Indico: <https://indico.bnl.gov/event/20728/>

GV introduction: overview of project and tracker design as it exists. No confirned design for the support structure for the tracker but this will be needed by end of 2024 for a TDR (technology choice and a demonstration needed). Major unknowns/questions: How does cooling of flared beam pipe affect the barrel; will sensors be stitched; how many RSU (Repeated Sensor Units) for a Large Arear Sensor (LAS) potential 5 or 6; will LAS have one or two endcaps; how to reduce material in electron going direction (more precision needed here than in hadron direction)

JG Sensor geometry status: more detailed introduction to the sensor design and layout. Producing a CAD model of inclined planks with sensors on inner and outer sides to see how everything could fit together and how to deal with overlaps, i/o etc.

MB: Flexible Printed Circuit (FPC) status: looking at material budget and number of lines needed. Aluminium versus copper strips. Can we get a UK supplier (existing suppliers are CERN and Ukraine); cam an innovation grants be sued to get some interest form UK SME’s.

LG (slides not uploaded?): r/o implications. ER2 sensor design and ITS3 design have identified some areas where R&D needed: multiplexing can be done on or off detector, which is best as EiC probably needs fewer data lines than ALICE (by a factor 6?); Radiation hardness needs to be understood; commercial components are likely to be less optimised than CERN alternatives (such as lpgbt, vtrx+,etc.). Would need to modify LAS; lpgbt vtrx+ order has to be placed end of year. Base line will be integrated multiplexing on-detector.

What is staff effort, who is doing what, who else is working on this, beam spot size more of less known (maximums)

GV mechanical basics: Interesting examples (and counter-examples) from ATLAS, ALICE, star, plume/LC, that we can use to design our own detector. A major consideration is the length of the barrel, especially outer layer. As a result layer 4 predicted to be 0.55% X\_0 compared to 0.25% X\_O for layer 3 due to extra stiffness required.

GV ITS3 mechanical design status: Compared to ALICE, EiC inner layers are at a much wider radius. EiC outer layers are both at a larger radius and longer. Can gas cooling still work or is liquid/evaporative needed? Do sensors need to be connected mechanically along the circumference? Do outer layers needed a strengthening ring?

Braintrust questions/Actions:

FE analysis will be needed.

What are the cooling requirements? 30W per cooling channel might need to be needed (this was an on the spot calculation, needs investigation).

Split work between Stave and end structures?

Can we borrow ideas from other people?

Services in one or both direction? Should they project to interaction point? Put material on hadron side by preference.

Find out who keeps a model of what.

Try a foam solution

Try an ITS2 design

OB supports may be needed. Radial and circumferential?

Find out as much info on foams (GV). Join forces with Berkeley people.

What to prioritise?

Target Argonne epic meeting Jan 2024?

Who wants to go to CERN with Georg?

Present a plan on Wednesday 25-Oct-23

Investigate effort at RAL (FFW)