# Setup of Triplet Polarimeter

- Set up motor in vacuum chamber
- Survey
- Installation in hall
- Reconnect, test all cables

April 13, 2015

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# 2 Weeks Ago

- We tested detector signals with sources
- Were working on installing mechanical components

$^{241}$Am (α decay)


200 mV, 2µs divisions


multihit event

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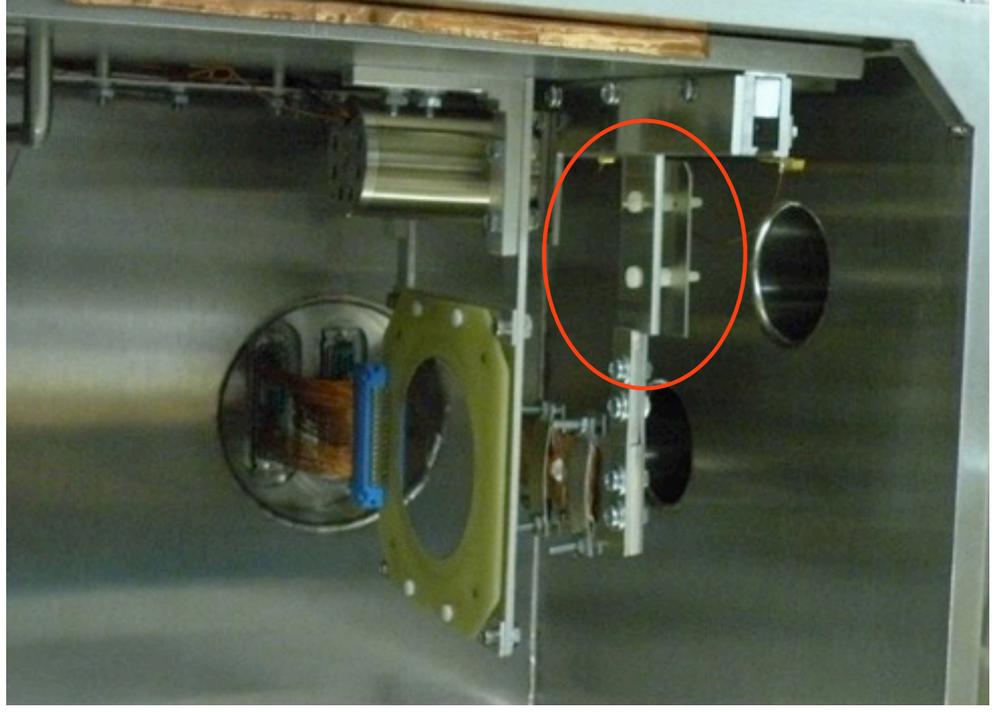
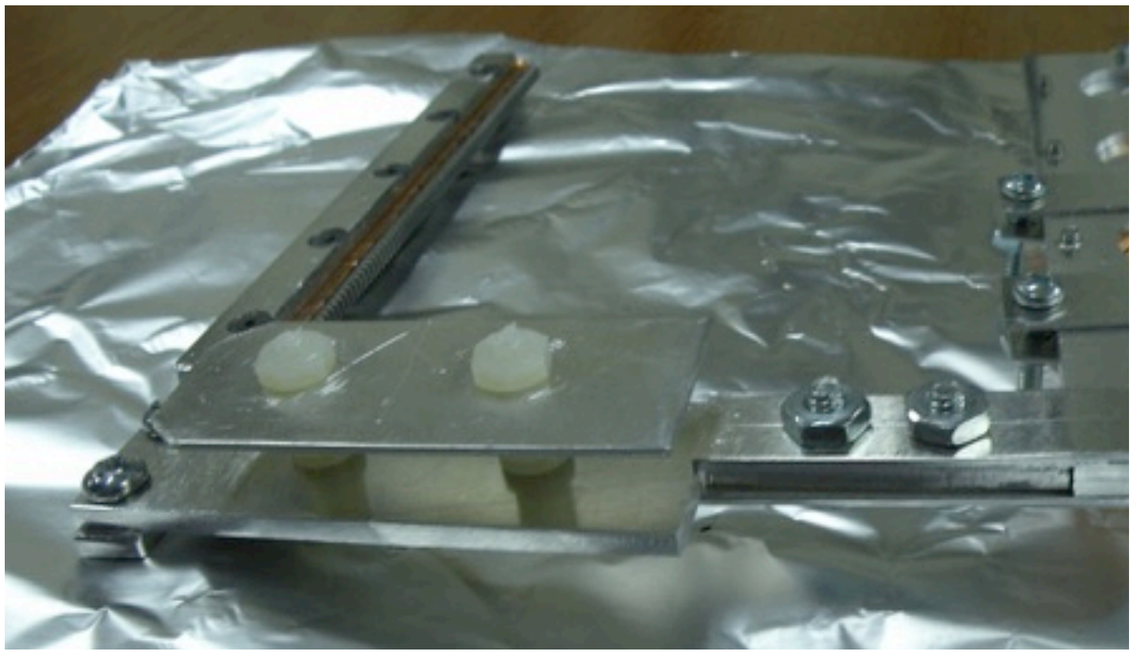
# Nylon Screws

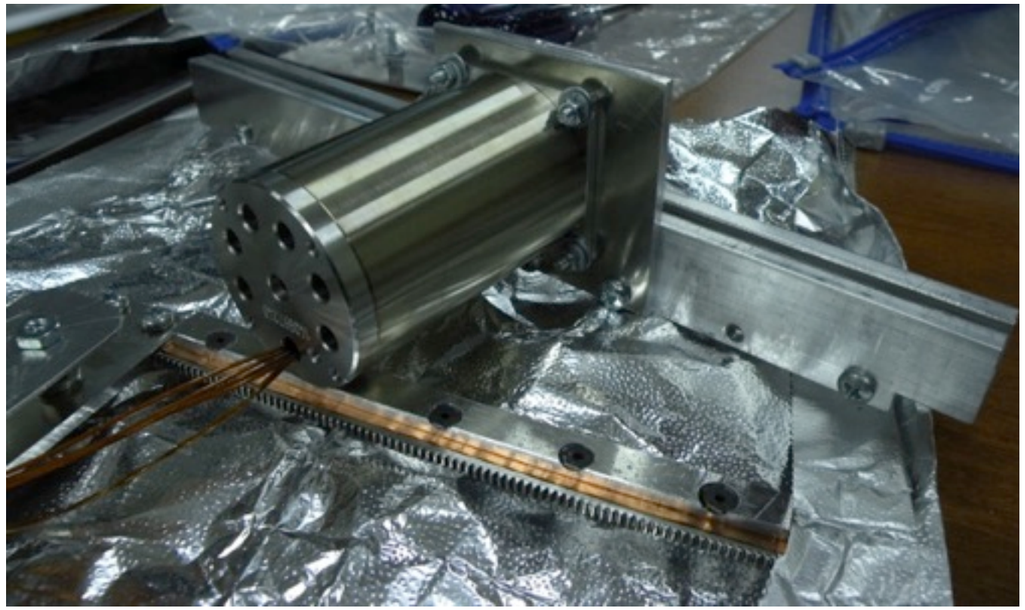
- Tried to get motor working with Hovanes, Scot
- Turns out plate to push switches was not insulated from rest of arm
- Installed nylon screws for insulation



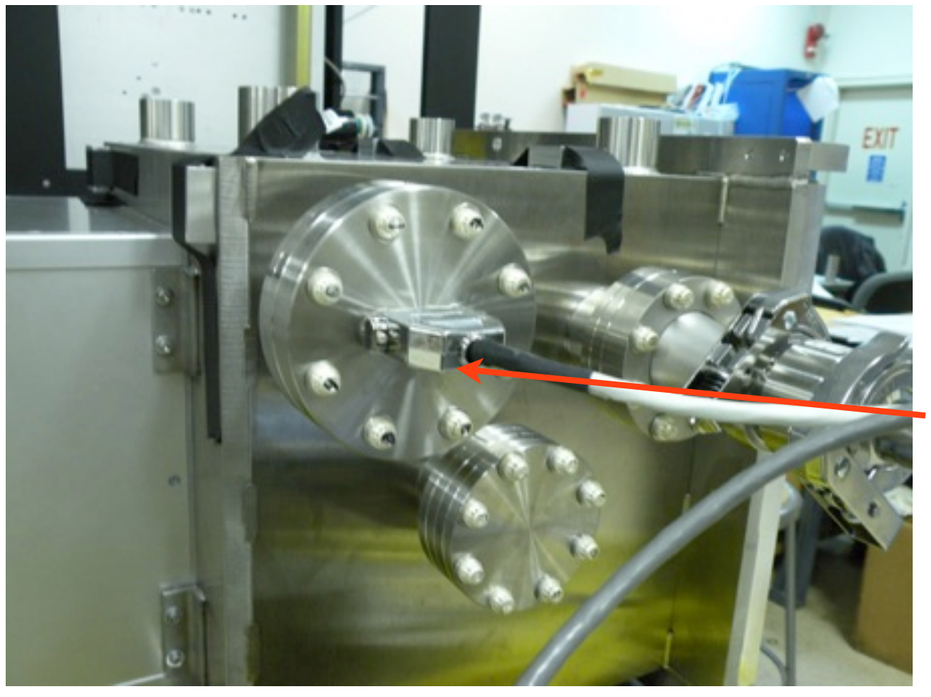


# Motor Setup

- Motor will move radiators into beamline
- Thanks to Hovanes, Scot
- Hovanes will provide GUI for motor controls

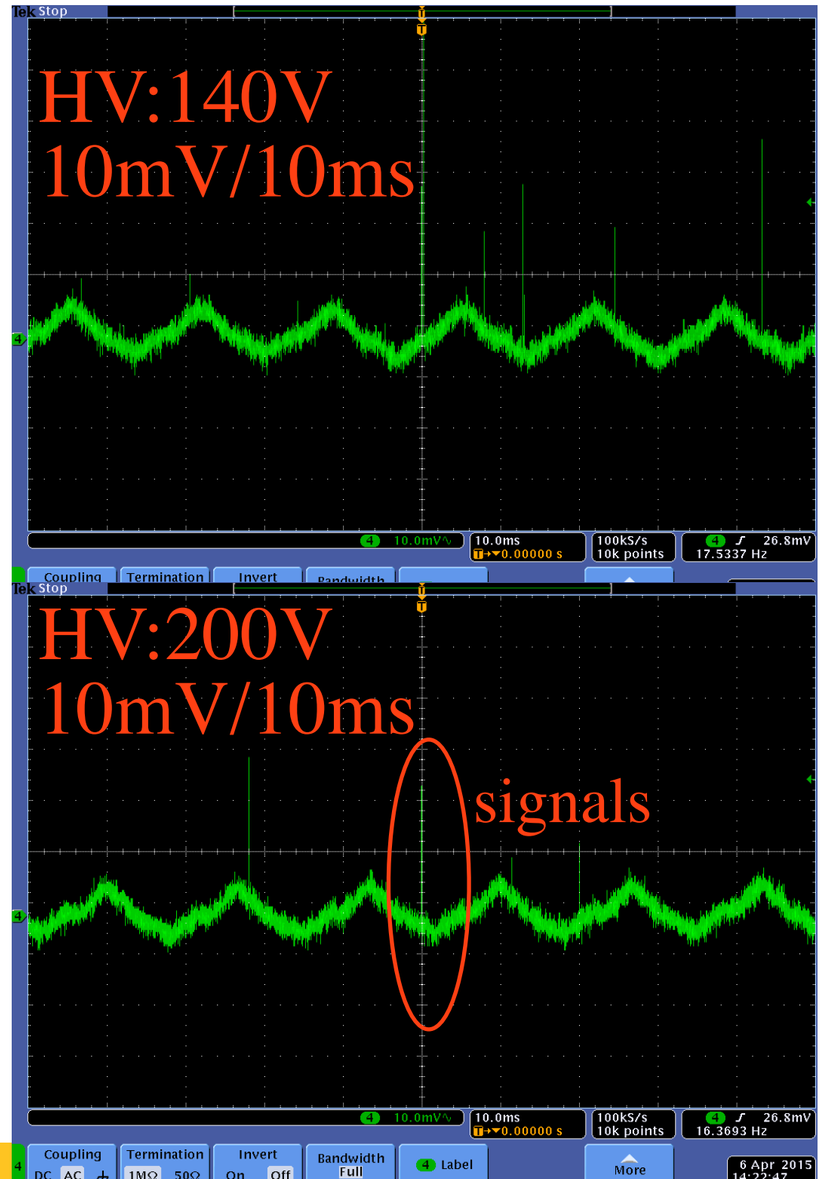


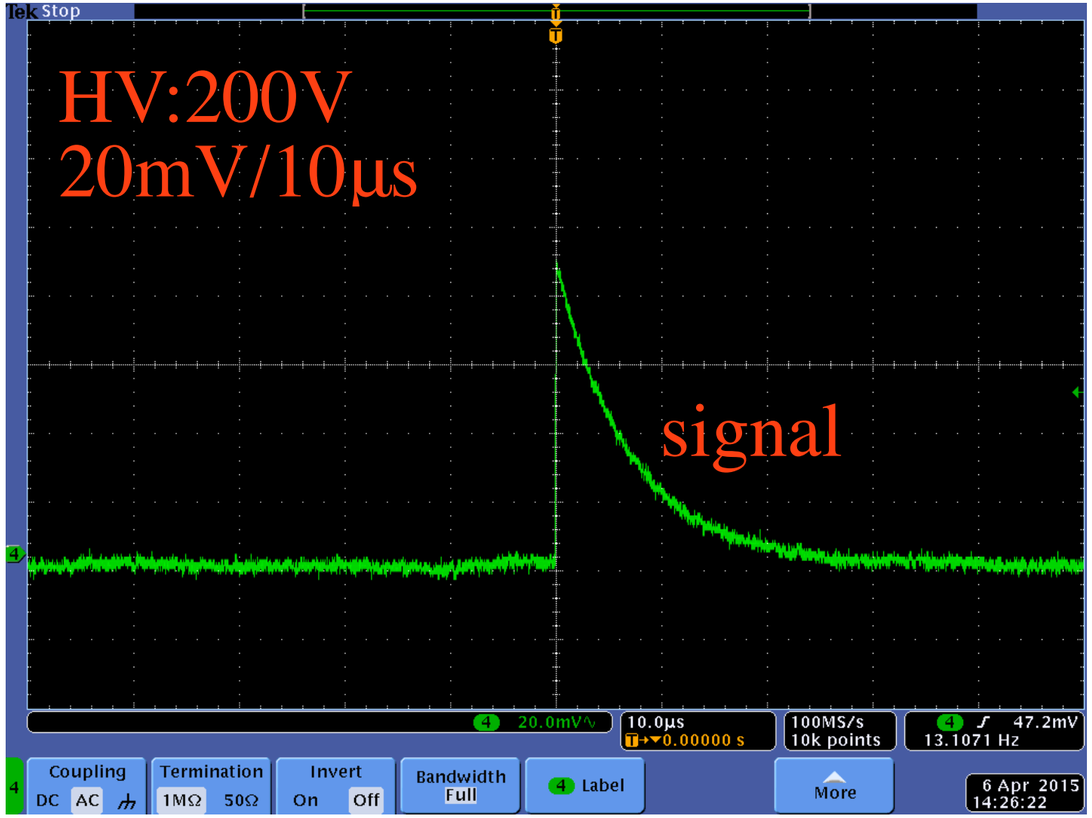
vacuum-rated motor




connection to controller

# Noise Levels with $^{90}Sr$




- Noise levels don't change with motor on
- Noise due to HV old supply, will have new one after this run period

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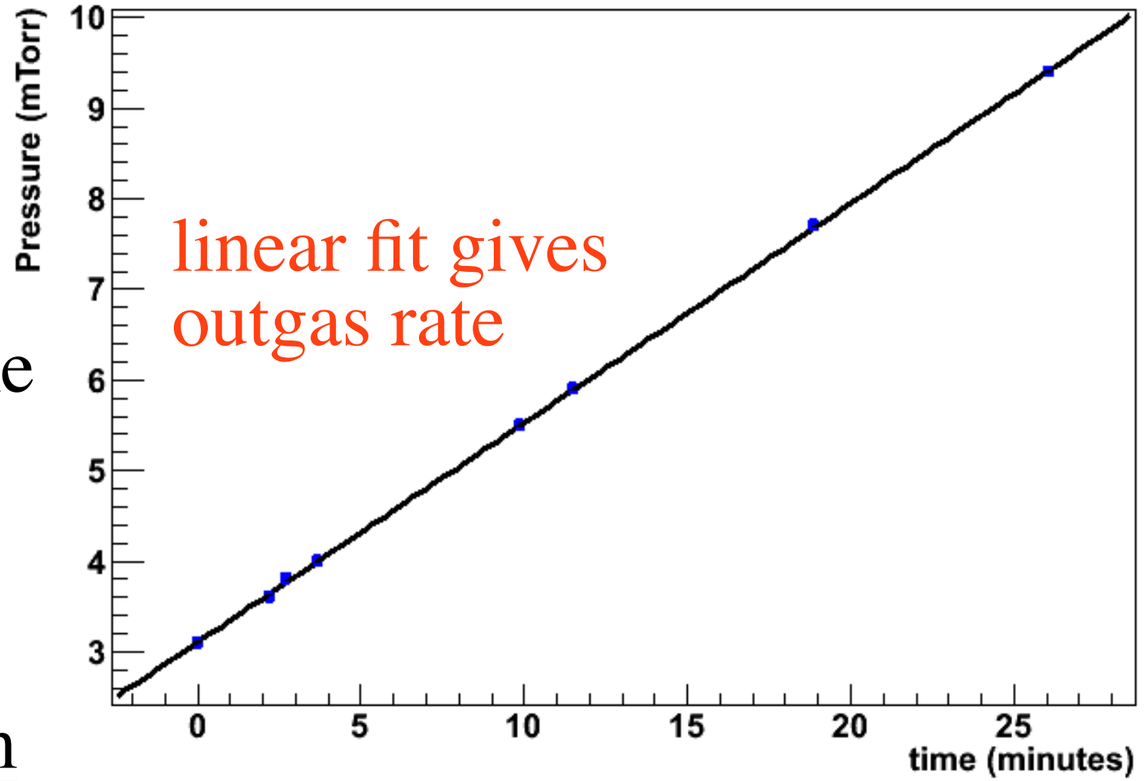
# Outgas Tests With Motor

- After pump down of 16 hours
- Outgas rate dP/dt = 0.242 mTorr/min
- Define $Q_0 = V\ (dP/dt)$, V: chamber volume
- Define $Q_u = (dV/dt)\ P_u$, $P_u$: ultimate pressure
- Want $Q_u > 10\ Q_0$ to ensure secure vacuum




- Numeric values using V = 29.5 liters, (dV/dt) = 100 liter/s, $P_u = 2 \times 10^{-5}$ Torr gives $Q_u = 2 \times 10^{-3}$ Torr liter/s $> 10 \times Q_0 = 10 \times (1.19 \times 10^{-4})$

Vacuum should be secure

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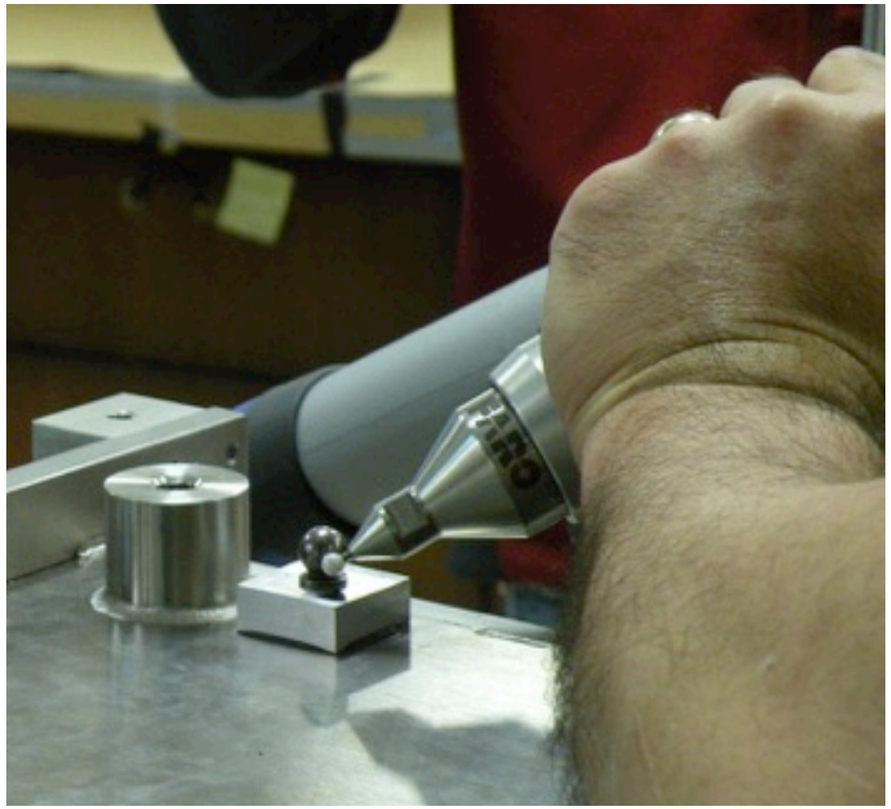
# Survey

- Survey happened last week
- Position of radiators are calibrated, and will be hardcoded by Hovanes in mm into our controls



# Survey Results

- Position of radiators are calibrated, and will be hardcoded by Hovanes in mm into our GUI motor controls
- Alignment was overall fine:
  - Detector was 0.14 mm lower, 1.37 mm closer to door than designed
  - Mechanical group can adjust beam pipe to center detector on beam line.
  - Distance from center of converter tray to detector is $\Delta z = 34.9$ mm (design: 35 mm). Some play in the z-direction of converter tray so precision not as good as other measurements.

should not be problems

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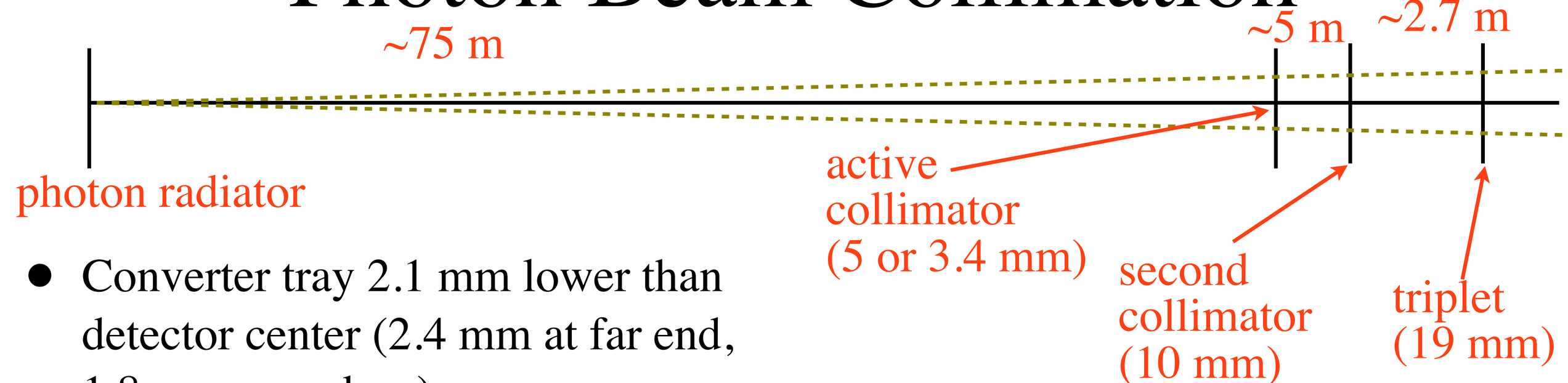
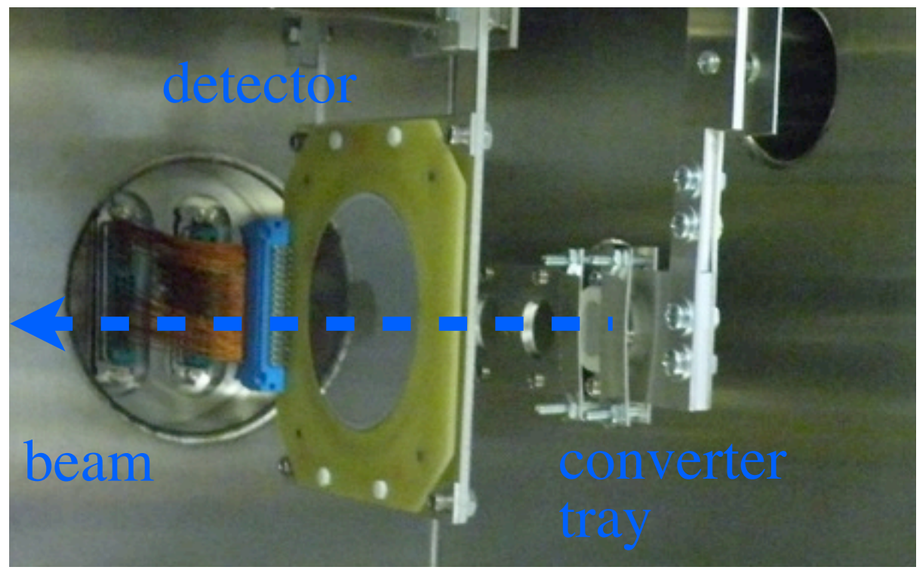
# Photon Beam Collimation




- Converter tray 2.1 mm lower than detector center (2.4 mm at far end, 1.8 mm near door)
- Converter tray openings: 19 mm

Even with 5 mm collimator, photon beam size at triplet should only be 5.5 mm

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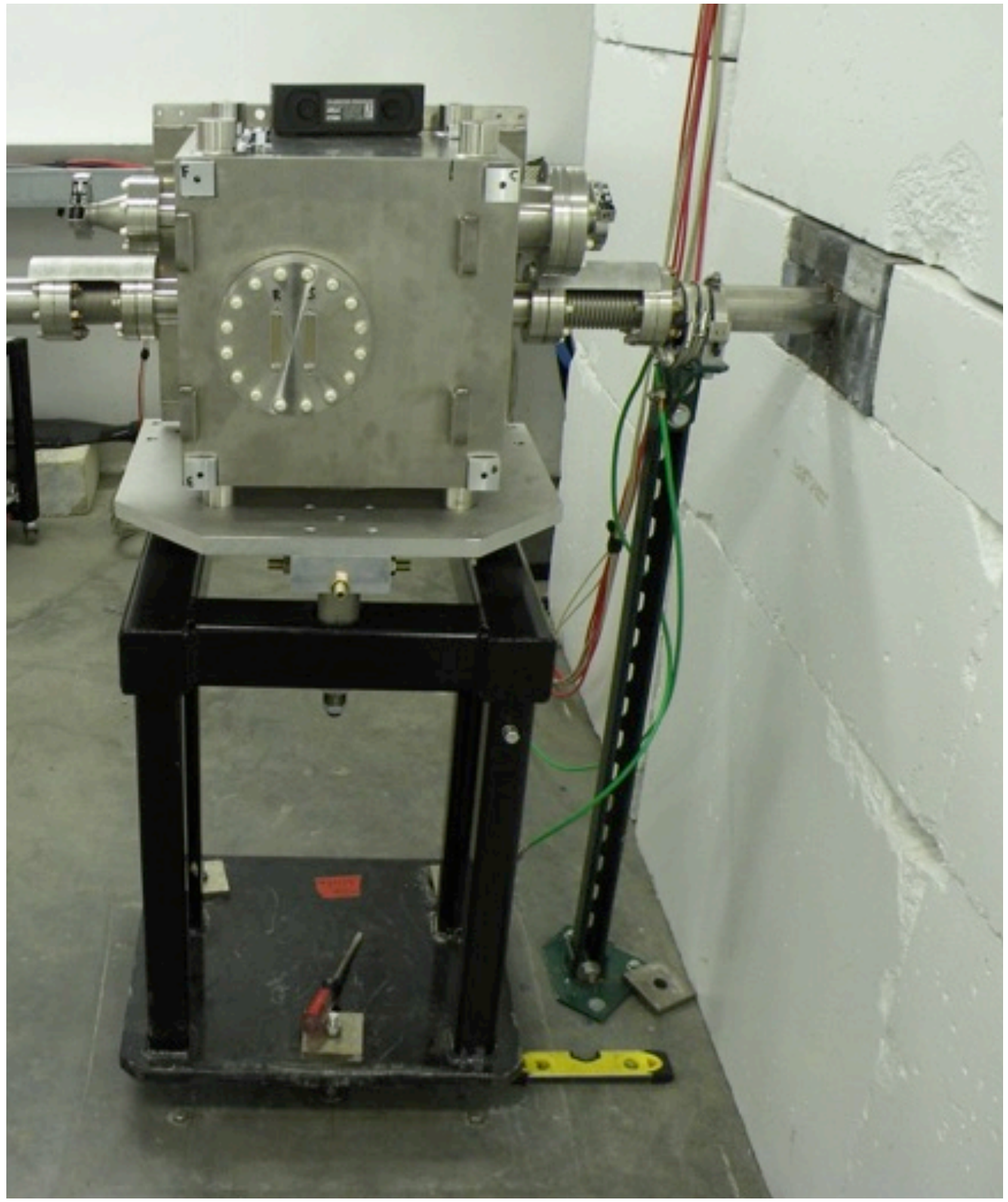
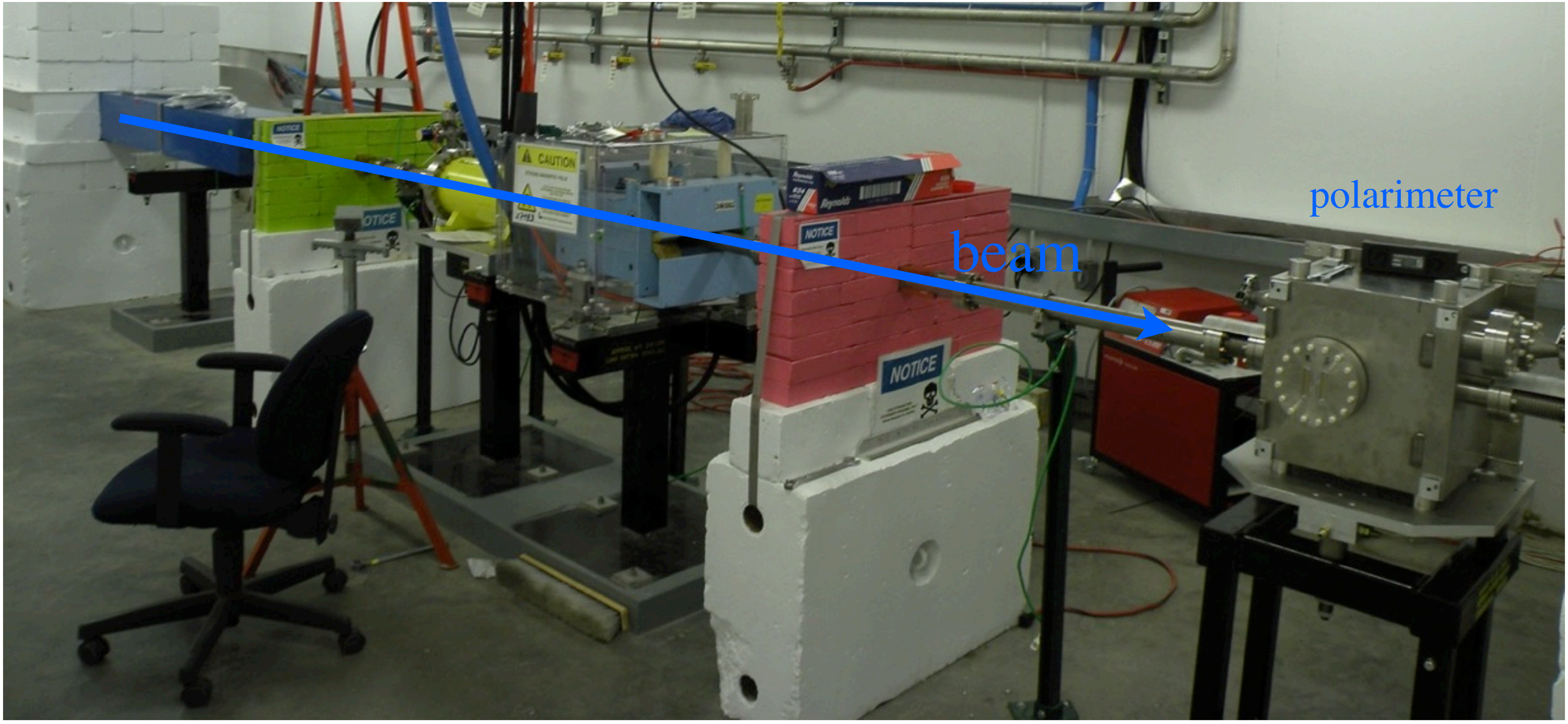
# Moving Detector to Hall

- Detector is now in hall (collimator alcove)
- Try to finish installation by Wednesday

polarimeter
HV, LV rack



# Collimator Cave



# OUTLOOK

- We got a lot done during the 2 weeks that Mike was at the lab
- Waiting for Sasha to setup fADC self-triggering → source tests in hall
- Need to reconnect all connections, test signals (early this week)
- Install radiator foils
- Almost ready for beam (take source data while waiting)