GSI Meeting Summary

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PID Upgrade Meeting: 4.2.15

Some recommendations

✳ Strongly recommend horizontal orientation

  ✳ Different buttons on bar boxes were placed in specific locations for different positions in the BaBar barrel to try to keep the bars "neutral"

  ✳ Could even try to get 3 and 9 o'clock bar boxes which were oriented this way in BaBar

✳ Recommend having an alternate algorithm for reconstructing the Cherenkov angle via a look up table

  ✳ This is what Baptiste was working on originally

  ✳ Past review committees have wanted to see a resolution on a physical observable to quantify design performance

Some interesting questions

✳ How do you plan to test the integrity of the bar boxes when they get to JLab?

✳ How difficult is it to align the 4 bar boxes with a single focusing box?

   ✳ In the modular FDIRC design these are independent

✳ What is the timeline for moving the bars?

✳ Is there more to be done at SLAC before moving the bars? ie. gluing a new small wedge to the old window?

Simulation considerations

* They use a complete GEANT model for all physics simulations, but also have standalone optics code called dirc_prop(?) similar to John's analytical propagation

    * Some suggestions for how to speed things up by killing photons at generation time which won't make to the readout plane (based on wavelength, etc.)

* They could implement our design in their dirc_prop for comparison, but also have some framework for the EIC design where they would like to test the focusing optics (GEANT 4?)

The constraints

✳ GSI can contribute manpower to GlueX DIRC, but can't contribute monetarily

✳ They have a PANDA DIRC testbeam at CERN in May and June which will keep them very busy during that time

✳ They would like to send there software/reconstruction expert (Roman) to meet with us this summer (early August a possibility). He will also be meeting with some EIC DIRC people then.

   ✳ Is it early enough to contribute to the October review preparation?

✳ GSI group also interested in GlueX analysis, and are apparently talking separately with Volker about this

Proposed contributions from GSI

* Implement our geometry in their standalone GEANT4 framework (similar to EIC R&D) or dirc_prop optics simulation

  * Cross check some of our studies: could be useful in review to demonstrate similar results from "independent" group

  * Implement Cherenkov angle reconstruction algorithm as alternative reconstruction approach for comparison

  * Question: What area's could we focus this effort to best improve the design and prepare for the review?

* They are planning to prepare a "Service Statement", similar to other GlueX institutions, based on their proposed contributions and would like some additional feedback from us on where to best put their efforts

* They will sign up for the PID upgrade list so we can communicate there