

# Planning for a 2012 Test Run

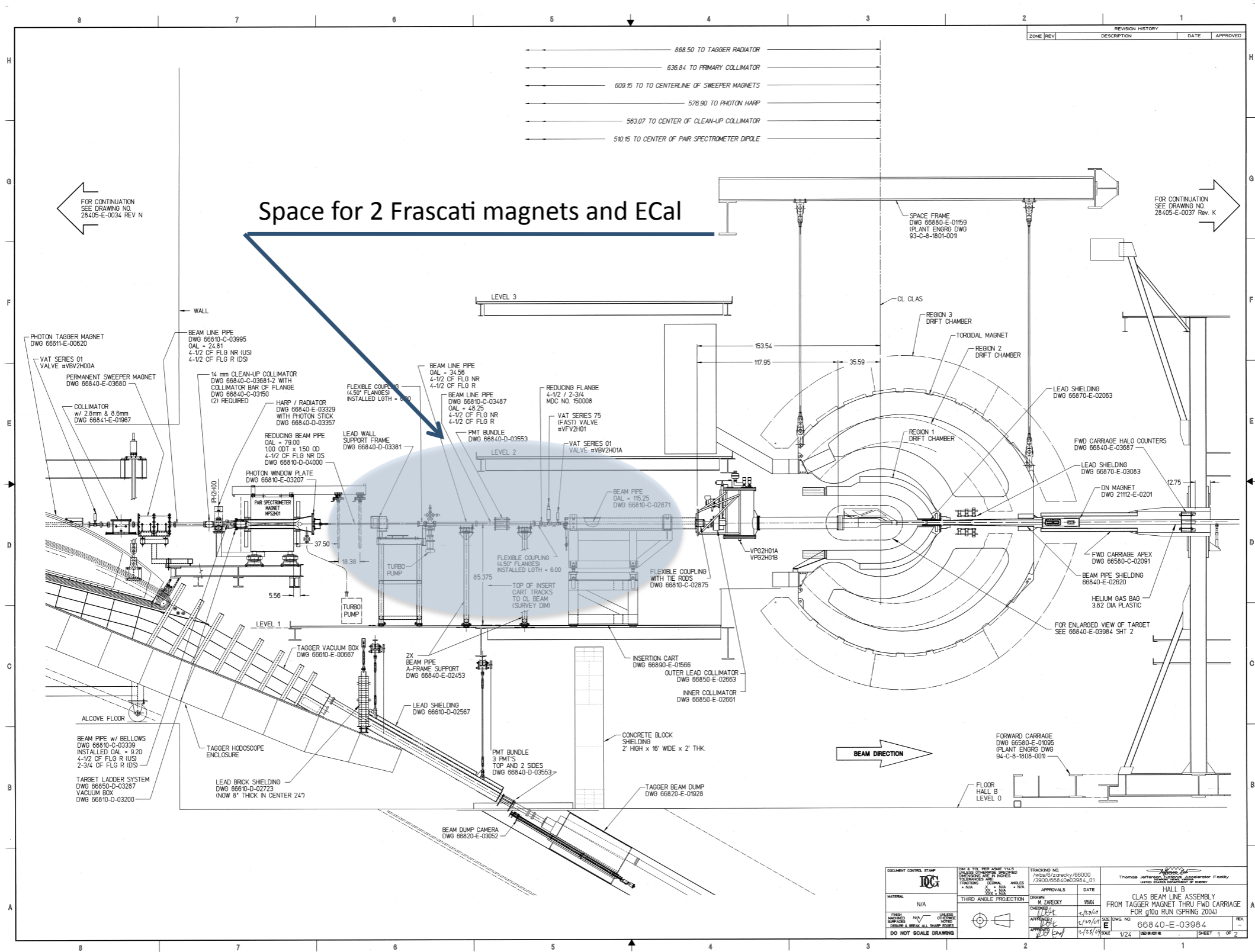
**Tim Nelson - SLAC**

November 9, 2010





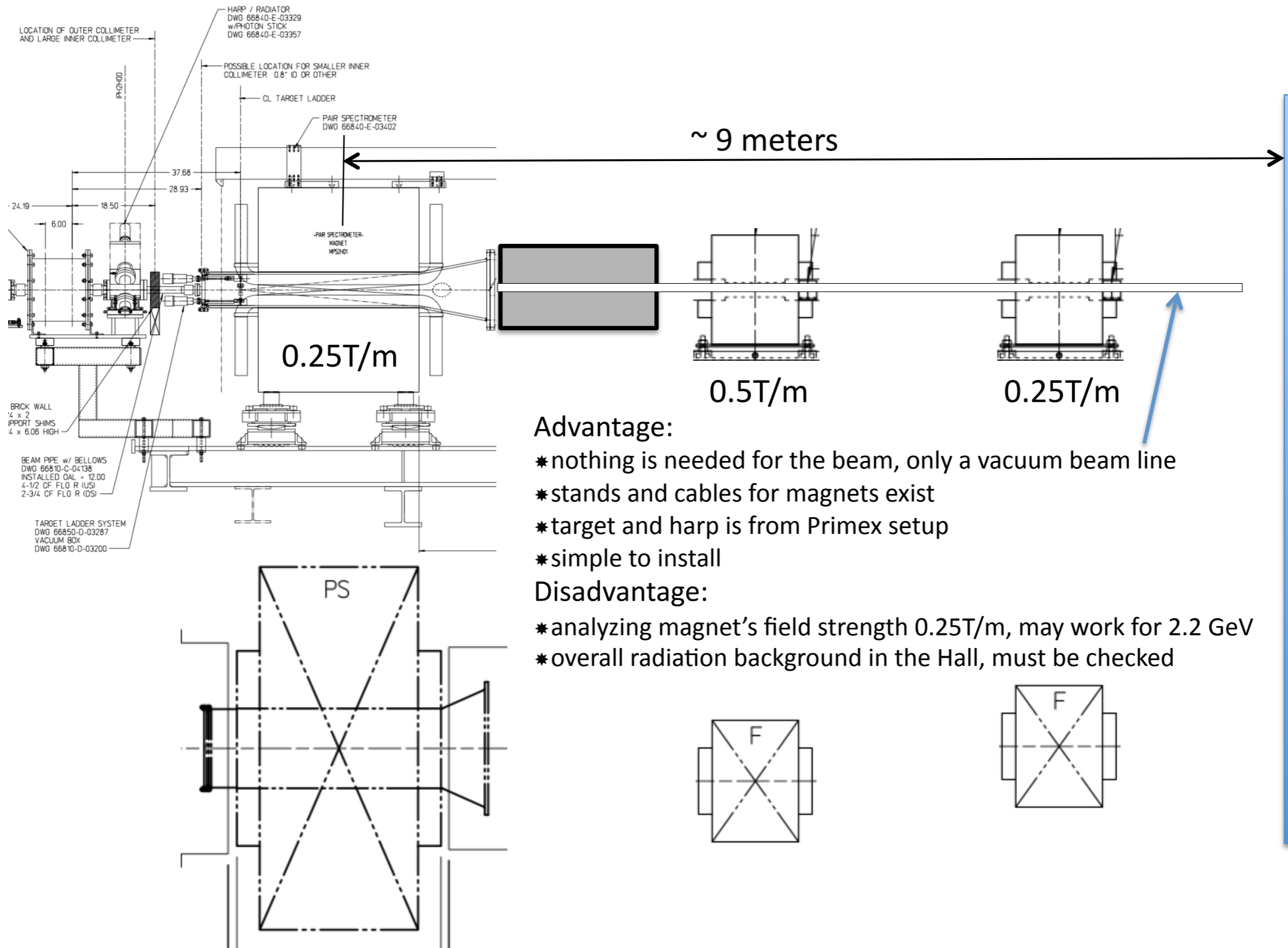
# Space frame and CLAS



DOCUMENT CONTROL STAMP <b>DC</b>	DATE & TITLE PER CHANGE FILE CLASSIFICATION SYMBOLS DRAWING NO. & REV. NO. PROJECT NAME & NUMBER SCALE & UNIT	TRACKING NO. AWD/02/2004/05000 2900/66840E03984_01	APPROVALS DATE	DATE
MATERIAL N/A	THIRD ANGLE PROJECTION	DRAWN M. ZARECKI	DATE 1/23/04	DATE 1/23/04
INSTRUMENTED N/A	DO NOT SCALE DRAWING	APPROVED 1/23/04	DATE 1/23/04	DATE 1/23/04
		HALL B CLAS BEAM LINE ASSEMBLY FROM TAGGER MAGNET THRU FWD CARRIAGE FOR 100 RUN (SPRING 2004)		REV ---
		66840-E-03984		SHEET 1 OF 2



# Proposal for a setup before CLAS for the test run



### Advantage:

- \* nothing is needed for the beam, only a vacuum beam line
- \* stands and cables for magnets exist
- \* target and harp is from Primex setup
- \* simple to install

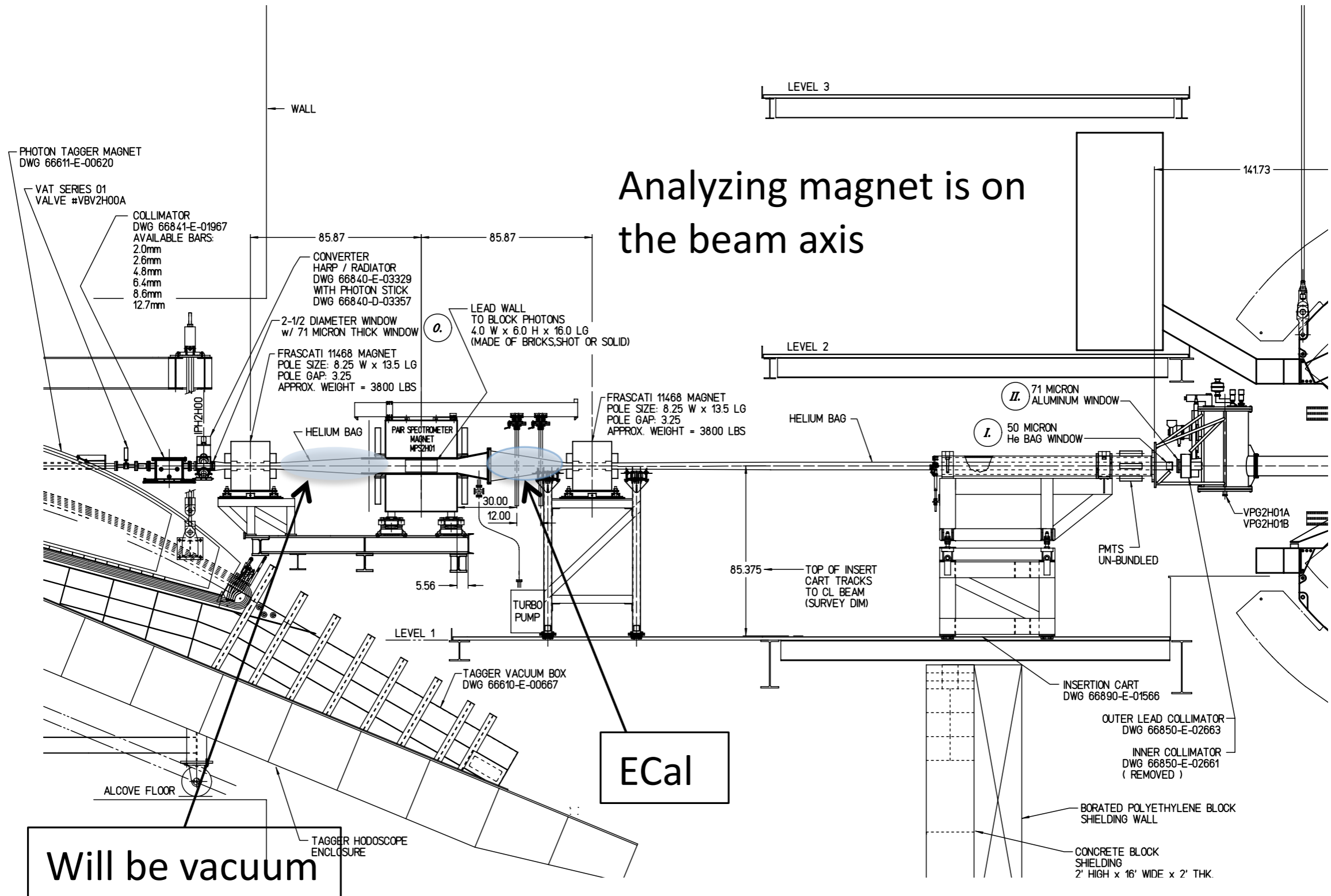
### Disadvantage:

- \* analyzing magnet's field strength 0.25T/m, may work for 2.2 GeV
- \* overall radiation background in the Hall, must be checked

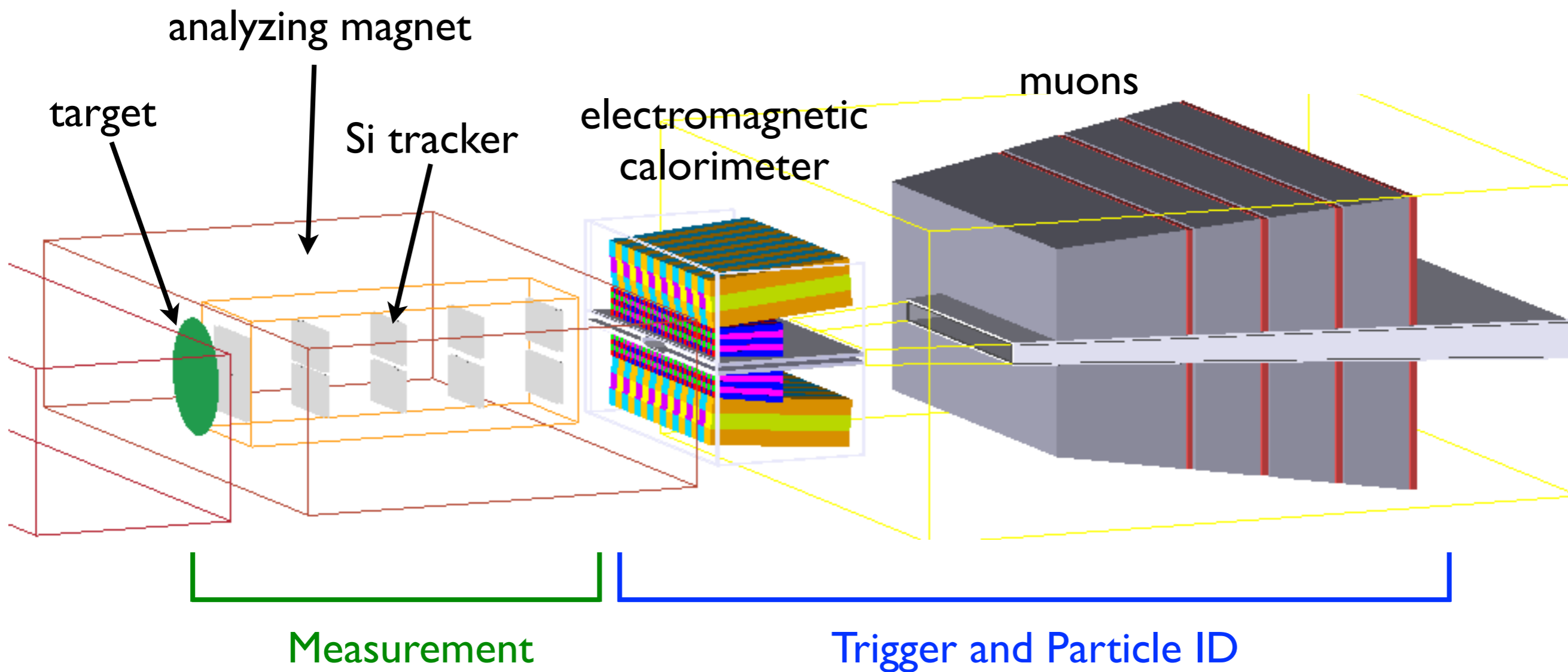


# Another possibility

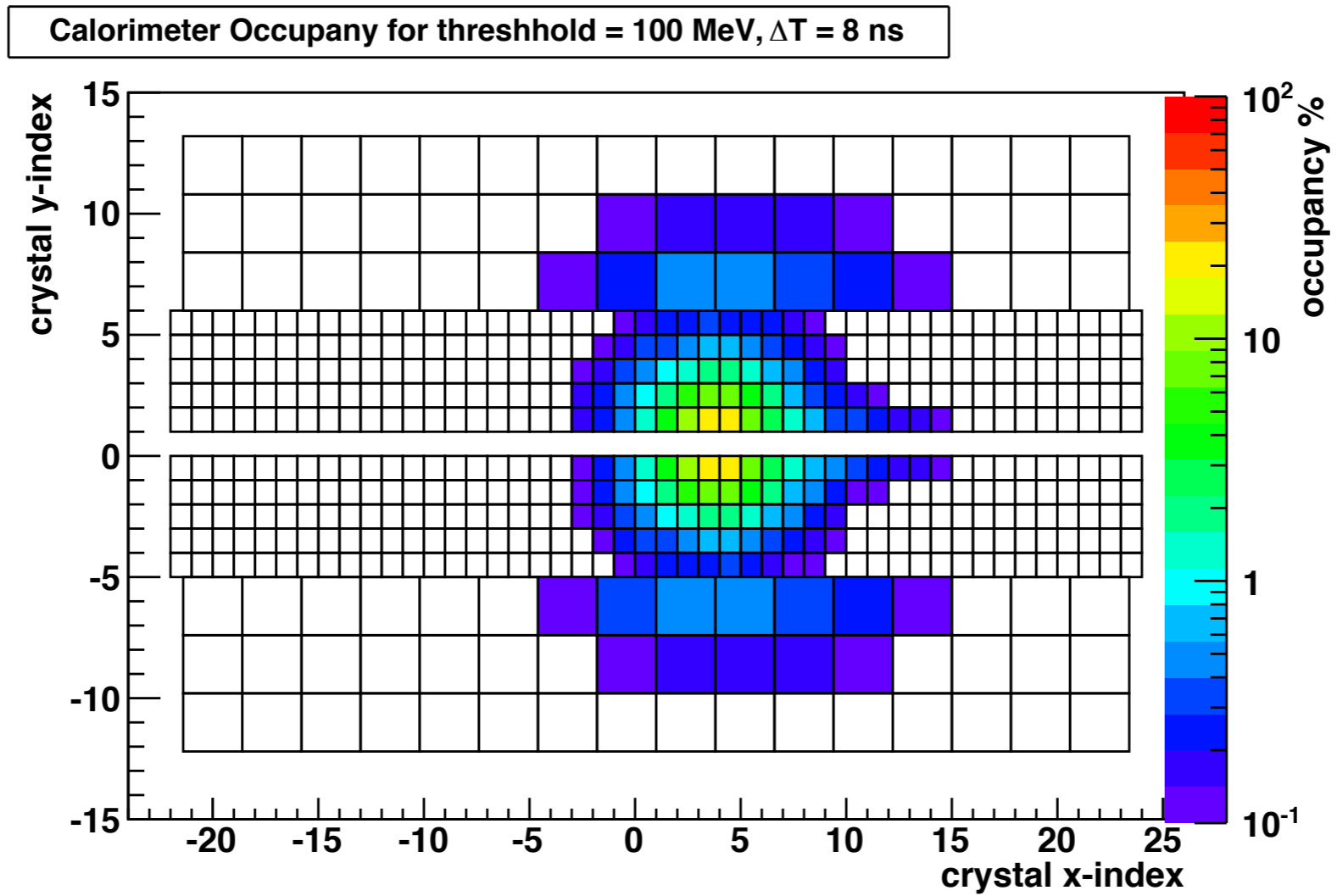
## Analyzing magnet is on the beam axis



# How much can we build?



# ECal

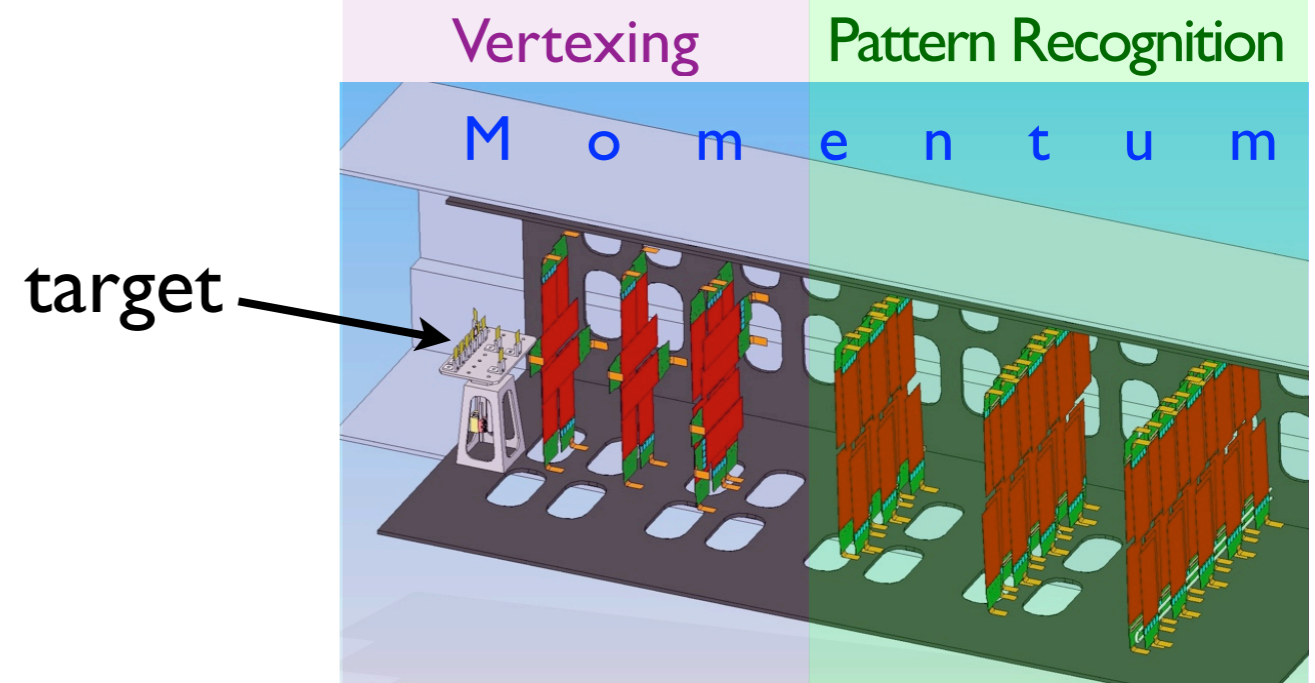


At least high-occupancy central portion of lead-tungstate

# Tracker

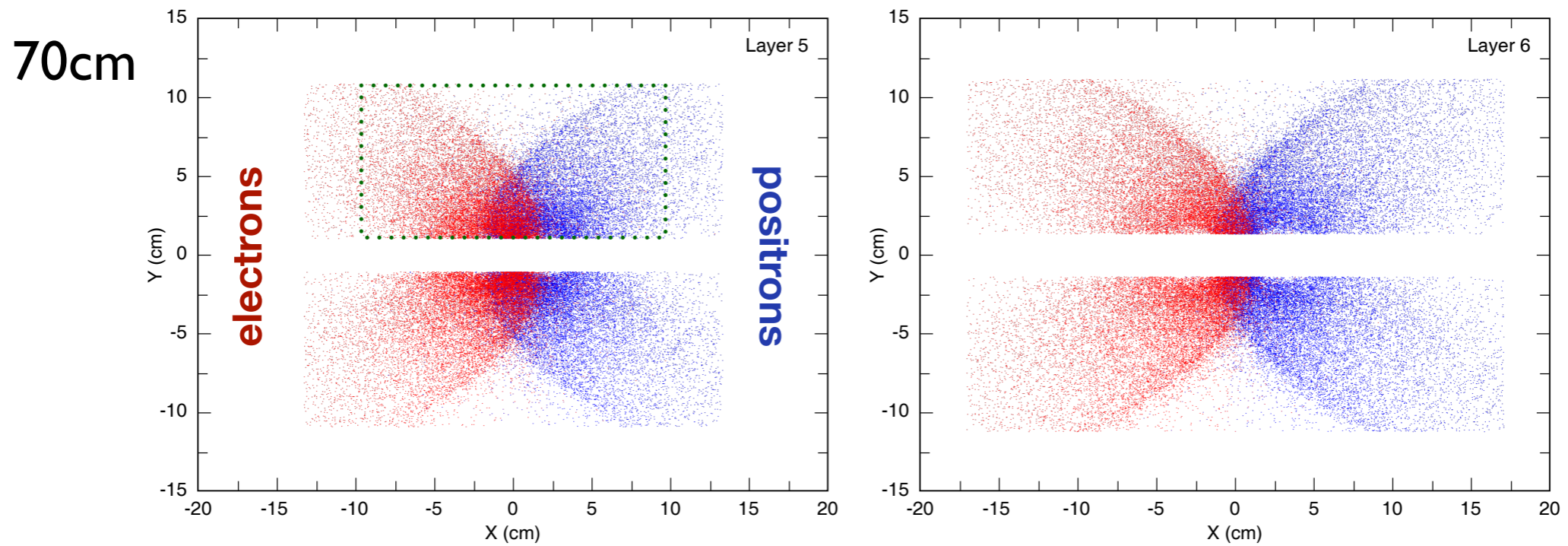
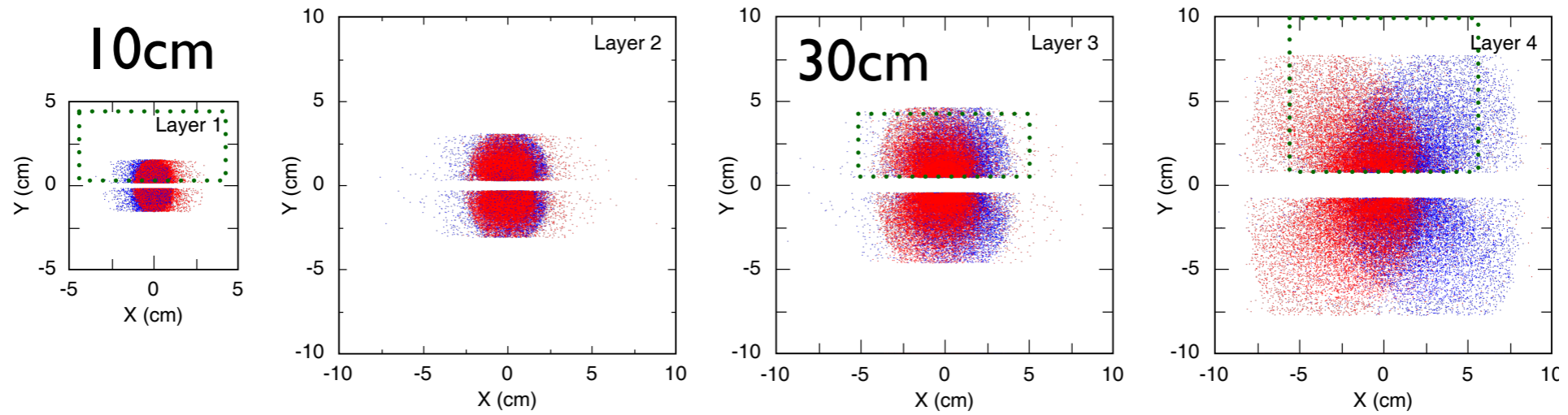
- 🔸 Layers 1-3: vertexing
- 🔸 Layers 4-6: pattern recognition.
- 🔸 Cut both to bare bones but still allow tracking?
- 🔸 Only one side of dead zone: fits in vacuum chamber
- 🔸 Smaller versions of L1, L3, L4, L5
- 🔸 About 20% of full tracker
- 🔸 We had reasonable tracking with similar design earlier this year

	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6
<b>z position, from target (cm)</b>	10	20	30	50	70	90
<b>Stereo Angle</b>	90 deg.	90 deg.	90 deg.	50 mrad	50 mrad	50 mrad
<b>Bend Plane Resolution (<math>\mu\text{m}</math>)</b>	$\approx 6$	$\approx 6$	$\approx 6$	$\approx 6$	$\approx 6$	$\approx 6$
<b>Stereo Resolution (<math>\mu\text{m}</math>)</b>	$\approx 6$	$\approx 6$	$\approx 6$	$\approx 120$	$\approx 120$	$\approx 120$
<b># Bend Plane Sensors</b>	4	4	6	10	14	18
<b># Stereo Sensors</b>	2	2	4	10	14	18
<b>Dead Zone (mm)</b>	$\pm 1.5$	$\pm 3.0$	$\pm 4.5$	$\pm 7.5$	$\pm 10.5$	$\pm 13.5$
<b>Power Consumption (W)</b>	10.5	10.5	17.5	35	49	63





# Tracker





# DAQ, Trigger, etc.

- ❏ How much of the “real” DAQ can we build?
- ❏ Can we actually plan to trigger with the ECal?
- ❏ Should we throw in some steel and scintillator to understand muons?

**Work in Progress**



# CBAF12 beam size optimization of HPS

There isn't any change in the beam size for 12GeV CEBAF, extracting 3-pass (6.6 GeV) beam to Hall B

