E03-004 Collaboration Meeting
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BigBite Electron Detector Package: Status and Remaining Tasks

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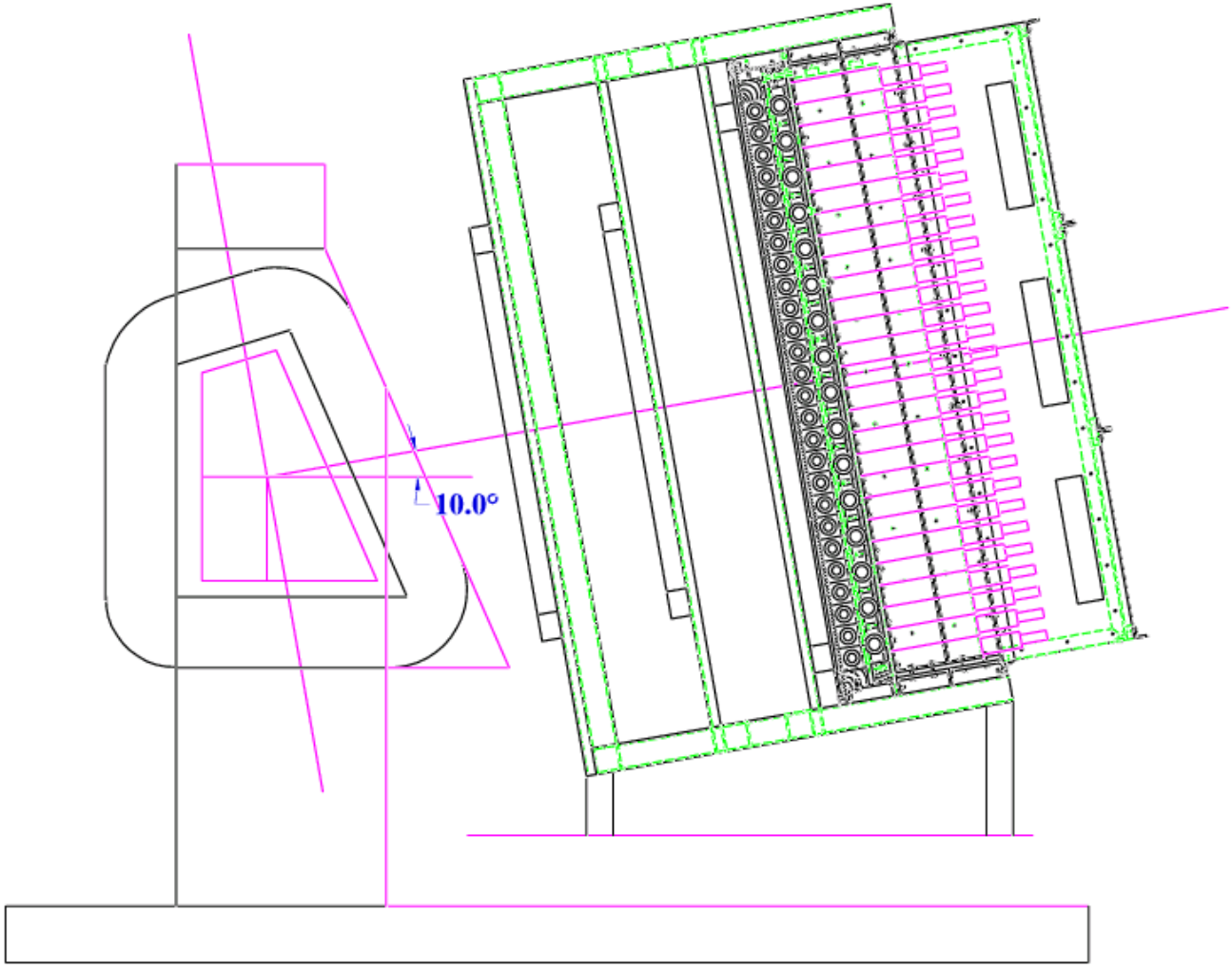
Design Goals

- BigBite Electron Detector Package is specially designed for the E02-013 GEn experiment
  - electron momenta up to 1.5 GeV/c with sufficient resolution (1-1.5% in momentum)
  - large particle flux (several MHz at front wire chamber, 200 kHz at trigger szintillator)
  - large solid angle (76msr for GEn)
  - good timing
- Therefore:
  - drift chambers needed
  - combination of pre-shower, scintillator and shower detector used for triggering, online and offline PID
  - BigBite runs at maximal field, and we only use small bend angle

BigBite Spectrometer



Status: Detector Support

- design, drawings completed
- main frame is fabricated and already on site
- only minor design work needed, as work progresses

Status: PID/Trigger Detector

- Geometry designed based on
  - availability of sufficient amounts of lead glass blocks and PMTs
  - extensive simulations by Kubantsev et al. to optimize geometry
  - drawback: SRC scintillators can not be used for GEn detector
- Design, Drawings for all components are finished, nearly all components are on site
- Lead glass is on site, was in bad shape (yellow glass), but UV curing went well
- **Missing: we dont have the scintillator material (not even the money, need 15kUSD)**

Status: PID/Trigger

- allthough nearly all components are here, now the real work needs to start:
  - construction of the scintillator plane
  - construction of the pre-shower plane
  - wrapping of the leadglass blocks, glueing PMTs
  - TESTING, characterizing/repairing/replacing broken components
- Work can and should start now, and with full speed in January (when we will have more space in the TestLab),
- Manpower is more than welcome

Status: Electronics

- Design is completed
- Nearly all equipment is available and on-site, or at least located, but we have hardly any spares
- Someone has CAMAC discriminators ???
- Subsystems have been assembled and tested (SRC, cosmic tests, UVA for Wire Chamber)

Status Software/Simulations

- for DAQ: we will use CODA 2.5 or CODA 3.0
- for analysis we will use the Hall A root analyzer
- progress so far:
  - A.Puckett started with wire chamber software, student from CMU is interested in continuing
  - PID detector / scintillator can be copied from HRS
- still a lot to do, help needed ... just contact me
- simulations: Eugene Chudakov developed a GEANT based description of this system (we need a student to work with this simulation, otherwise it will get lost)