Report from CIRTE
(COUPP Iodine Recoil Threshold Experiment, T-1017)

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for CIRTE and COUPP

AEM
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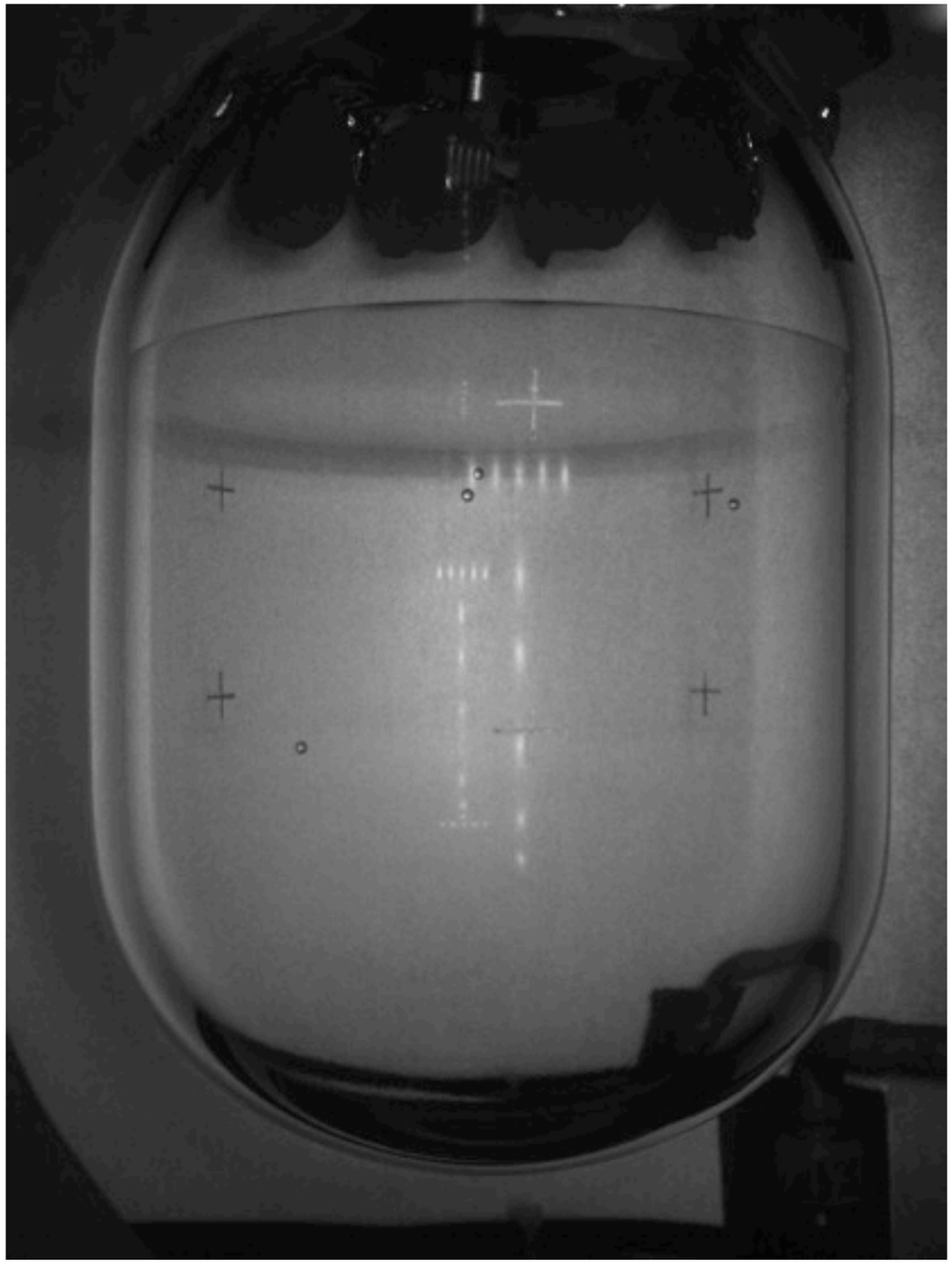
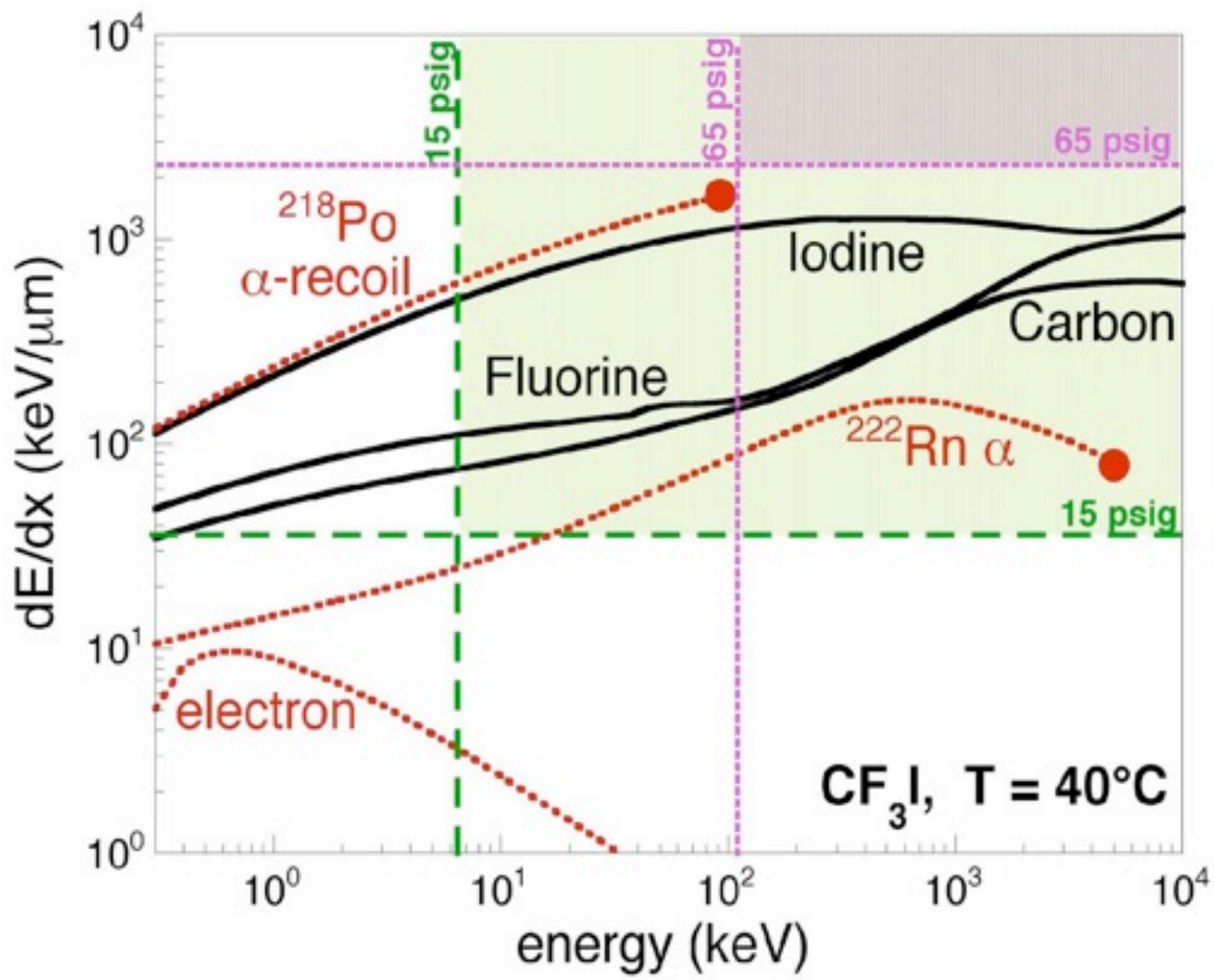
COUPP

- Bubble chamber experiment searching for dark matter
- Dense particle tracks nucleate bubbles in a superheated fluid
- COUPP-4kg running underground at SNOLAB
- COUPP-60kg commissioning in Minos near detector hall



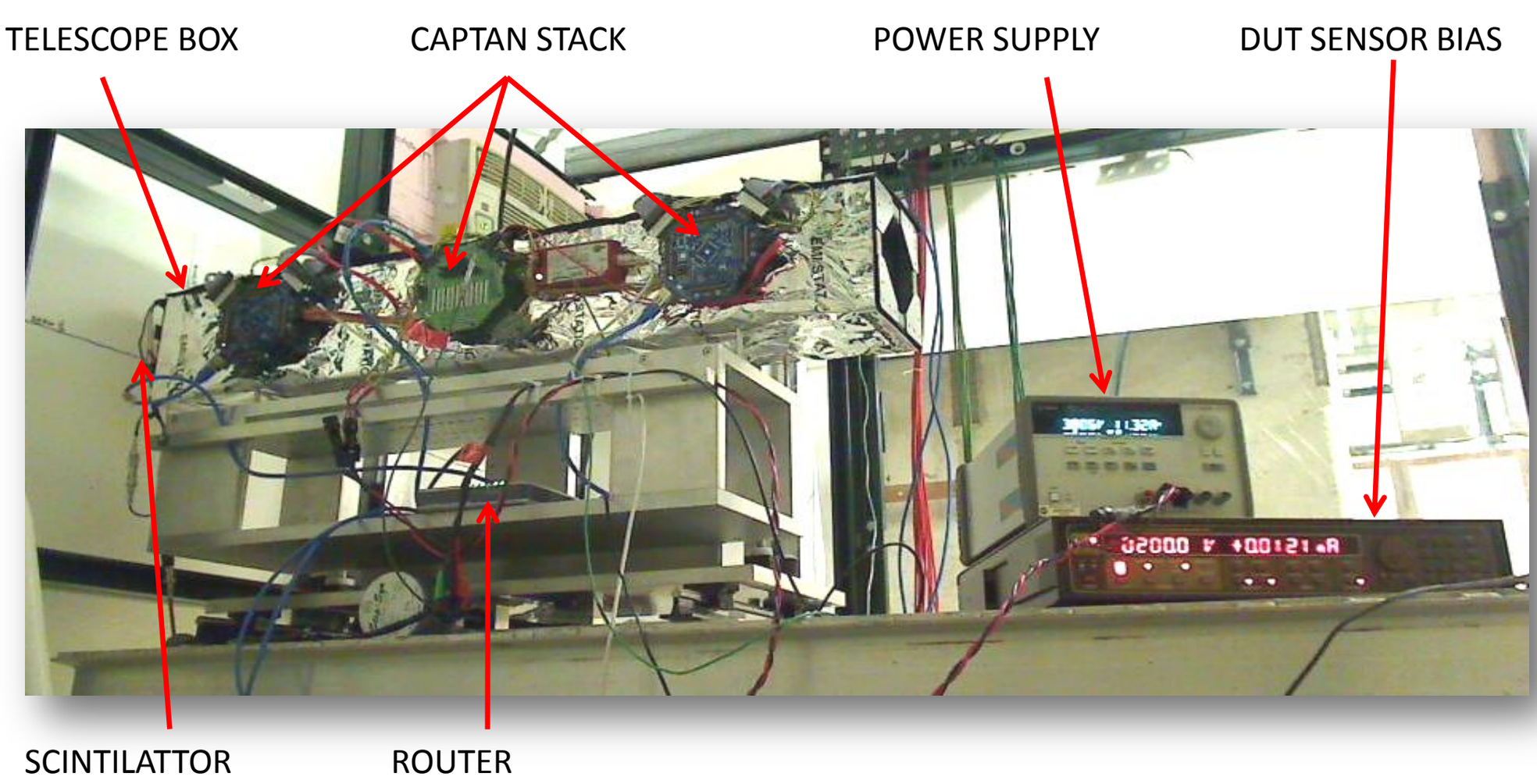
COUPP

- Target fluid is CF_3I (Spin-indep: I; Spin-dep: CF_3)
- Energy threshold given by theory
  - Calibrated with neutron sources and alpha decays
- Iodine small component of neutron interactions
  - Need for more direct calibration of iodine recoils



CIRTE

- COUPP Iodine Recoil Threshold Experiment - T1017
- Use elastic scattering of pions to explore iodine recoils directly (window between MCS and carbon and fluorine recoils where iodine dominates)
- Use pixel telescope from Computing Division Detector Instrumentation Group and the Fermilab Test Beam Facility to perform this calibration



Mike Crisler

CIRTE test chamber

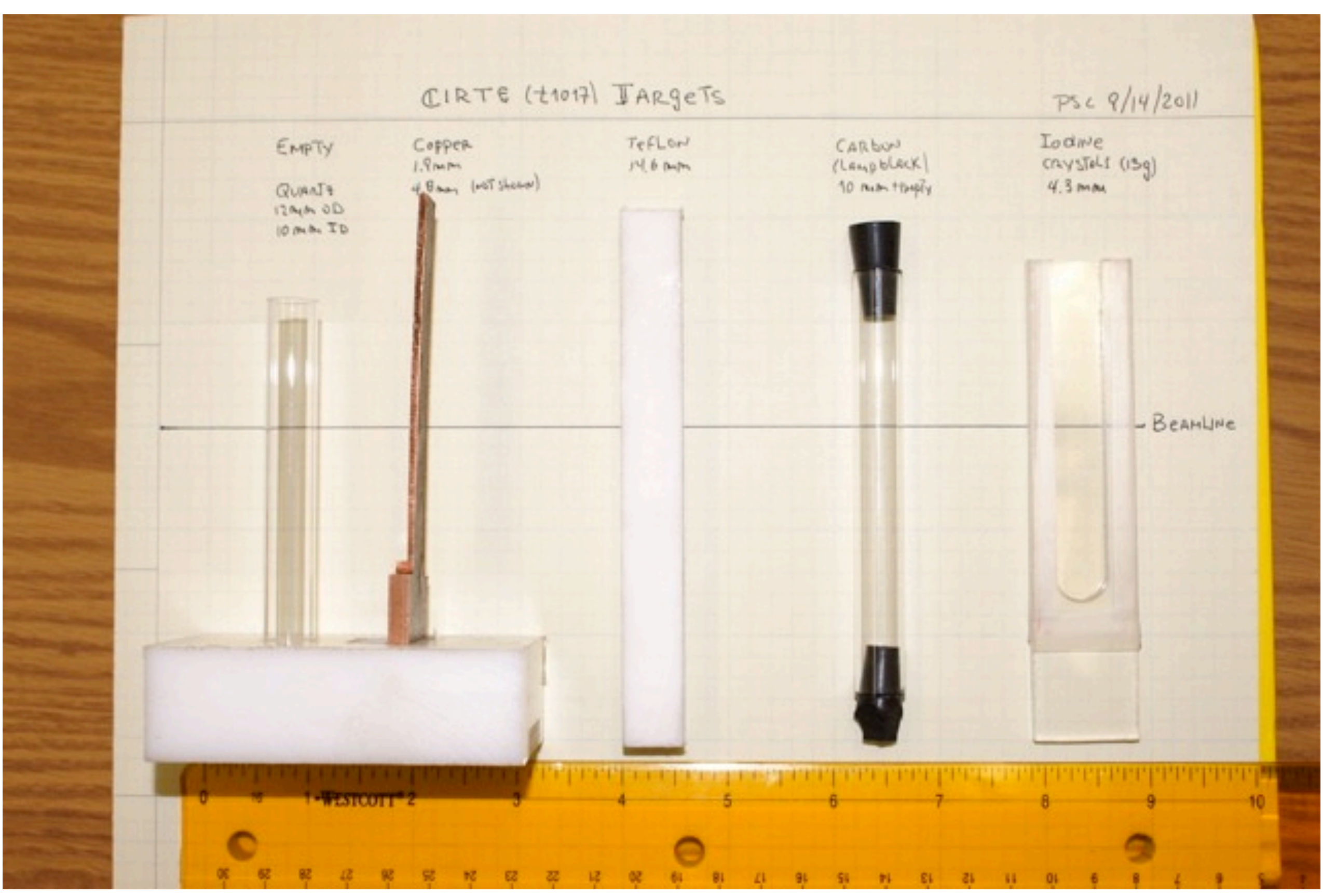
Run scheduled for Feb. 1-7

Beam Test, Sept. 21-23

- Beam test to get practice with the beam and pixel telescope and to take data on real targets to better understand the analysis
- Worked with Ryan Rivera and Lorenzo Uplegger of CD to get telescope working with our trigger and data needs
- After two days of warm up, we took data with 6 different targets over the course of about 10 hours

CIRTE (t1017) Targets

PSC 9/14/2011



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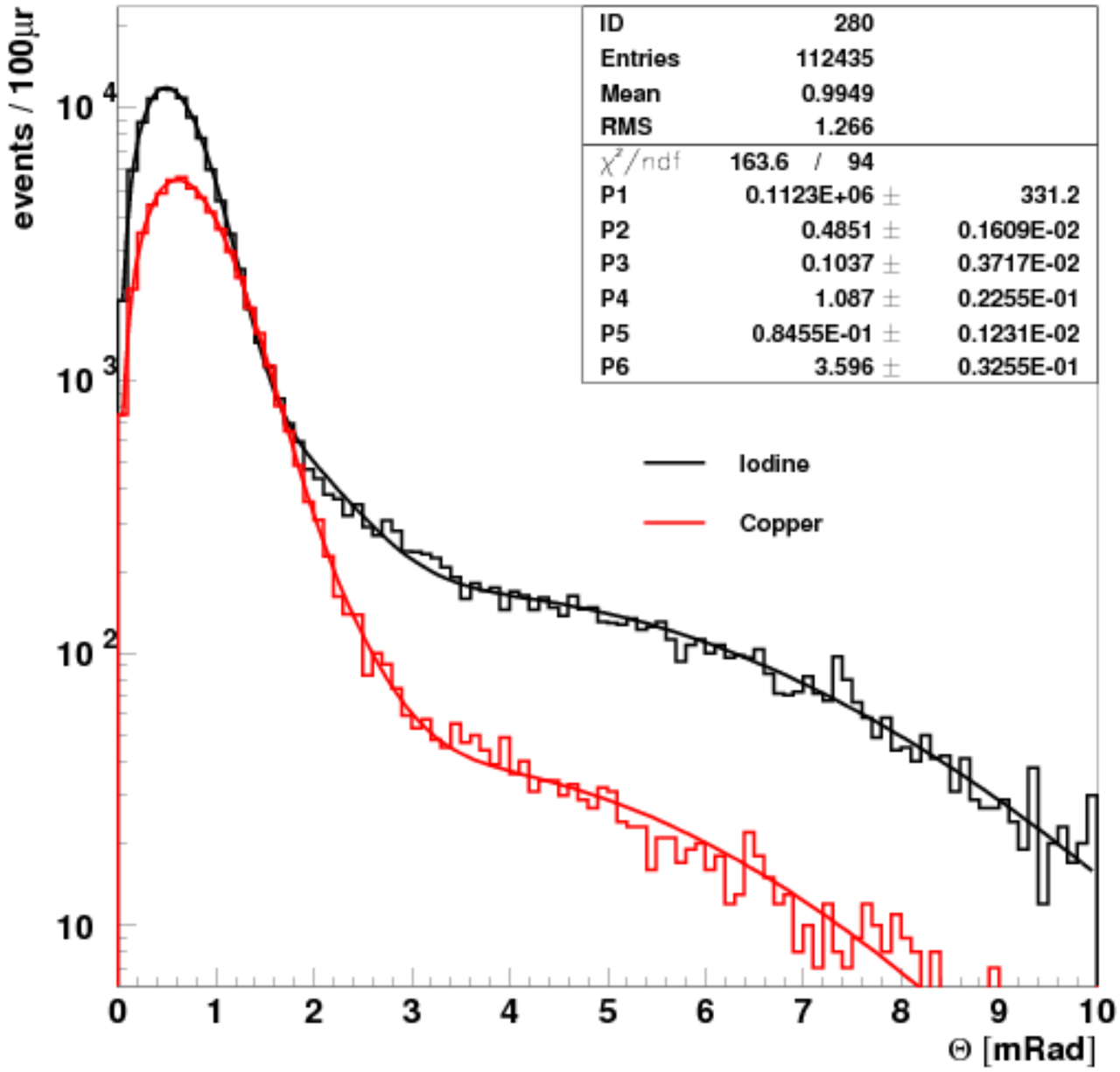
Target	None	Empty tube	Thick copper	Thin copper	Carbon	Teflon	Iodine	Thick copper (Pb)	None (Pb)
Triggers	50941	758154	188920	1.0E+06	837933	546483	683676	431809	89092
Tracks	5193	103246	26552	137263	92046	88588	112165	59004	12746



- Beginning to work through tracking analysis
- Appears to make some sense, still work to do

Thanks to...

- Computing division - Ryan, Lorenzo, Jennifer Ngadiuba, Alan Prosser, Simon Kwan
- MTest - Aria Soha
- Indiana University South Bend - Tonya Benjamin, Ed Behnke, Adam Behnke, Thomas Nanya
- Accelerator Division for the beam (and allowing access every half hour for target swaps)