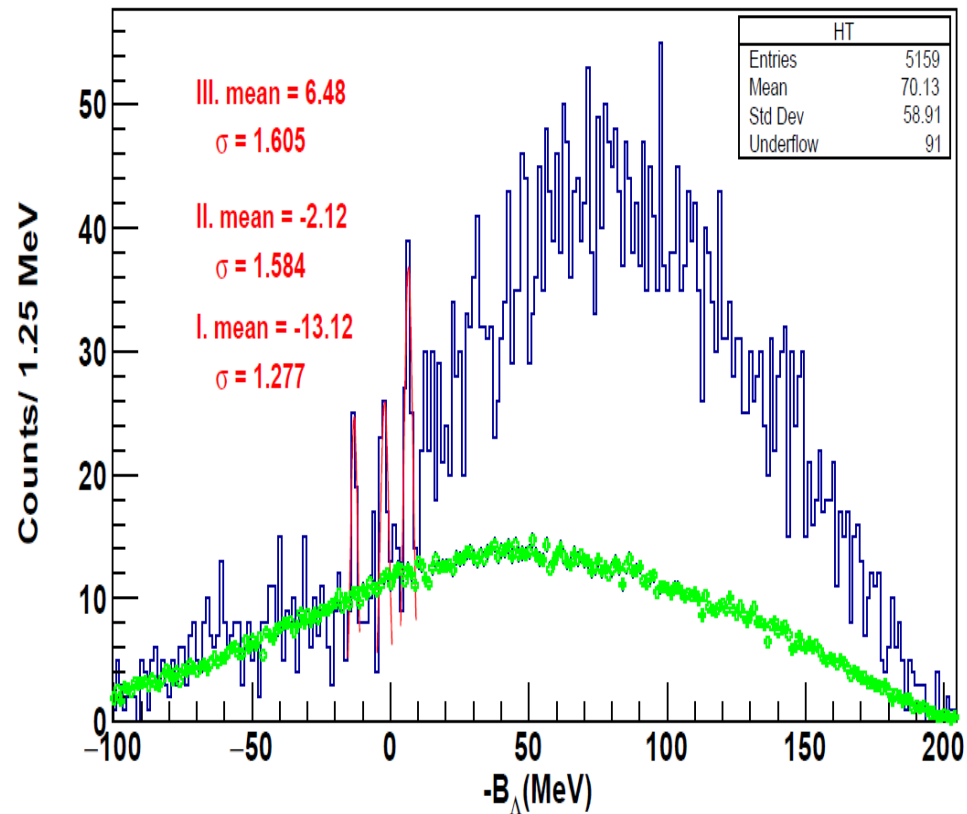
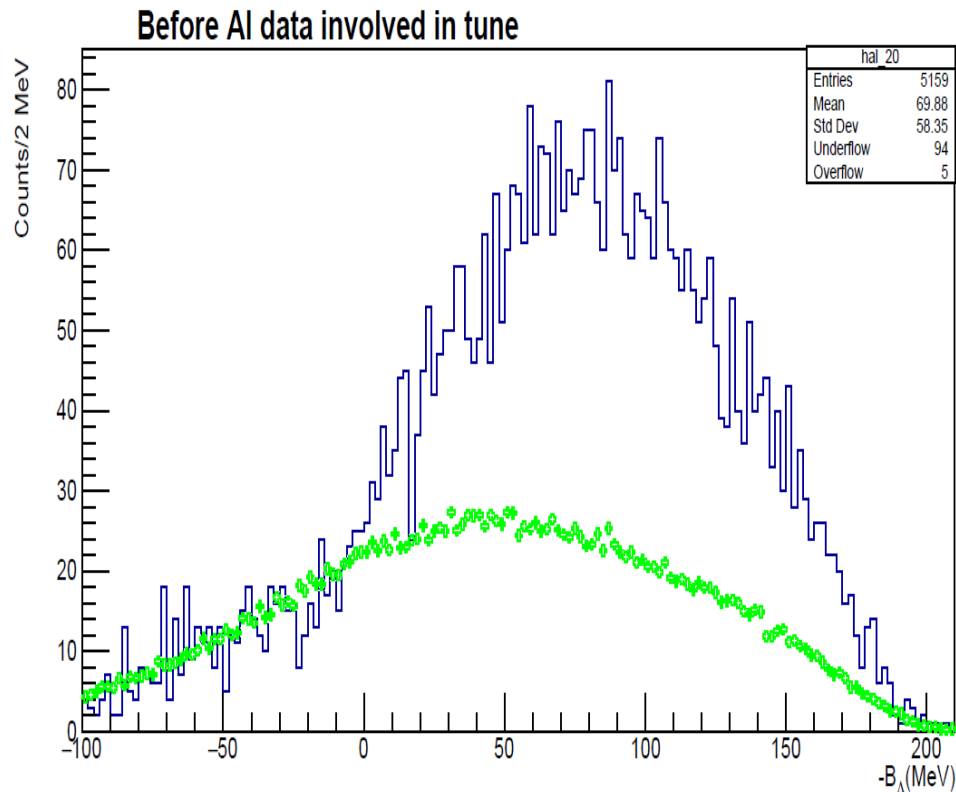
AI data involved in tune (updated)



- Lambda Missing mass obtained by analyzing the H/T data.

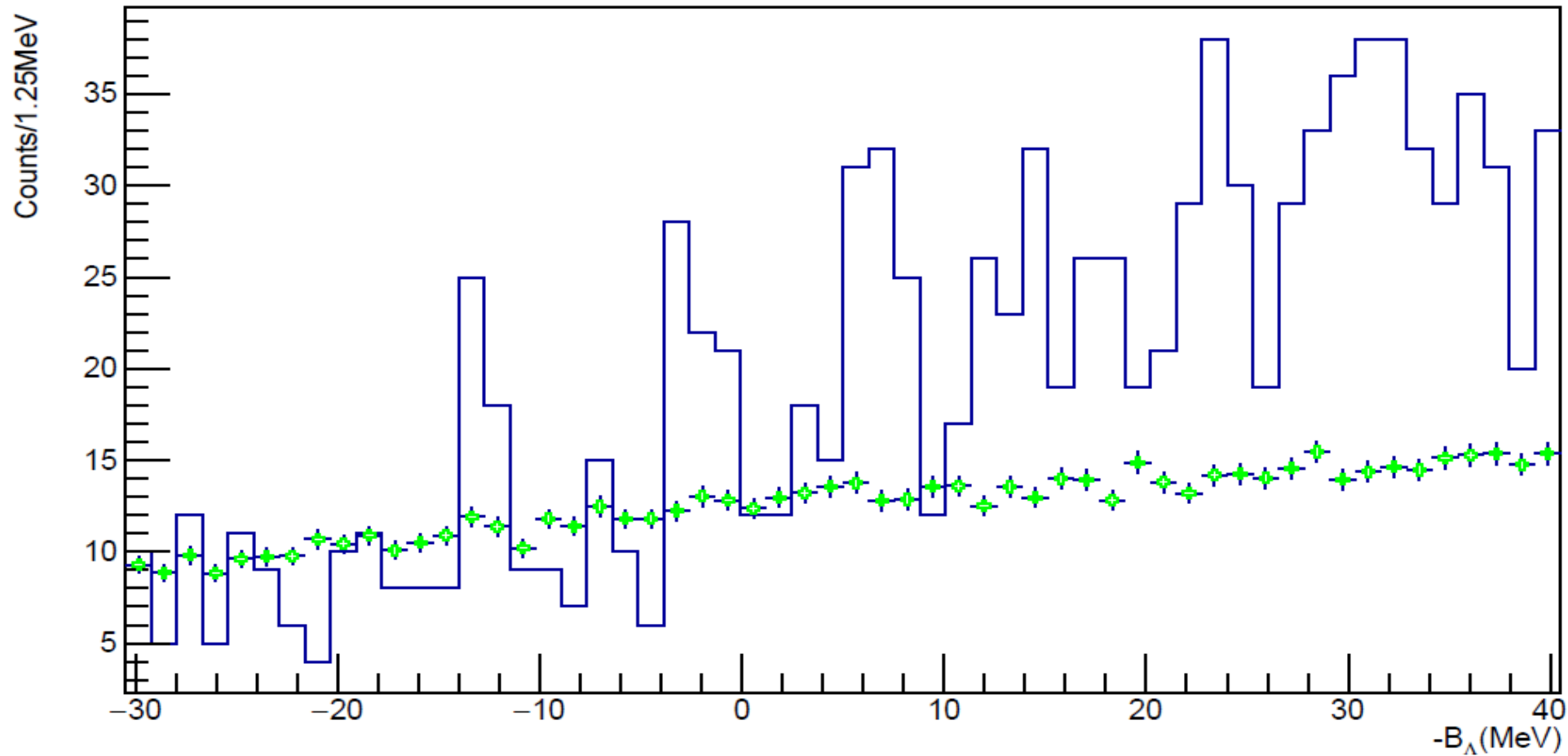
Comparison Continue

AI data involved in tune (updated)

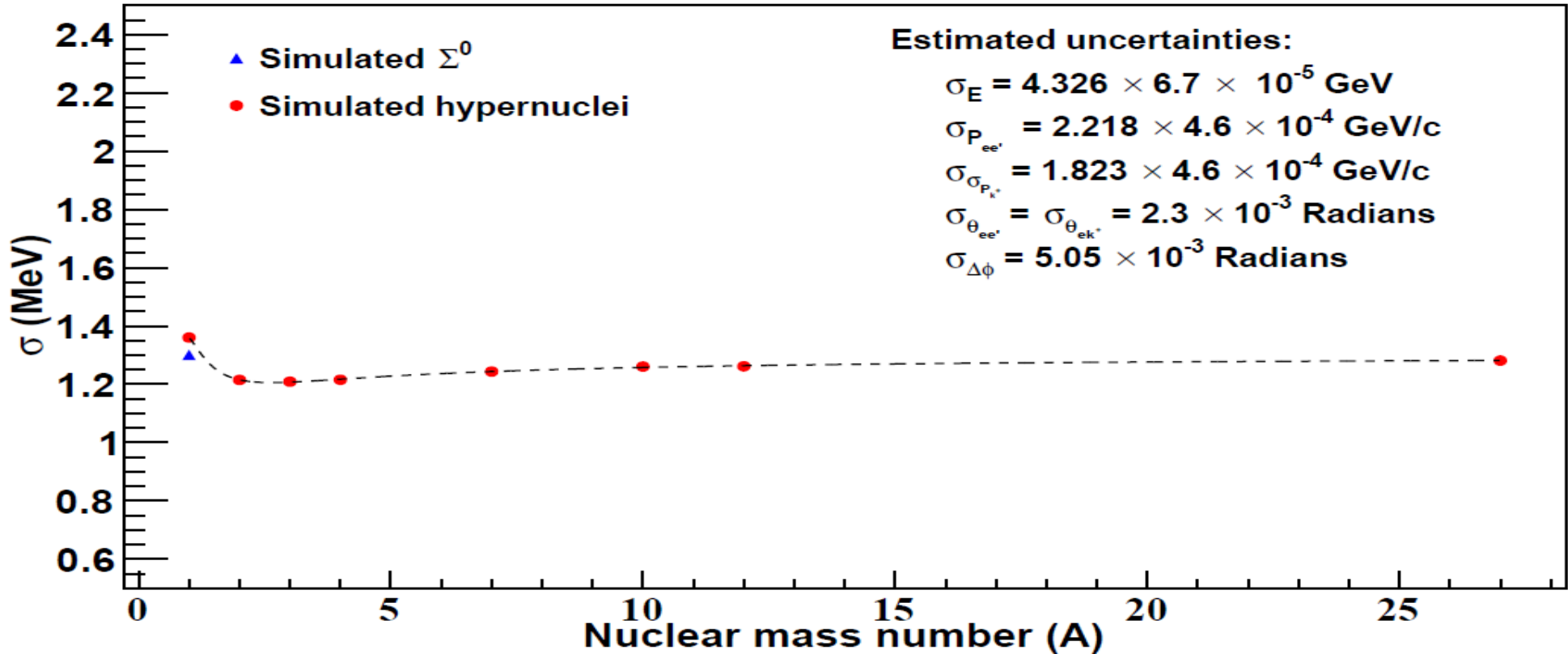


- In the updated $^{27}\text{Mg}_L$, two bound and one unbound states are observed.

A Detailed View of the Observed (27_MG_L) Peaks



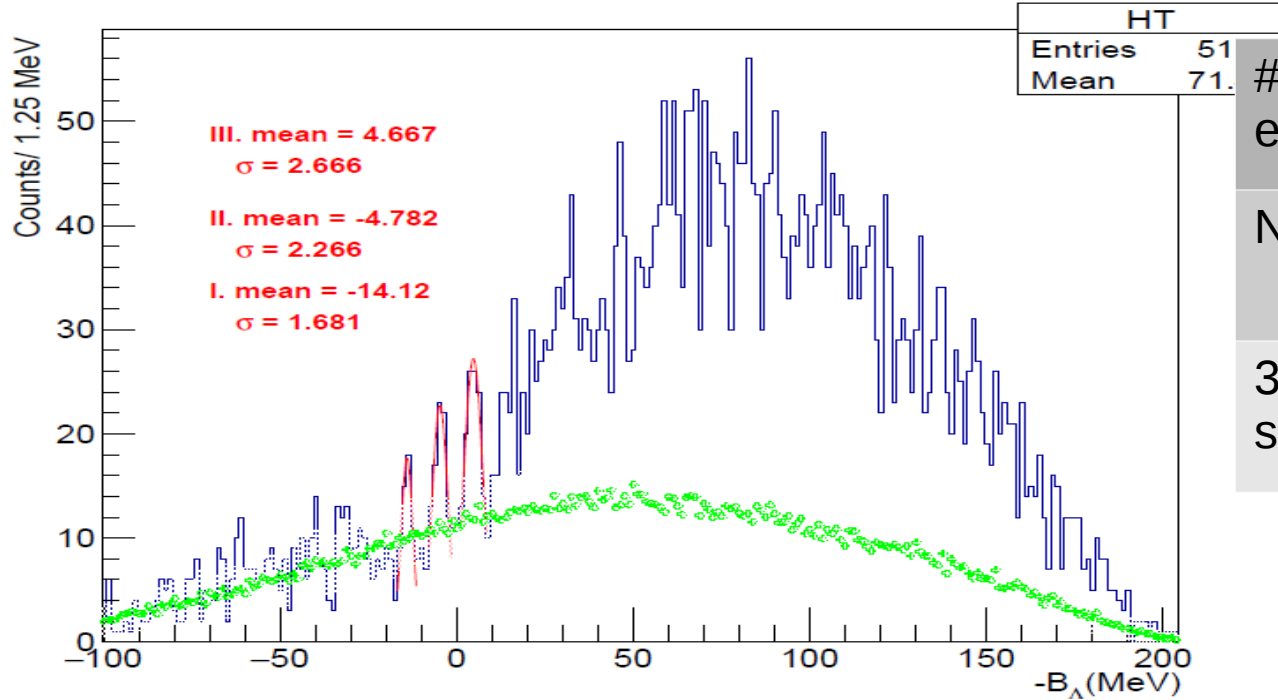
Monte Carlo Simulation (updated)



- The width of achieved Λ suggested that the momentum uncertainty is $\sim 4.6 \times 10^{-4}$.
- The width of Σ and the ground state of 27_{Mg}L agree with the simulation very well.

For the events from entrance Al window $B_L = B_L + 3.0$ MeV

Al Spectrum(H/T+ TT data)

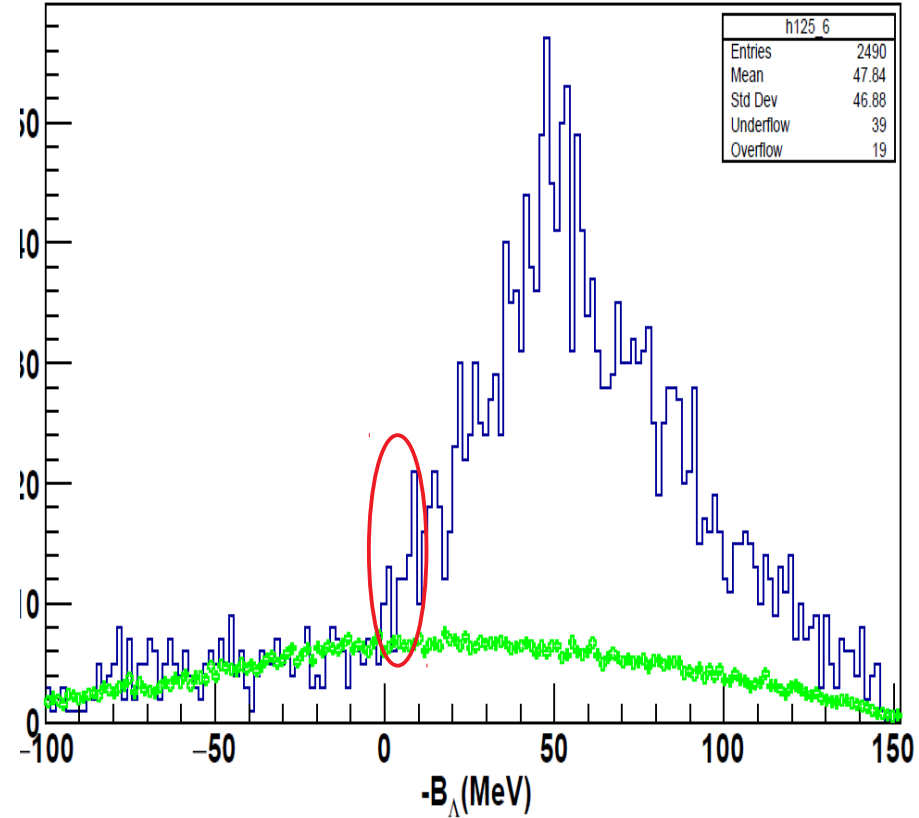
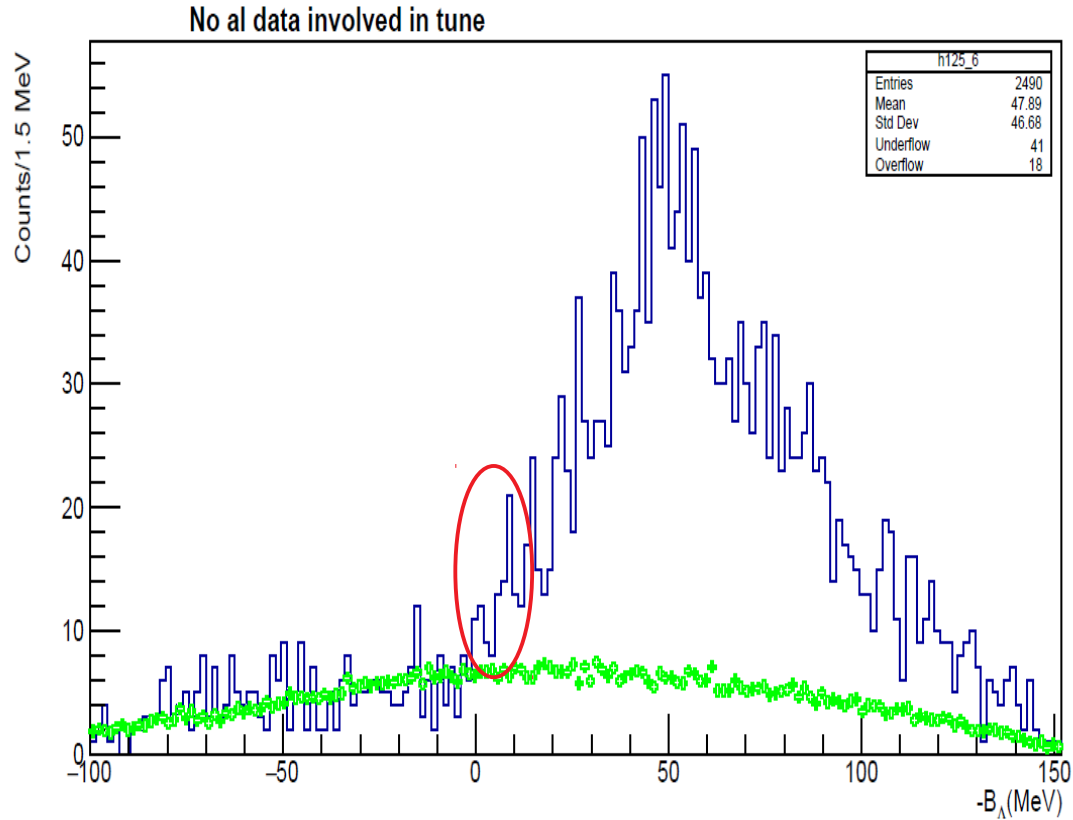


# of events	1 st peak	2 nd peak	3 rd peak
No Shift	22	31	58
3.0 MeV shift	13	28	37

- The momentum matrices are tuned with 3.0 MeV Mass shift in the opposite direction. That is for the events from the beam entrance window, $B_L = B_L + 3.0$ MeV.
- Both first and 3rd peak lose their events by $\sim 40\%$. The behavior of 2nd peak may be due to close by core structure.

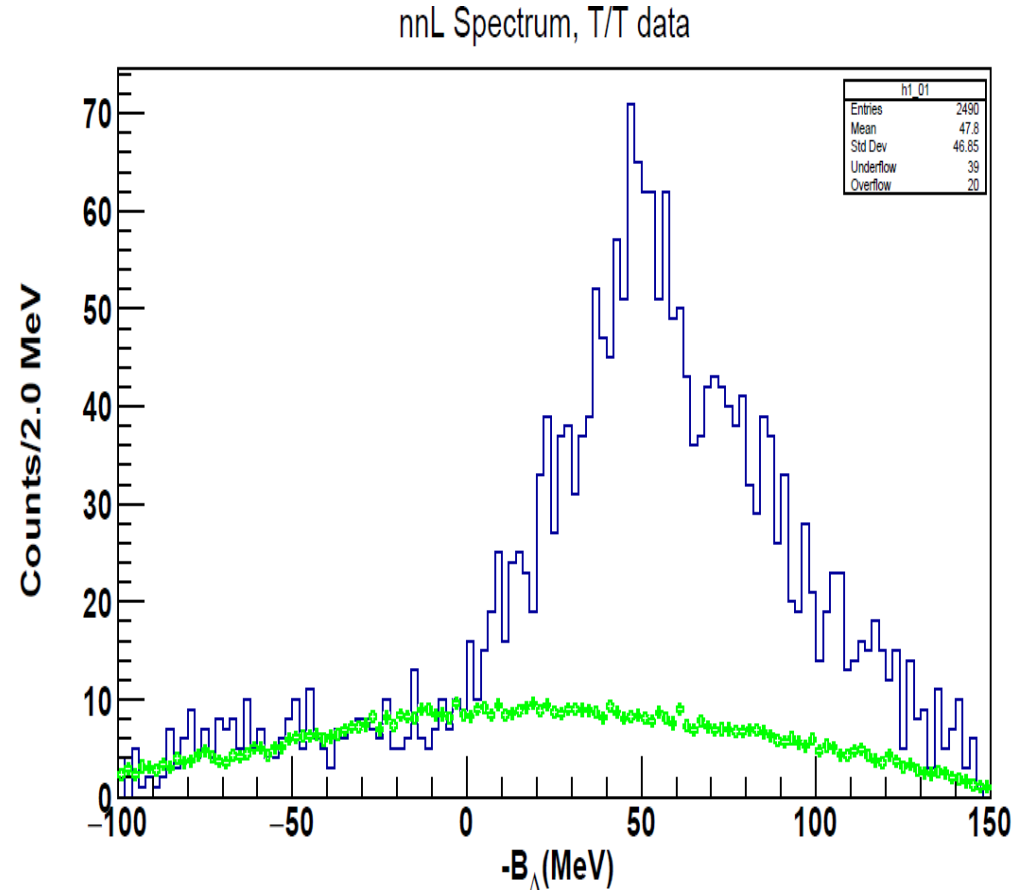
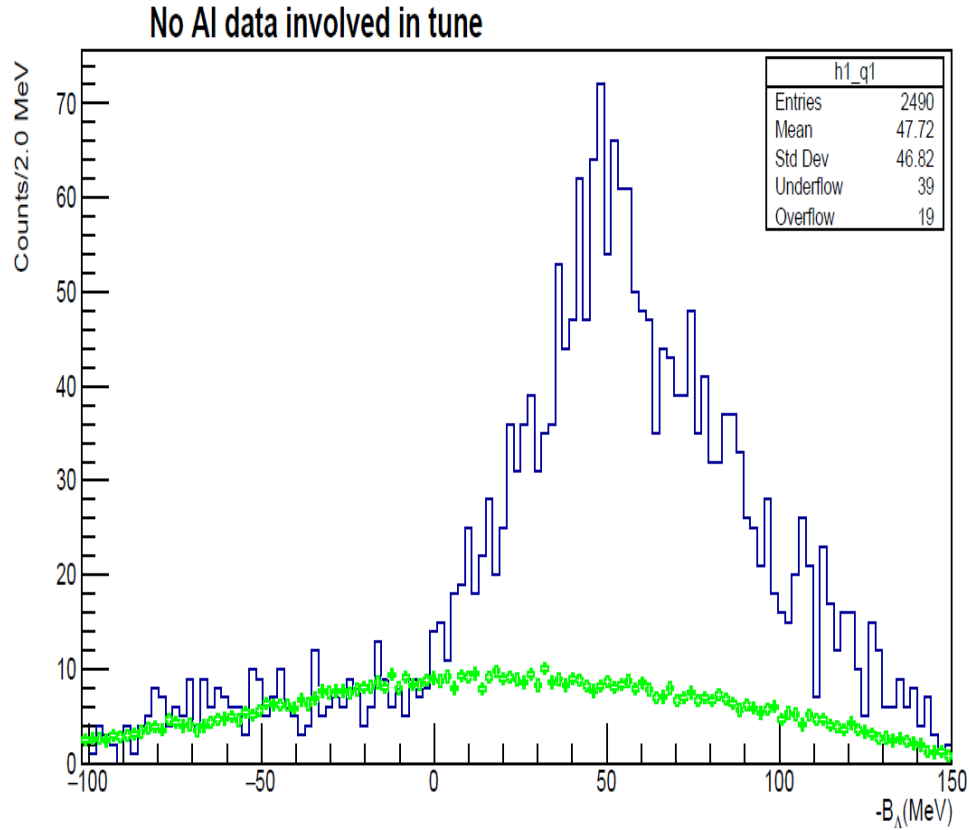
Comparison Continue

AI data involved in tune(Updated)



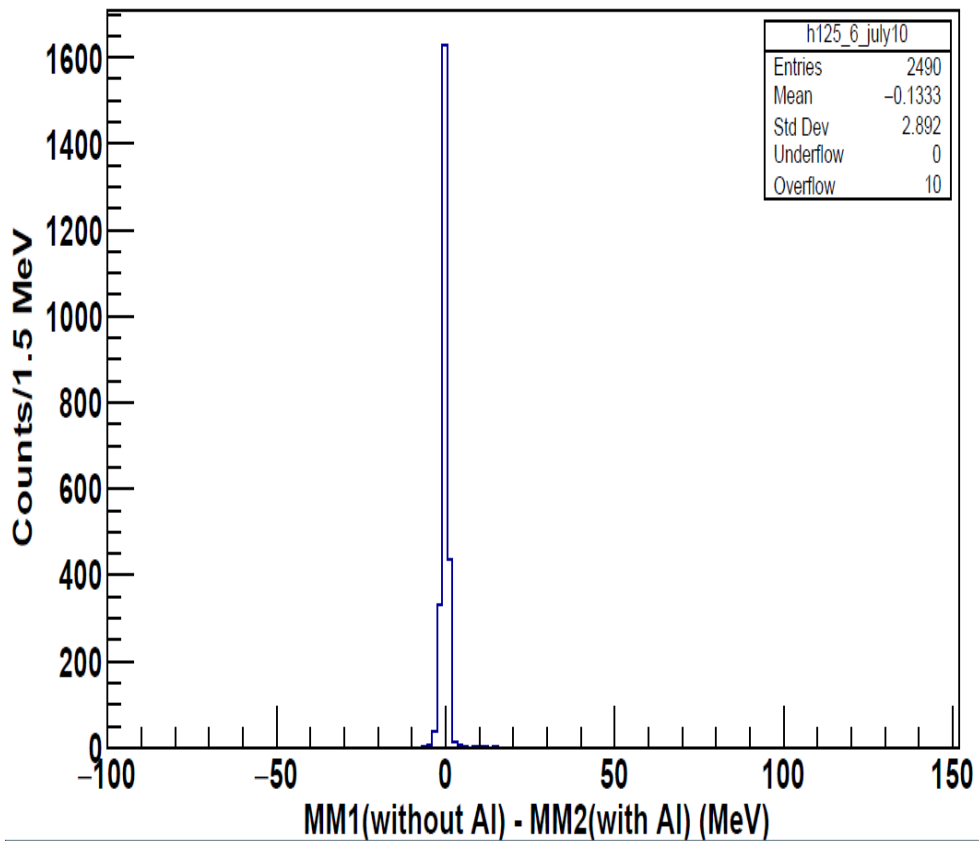
- The small enhancement above threshold is always there before and after involving the AI data in the matrix tune.

Comparison Continue

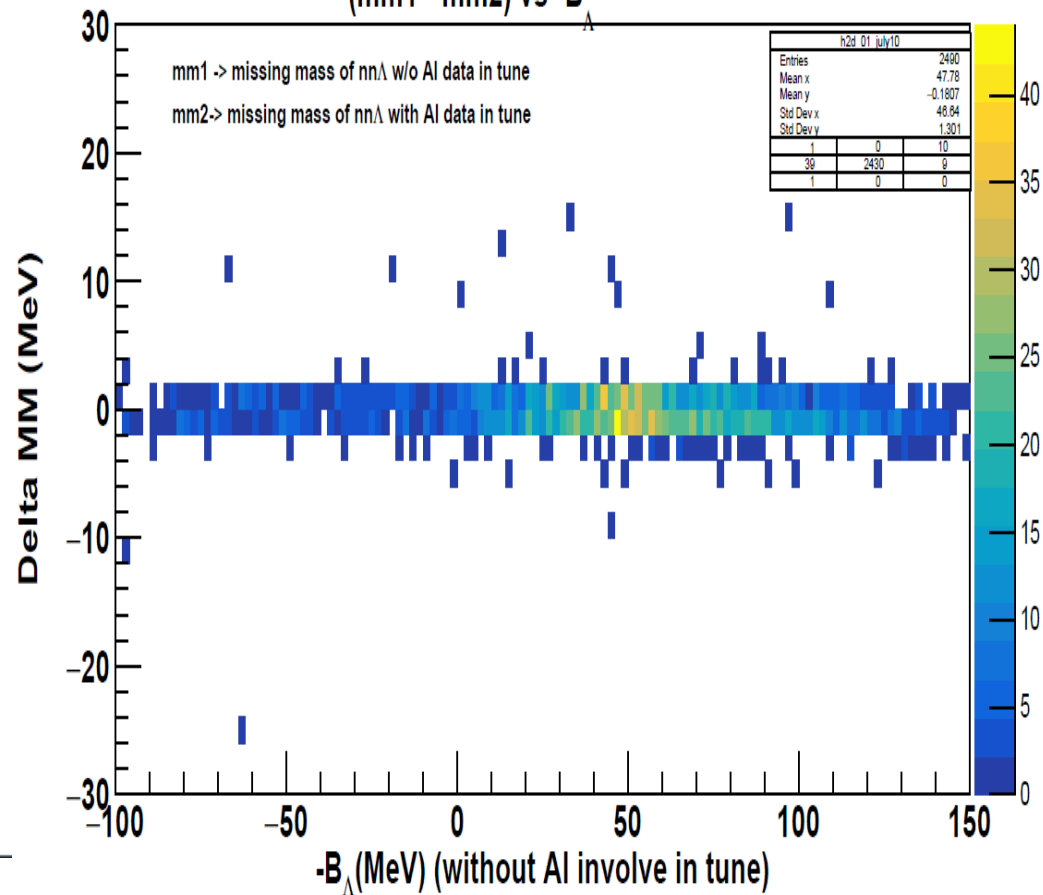


- Whatever the way the matrices are tuned, the enhancement at the threshold is persistent.

missing mass difference of $nn\Lambda$ (obtained with and w/o involving AI data)



(mm1 - mm2) vs $-B_{\Lambda}$



Backup Slides

Lnn spectrum when the events from the entrance Al window are shifted by +3.0 MeV

nnL Spectrum, T/T data

