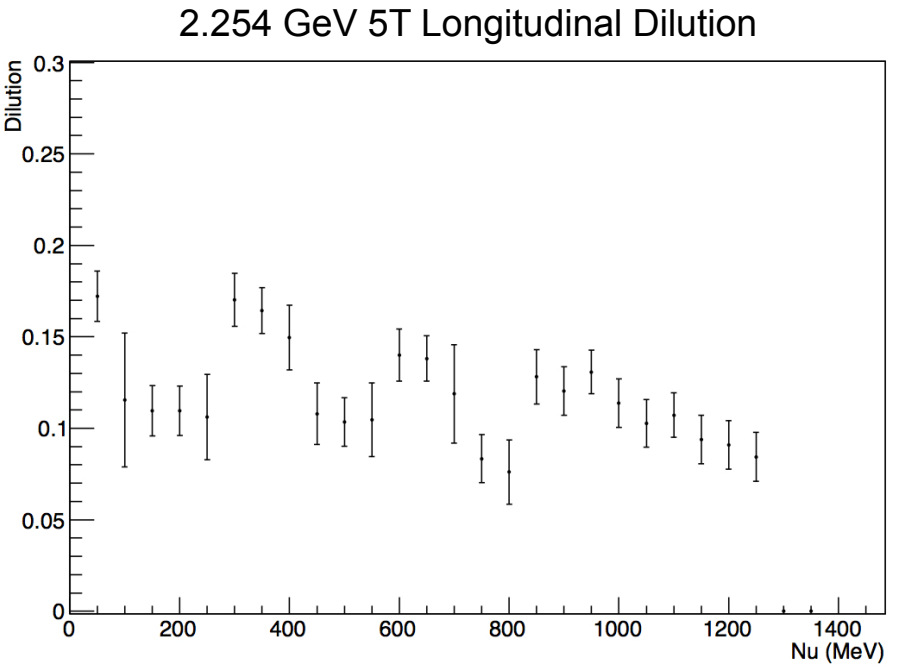
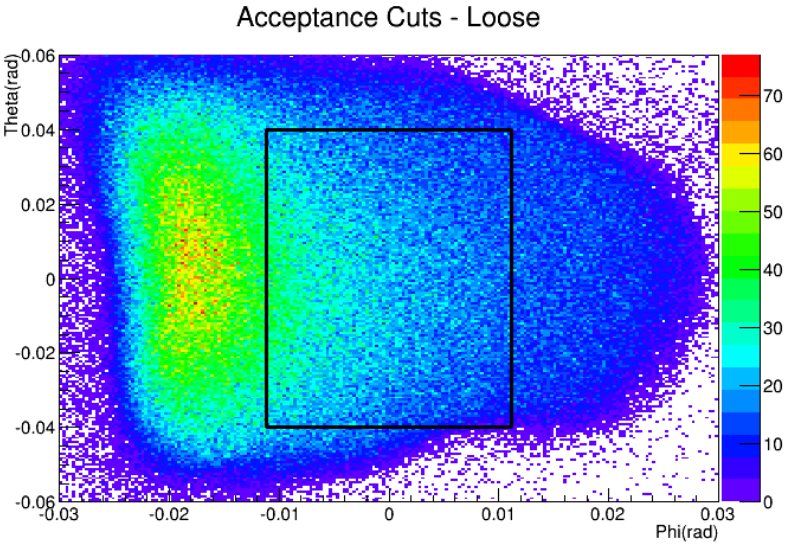
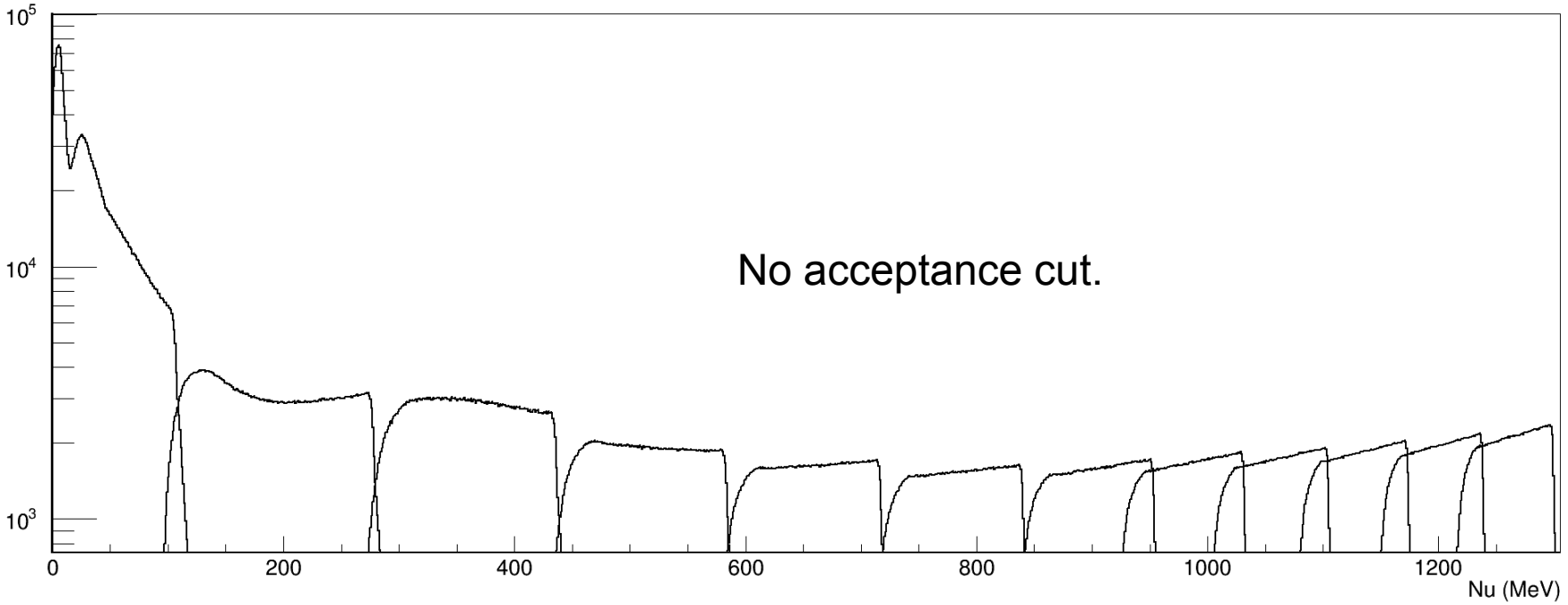
Dilution Analysis Progress

- To the right is the original dilution generated for 2.254GeV 5T Long.
- Several issues with this dilution:
  - Requires model scaling factor for radiation lengths.
  - Model assumes continuous scattering angle fit based on central angle at each p0 setting.
  - Model does not include acceptance effects that are in data.
- I have been working on incorporating scattering angle from data into model (weight each p0 setting by scattering angle).
- Also have created an acceptance cut (right plot) to remove acceptance effects from data.

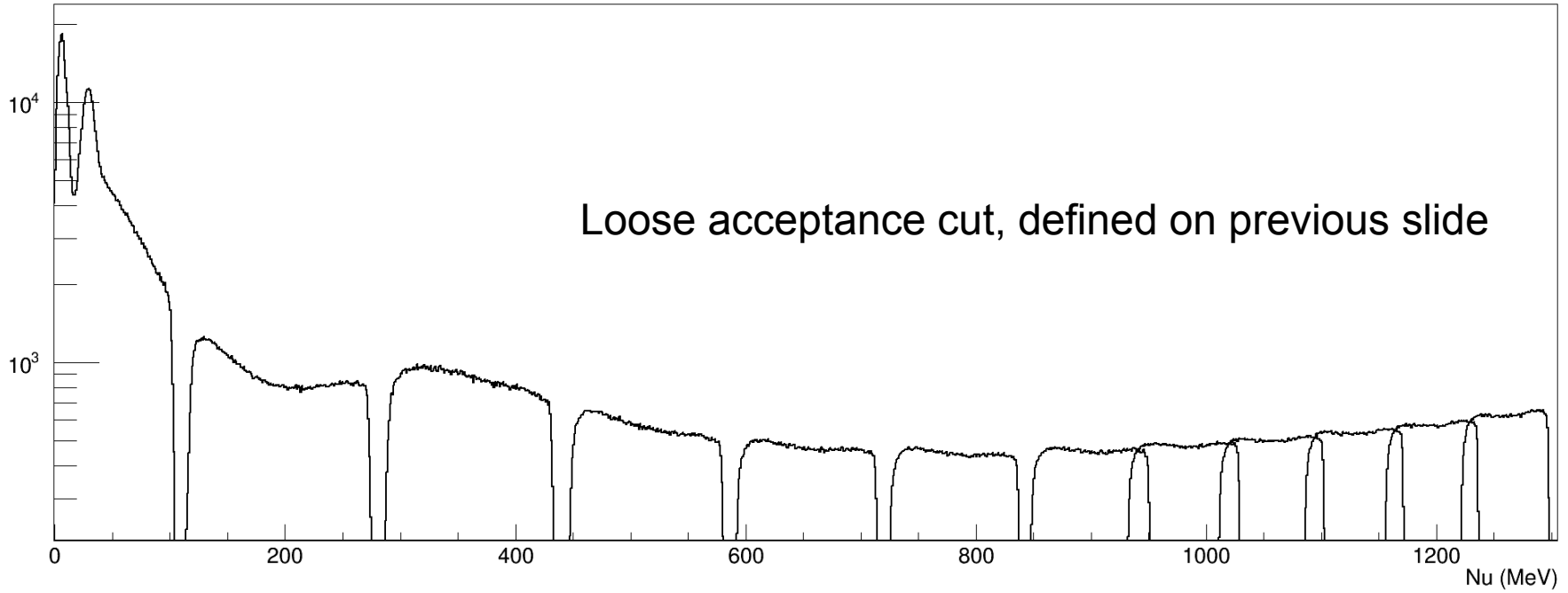


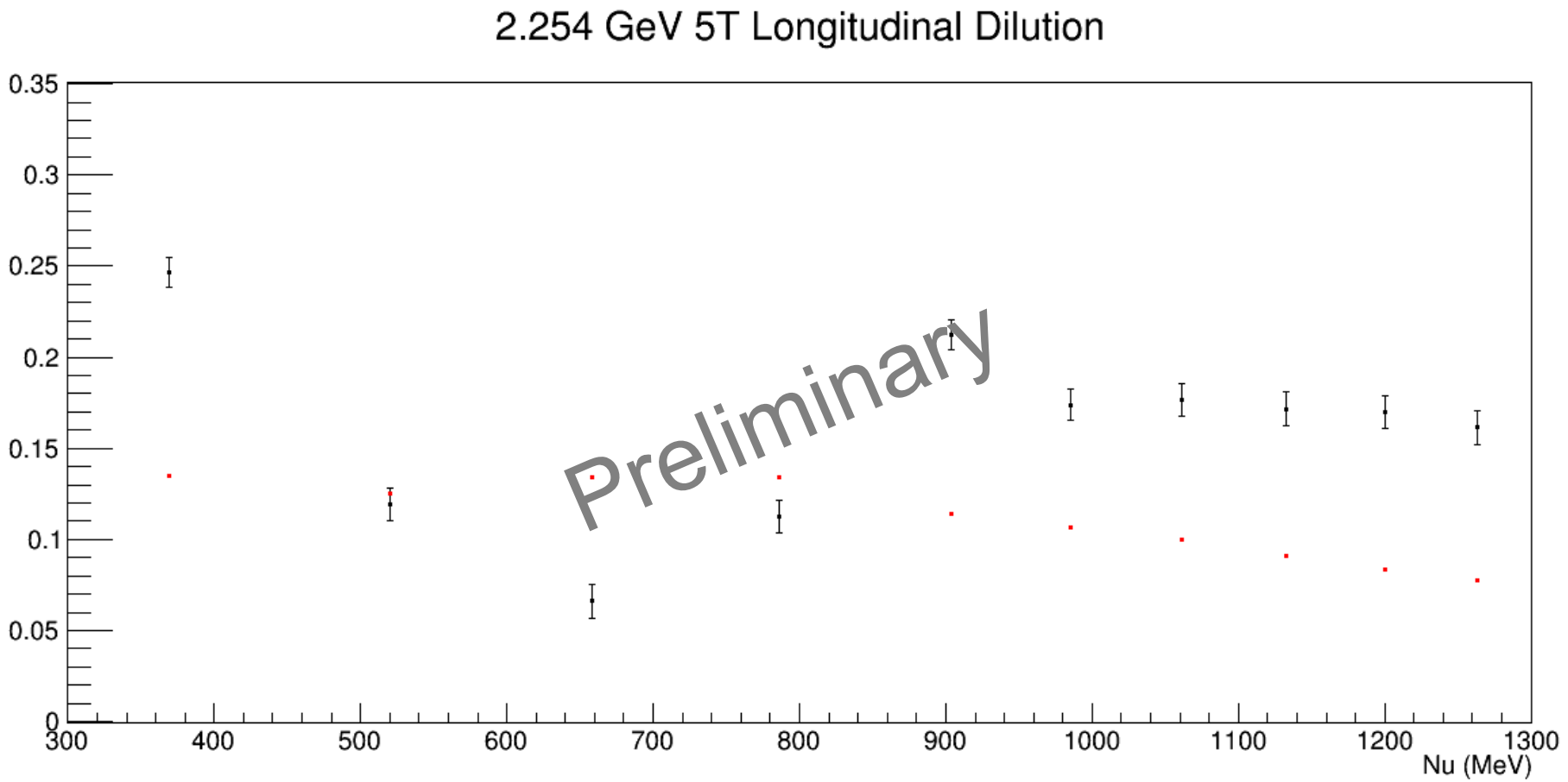


2.254GeV 5T Longitudinal Normalized Production Yield



2.254GeV 5T Longitudinal Normalized Production Yield

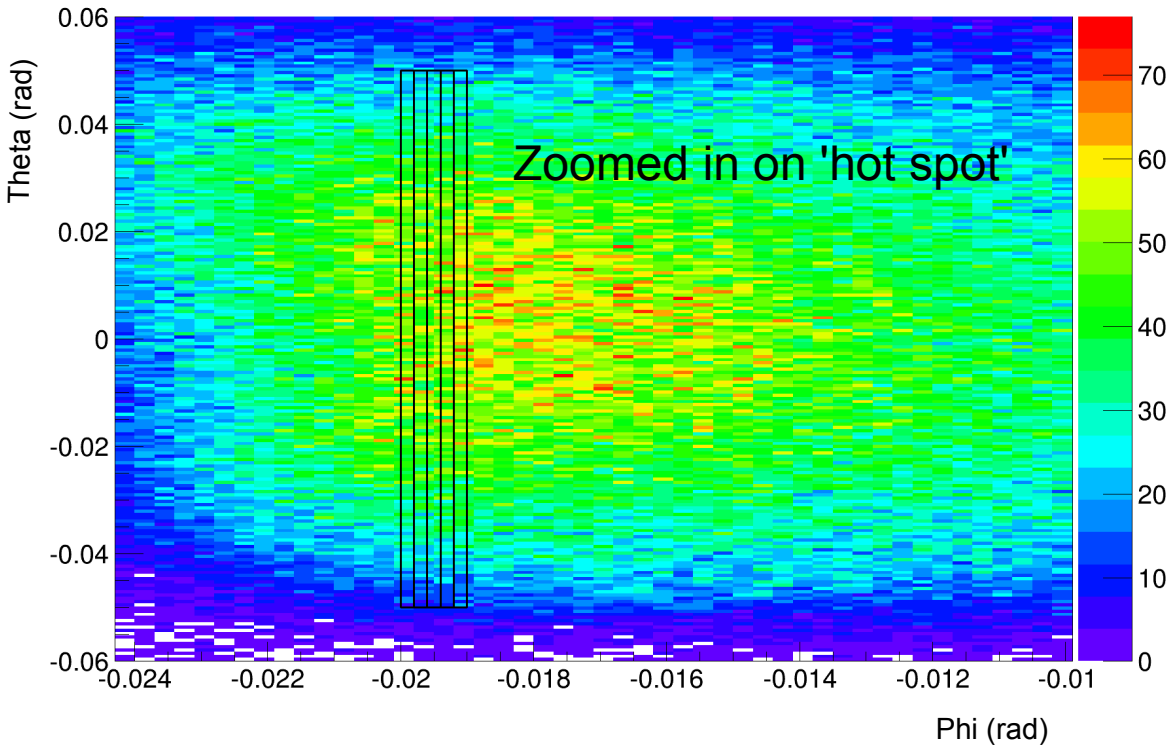




- Acceptance cut resolves yield structure problems and Bosted simulation gives good agreement to data.
- Dilution is calculated using loose acceptance cut.
- Acceptance cut causes a ~70% loss in statistics.
- Currently working to re-incorporate 'hot spot' in acceptance to regain statistics.
- Can't move forward with asymmetry with so little statistics.

Current Work

- Creating very thin slices (currently 0.0115 degrees in phi) on hot spot in an attempt to remove any Phi effects on yield.
- The idea is to remove all acceptance and kinematic effects from yields.
- Still working on producing yields using these cuts (there are a lot of them!!)



Future Work

- If successful in restoring lost statistics from acceptance cut, I can find a dilution with better statistics.
- Repeat process for other settings. Next will likely be 5T Transverse.
- Will need to apply acceptance cut to asymmetry before applying dilution so cuts match (even though acceptance effects should cancel in asymmetry).
- Physics asymmetry???