

MVTX Status & Plan

Ming, Maria, Bob and Grazyna

09/29/2017

Today's Agenda

- MVTX Status & Plan – Maria, Grazyna, Bob Ming
- Tracking – Xiaolong
- Jets – Sanghoon and Haiwang
- LDRD – Cesar, Sho, Alex et al
- MVTX Full proposal discussion – Xuan, Cesar, Ming et al
- Other topics - all

Priority List for ALD's Oct. DOE Visit – from last meeting

- Refine 4 physics plots
 - B-hadron and b-jet R_{AA} & V_2
 - Updated simulations

Today's presentations

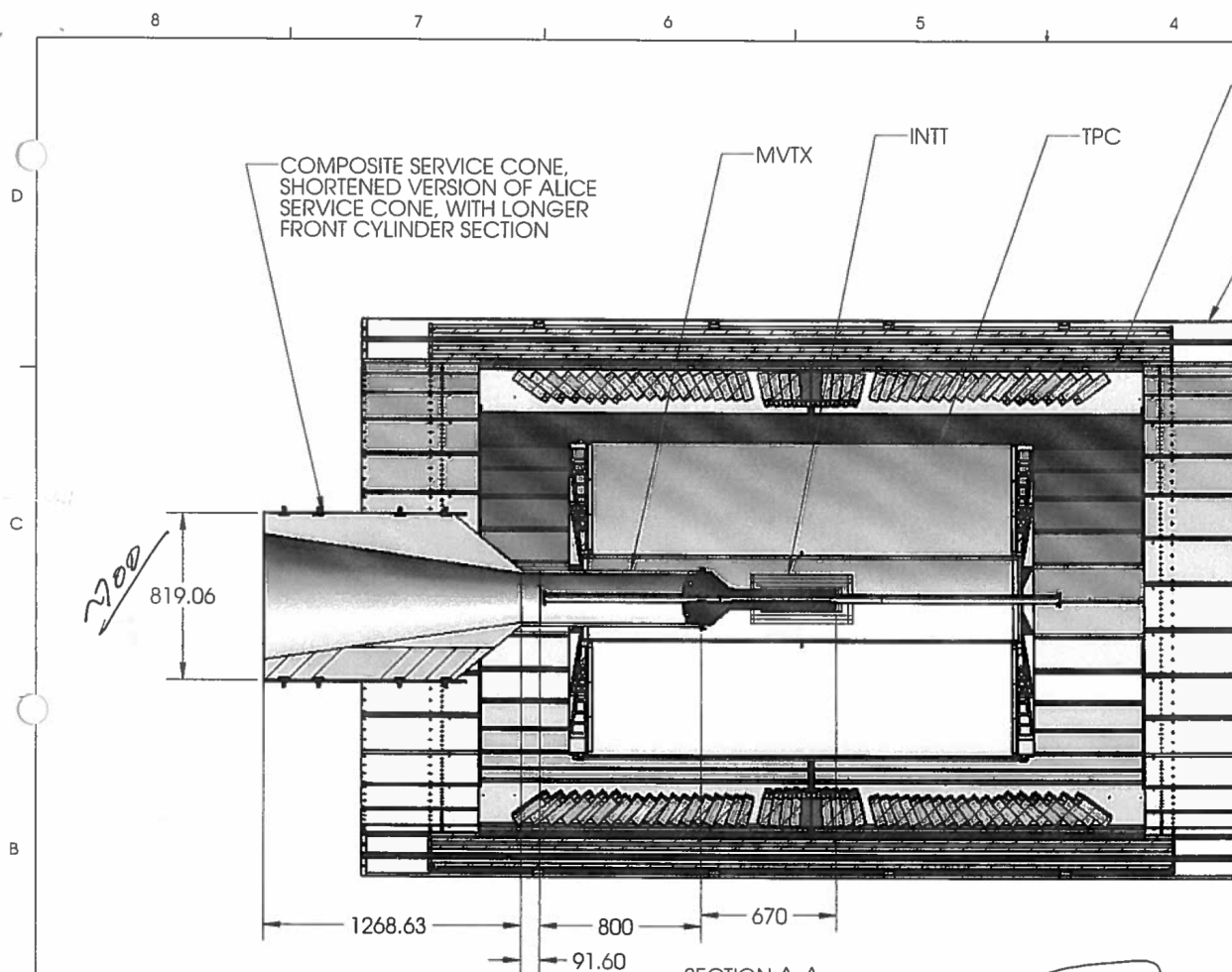
- Refine cost estimate → assign a large contingency (40%) based on conceptual MVTX/INTT integration design
 - Contingency of engineering cost to modify carbon structures etc.
 - Include extension cables etc.
 - Risks on cost and schedule risks if funding delayed
 - Highlight in preliminary Project Management Plan/Risk Registry

A meeting on mechanics
Integration held 9/18,

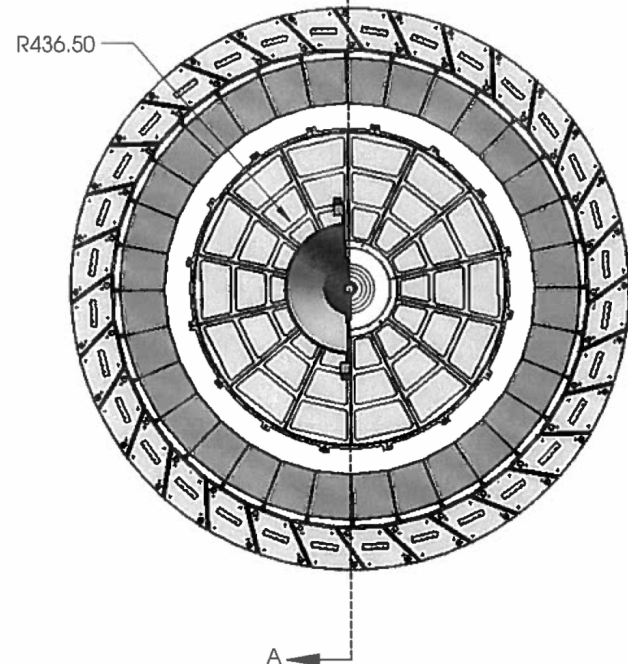
Plan for next 2 weeks: update all by ~10/15; ALD's DOE visit planned in late October

Mechanical Integration: MVTX + INTT + TPC

- Large uncertainty in the cost of mechanical integration
 - MVTX project scope: provides interface to the sPHENIX global structure
 - Needs early project development fund for global integration work, but not available at moment
- MVTX mechanical integration meeting, 9/18, LANL/MIT/LBNL/BNL
 - Include a large contingency for the proposal, 40%
 - Revisit MVTX/INTT integration cost in ~4/2018, sPHENIX CD-1 review
 - LBNL carbon facility – availability, tied to MVTX funding timeframe
 - LANL's cooling design for LDRD project, could be used w/ some modifications for sPHENIX, joint R&D with MIT
- Good news:
 - BNL is hiring an engineer to work on INTT mechanics
 - Global integration engineer hiring comes later in 2018
 - a student working with Don Lynch on sPHENIX global integration



A Conceptual Design from Walt
 We take more proactive approach to
 define/suggest how the global system could be done



MVTX insert
 No INTT
 INTT insert

PRELIMINARY

SECTION A-A
 SCALE 1 : 25

ALL DIMENSIONS IN MILLIMETERS

P-25 SUBATOMIC PHYSICS		DIMENSIONS ARE IN INCHES TOLERANCES UNLESS SPECIFIED FRACTIONAL ± ANGULAR MACH ± BEND ± TWO PLACE DECIMAL ± 0.01 THREE PLACE DECIMAL ± 0.003		DRAWN WALT	NAME WALT	DATE 9/22/2017
		MATERIAL MIXED		CHECKED ENG APPR MFG APPR QA	Updated sPHEINIX assembly-2, MVTX w service cone, INTT, TPC, EMCAL, inner HCal.	
FINISH QUANTITY REQUIRED 1		COMMENTS		SIZE DWG NO B		
SCALE 1:25		WEIGHT		SHEET 1 OF 2		

9/29/17

MVTX Bi weekly Meeting

Define the success of MVTX Project

- with minimal dependence on other projects

1. Active pixels: $> 80\%$, from pulser and cosmic rays
2. Average radiation length per layer: $< 0.5\%$, from final design
3. Readout speed: > 15 kHz, for p+p and AuAu, from test bench
4. Detector hit resolution: $< 30\mu\text{m}$, from cosmic rays
5. Noise rate per trigger: $< 10^{-5}$, from test bench
6. Trigger latency: $\sim 4\mu\text{s}$, from test bench external pulser
7. Sensor efficiency: $> 90\%$, from cosmic rays

Dec. MVTX Workfest Agenda – work in progress

To complete the full proposal

- Day-1: (12/5, Tue.)

- Review current draft – by WG TLs
 - Identify and discuss areas for improvements
- Working sessions in the afternoon: working groups

Form working groups with
team leaders:

Physics/Electronics/Mechanics/Project

- Day-2:

- Discuss updates from day-1 – by WG TLs
- Working sessions in the afternoon: working groups

- Physics & simulations
- Electronics & sensors
- Mechanical system
- Cost, Schedule & Risks

- Day-3:

- Discuss updates from day-2
- Finalize a preliminary full proposal

- Proposed outline update later today
- Xuan et al

MVTX Project Management Plan Document

- To guide for managing the project
- Clearly define the scope of project with WBS dictionary
- Evaluate and document all major risks associated with Cost, Schedule and Procurements
- A draft being developed by Dave et al, with inputs from MIT, LBNL, LANL, BNL
- NOT needed for ALD's October DOE visit
 - will be refined later, by 12/2017

backup

Path Forward – discussed @last meeting

- **Implement recommendations**

- Follow up findings and recommendations
- Bi-weekly MVTX consortium meetings till full proposal submission

- **Milestones**

- Update key elements by mid October 2017
 - 4 physics highlight “Money Plots”: B-hadron and b-jet R_AA and V_2
 - Cost, schedule and risks
- Work with ALD to communicate with DOE about budget & timeline, end 2017
- Workout a preliminary MOU with CERN, ~12/2017
- Full proposal ready for submission, ~end of 12/2017
 - Goal: secure at least partial funding in late FY18/early FY19 to continue stave production at CERN after ALICE ITS/IB production ~8/2018.

- **MVTX workfest Dec. 5-7 to push for completion of the final proposal**

- sPHENIX collaboration meeting @ Santa Fe, Dec. 8-10, 2017