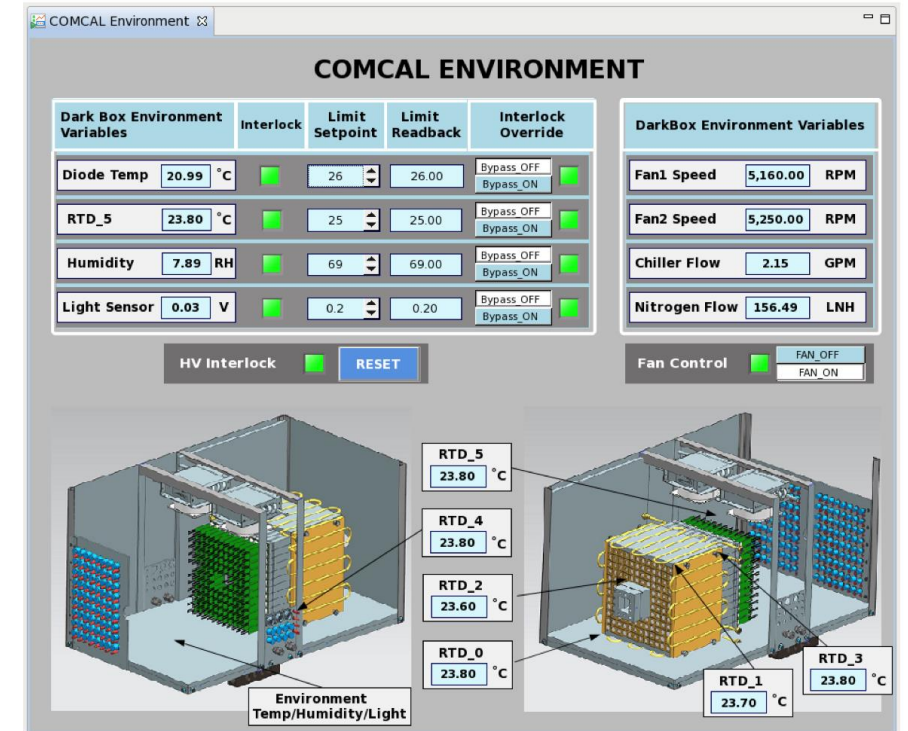
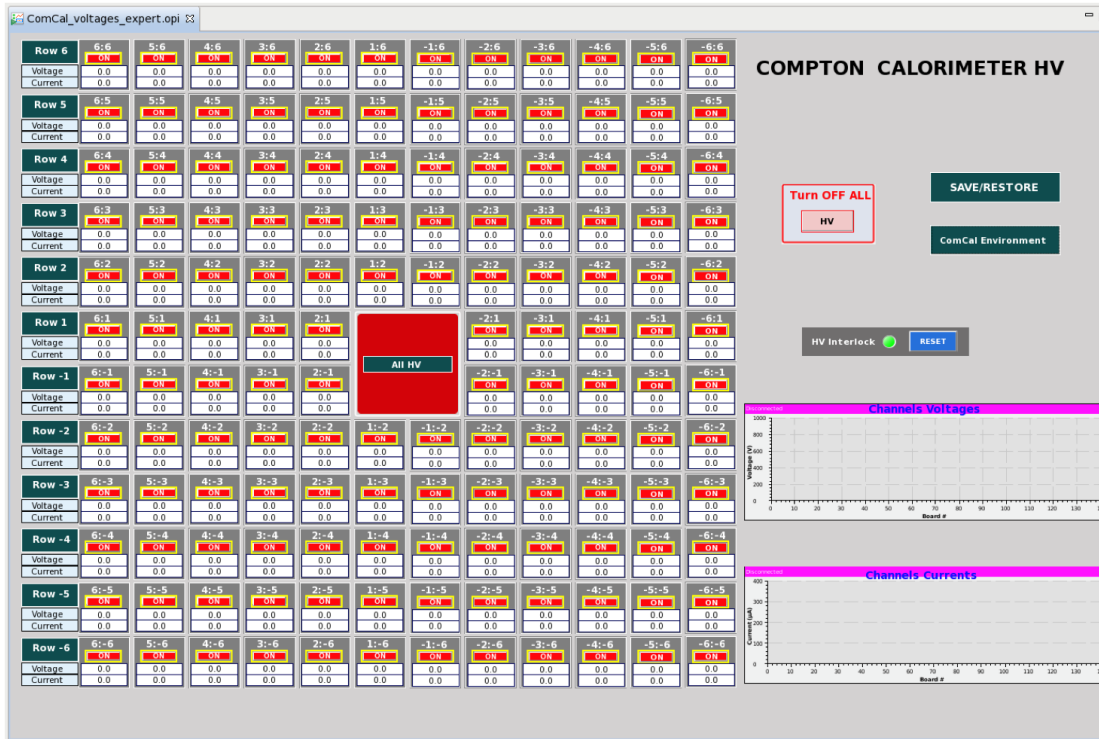


Calorimeter Slow control

Comcal and NPS have a prototype calorimeter installed in Hall D since mid-2018.

EPICS based Slow controls for this prototype were developed by H. Egiyan, N. Sandoval (Jlab) and V. Kakoyan (Yerevan)



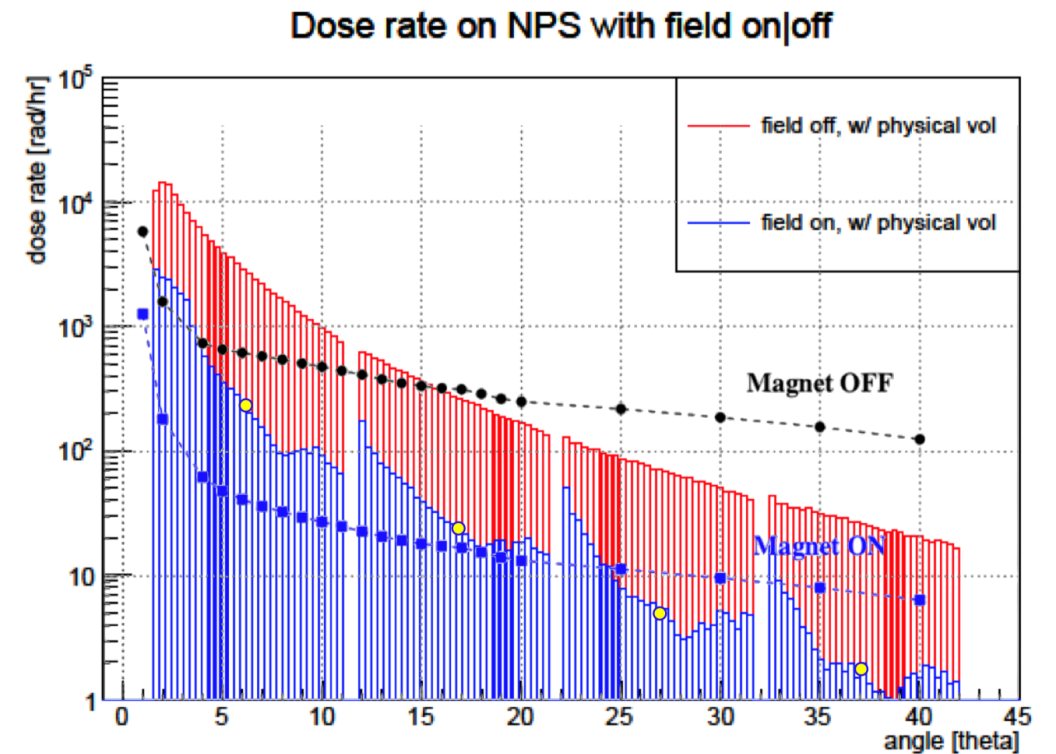
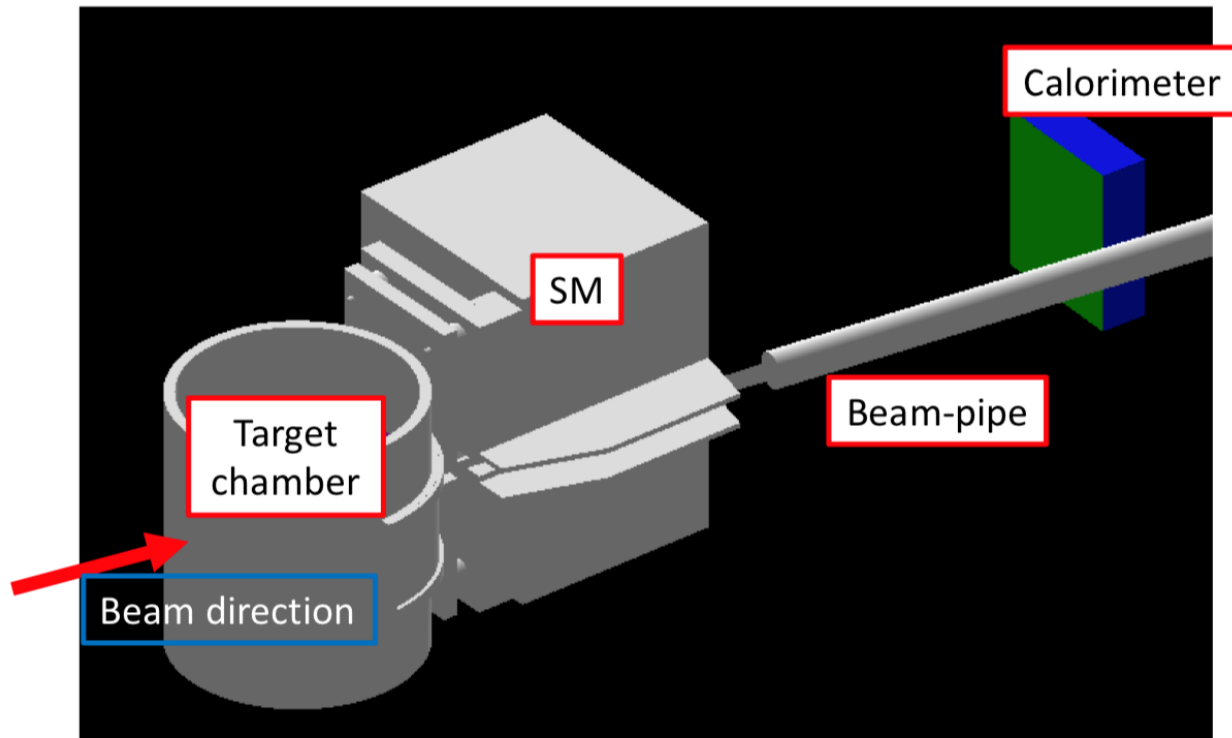
To do: extend from to full NPS size and add environment tracking channels if necessary

Who: ???

Simulation

HS Ko (IPN Orsay) has updated the Geant 4 DVCS simulation to the NPS case.

- Event generator for DIS, π^0 production and DVCS
- NPS geometry
- Radiation background, magnetic configuration and dose rate validated against JLab standards.
- Available on github



Analysis software

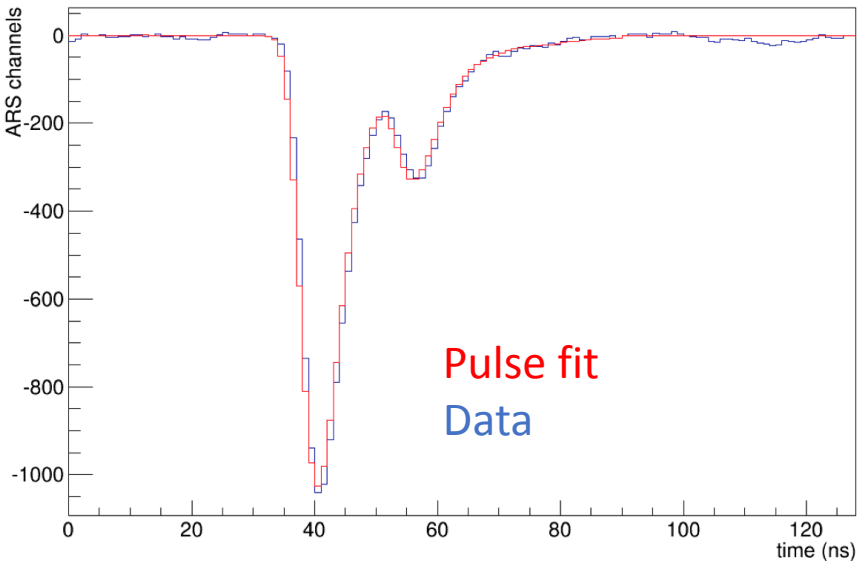
Will use the existing DVCS libraries linked to hcana.

HS Ko (IPN Orsay) has modified the existing DVCS libraries to accommodate the NPS calorimeter (208 to 1116 blocks)

Available on github

DVCS libraries functionalities:

- fADC/ARS and trigger decoding
- Multi-pulse fitting
- Clustering (Cellular automaton)
- Outputing hit position, energy, time



			0.2		
			3.0	1.0	0.2
0.3	0.2	0.4	7.0	2.0	0.2
2.0	8.0	1.0	0.4		
0.2	0.6	0.3	0.2		

			3.0		
			7.0	7.0	2.0
8.0	8.0	8.0	7.0	7.0	2.0
8.0	8.0	8.0	7.0		
8.0	8.0	8.0	1.0		

			7.0		
			7.0	7.0	7.0
8.0	8.0	8.0	7.0	7.0	7.0
8.0	8.0	8.0	7.0		
8.0	8.0	8.0	8.0		

Cellular automaton algorithm

To do:

- Write the FADC decoding (JLab personal)
- Implement DVCS libraries into hcana

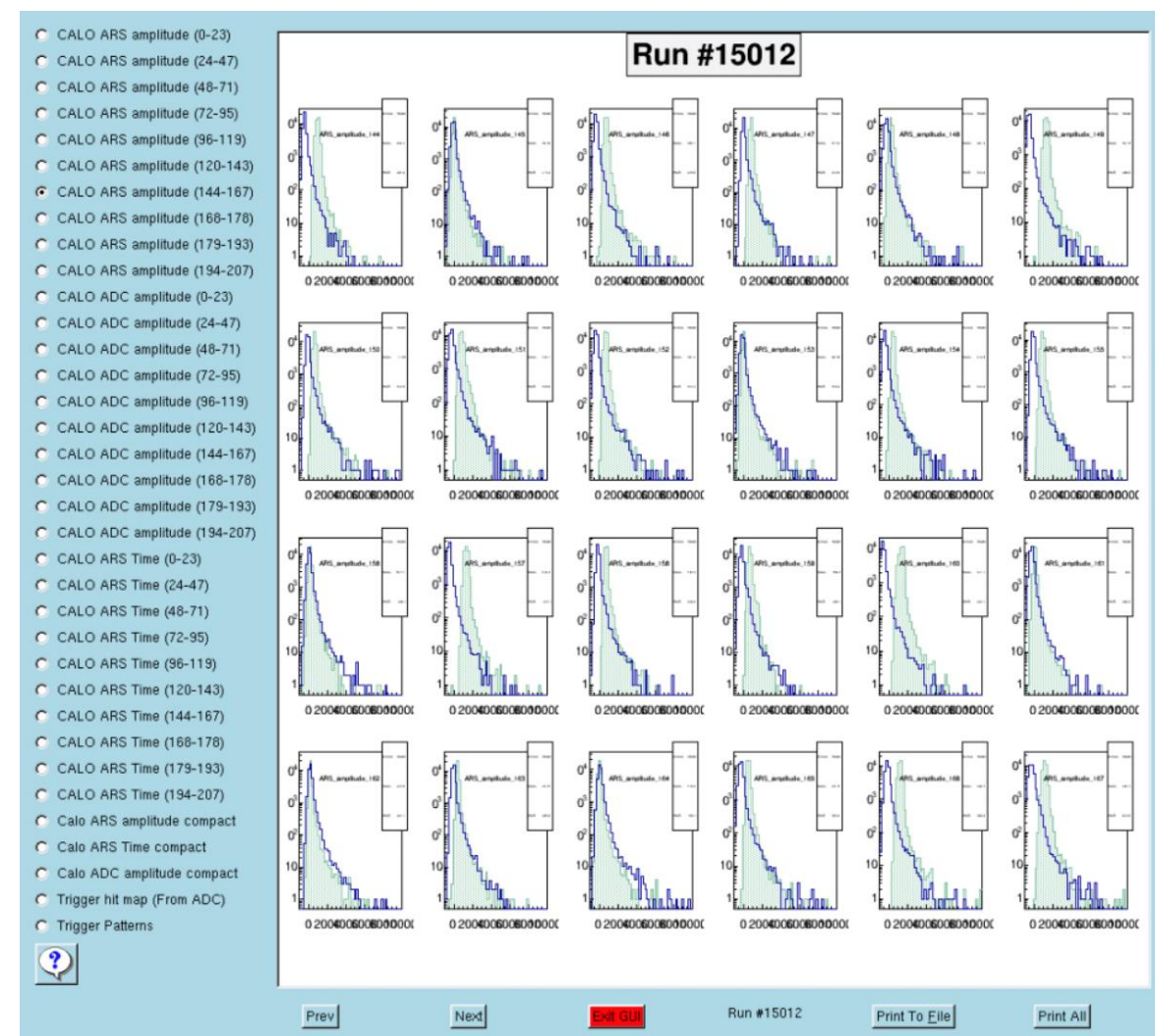
DVCS-SIDIS analysis needs

Based on the Hall A DVCS scheme

- Online analysis (on shift):
minimal calorimeter analysis
- Almost-online analysis (expert within a day):
Full fledged pulse fitting and clustering.

Estimation of the total amount of data produced = 50 TB

- Use DIS rates and beam time request
- Assume 75 fADC signals saved by events (26 sample per fADC)
- Add 25% overhead
- So far nothing to take into account HMS events – question out to A. Camsonne



Documented track record from previous experiments

DVCS Hall A collaboration

- E07-007 & E08-025
 - 4 Ph.D. thesis
 - 2 PRL, 1 Nature Comm, 1 article under review
 - E12-06-114
 - 50% of the data taking completed in Dec 2016. Q1-HRS
 - 2 Ph.D thesis completed, 4 in preparation
 - Preliminary DVCS and π^0 cross-sections presented in conferences.
- Not sure what to put here for the SIDIS group??

Projected timeline for first publication ??