

# TPC alignment

- The latest TPC alignment routine is a big unknown; There are much to be understood as to timeline for completion or code review.
- Gene managed to run the new routine; but, he saw ~50% increase in production time compared to old routine (doubling CPU time for tracking, not obvious why)
  - e.g., st\_physics = 200 days → 300 days, based on Gene's presentation STAR Collab Meeting Fall 2024
  - <https://drupal.star.bnl.gov/STAR/blog/genevb/New-TPC-alignment-impact-reconstruction-speed>
- Options in consideration:
  - Use the old alignment (No 50% increase in production time)
    - The corresponding library will be backward compatible; pre-iTPC datasets will not be affected by the changes
    - track breaking at central membrane → imperfections to efficiency corrections → uncertainties
  - Use the new alignment (eat the 50% increase in production time)
    - Some of the known alignment issues will be solved
    - Due to many code-wise changes to the routine, there may be other effects present
    - The corresponding library will not be backward compatible; all previous datasets will be impacted by the changes
- Gene will produce a test sample with the new alignment
- Need volunteers to investigate track breaking and other impacts of alignment

# Production strategy

- Production priorities need to be decided
- Timeline for forward tracking software is also a big mystery
  - Forward tracking info can be included later into other streams  
→ Should it be? Is there any interest?
  - In the meantime, we can go ahead with other streams without forward tracking
- My suggestion for production priorities
  - Start with st\_W (quick look at data, some preliminary phys studies)  
→ small st\_physics for QA + calib, w/o forward track  
→ small st\_fwd for QA + calib  
→ full production of st\_physics + st\_fwd simultaneously
  - Estimates of what kind of statistics is needed for QA studies?
  - Include forward tracking in st\_W & st\_physics?
- Thoughts?