EIC@BNL Group Meeting

Opportunities with the SVT

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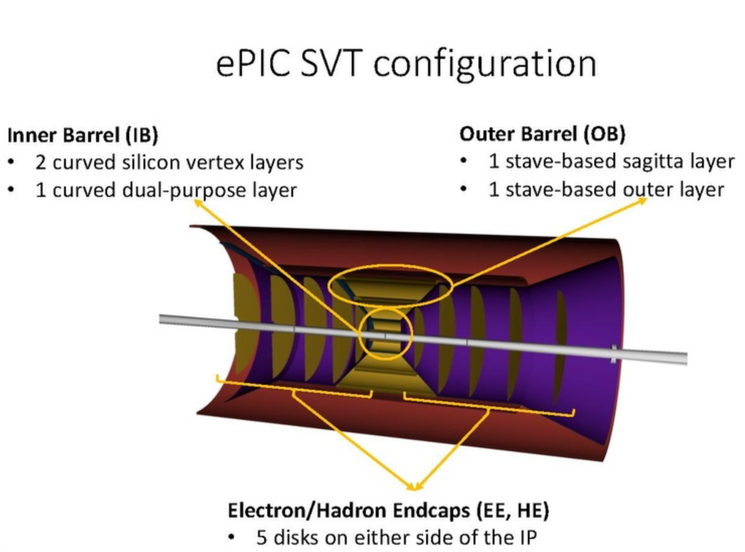
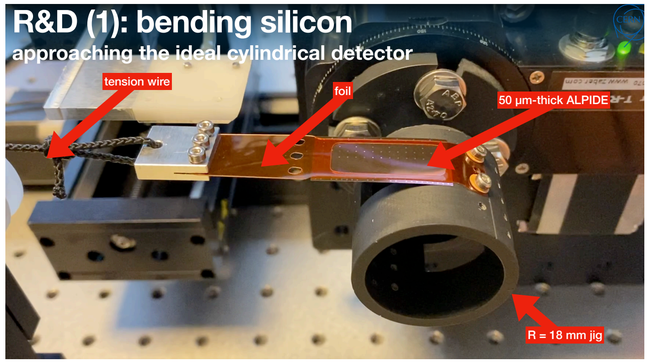
BROOKHAVEN NATIONAL LABORATORY

SVT DSC

The overarching goal of the ePIC Silicon Vertex Tracker (SVT) Detector Subsystem Collaboration (DSC) is the development and construction of a full tracking and vertexing detector subsystem for the EIC project detector, ePIC, based on 65 nm MAPS sensors.

- Groups:
  - US: LBL, Purdue, LANL (?), ORNL, BNL (Instrumentation), MIT
  - UK: Birmingham, RAL, Daresbury, Oxford, …
  - Other: INFN, CTU/Prague, …
- DSCL = Ernst Sichterman, DSCTL = Laura Gonella
- Targeted R&D for the ePIC detector: eRD104, eRD111, eRD113
- SVT central to ePICs success - can work w/o ToF but not w/o SVT
- Despite many groups project is sub-threshold in terms of workforce
- BNL Instrumentation is substantially involved in sensor development (leader: Grzegorz Deptuch & chip designer stationed at CERN & more)
  - IO highly interested in PO joining effort
  - ePIC management highly interested in BNL OO joining effort
  - BNL management has interest in strong MAPS presence





Opportunities

- MAPS expertise could evolve into an important BNL element for the future
  - little know-how in US compared to Europe
  - many other technologies are commercially available (e.g. AC-LGADs), MAPS not
  - MAPS technology will be key in upcoming Higgs-factories (also 2nd EIC detector)
- BNL PO can contribute to everything but sensor design (➟ BNL/IO specific)
- Mechanical support, cooling, beam pipe & bake-out, controls, simulations
  - Currently there is one person looking to the readout (Jo Schambach)
- Effort would be initially small but could grow over time
- Potentially need to hire experts (near term) with anticipated grow during transition period RHIC-to-EIC
- SVT group: many colleagues from RHIC (STAR, PHENIX, sPHENIX) engaged - while understaffed, has solid structure and organization
- We would be welcome …