

Jefferson Lab – Compton Transmission Polarimeter

Riad, Joe, Eric, and Matt

Wednesday, March 2, 2022

The logo for Jefferson Lab, featuring the text "Jefferson Lab" in a bold, sans-serif font. A red swoosh underline is positioned beneath the word "Jefferson".

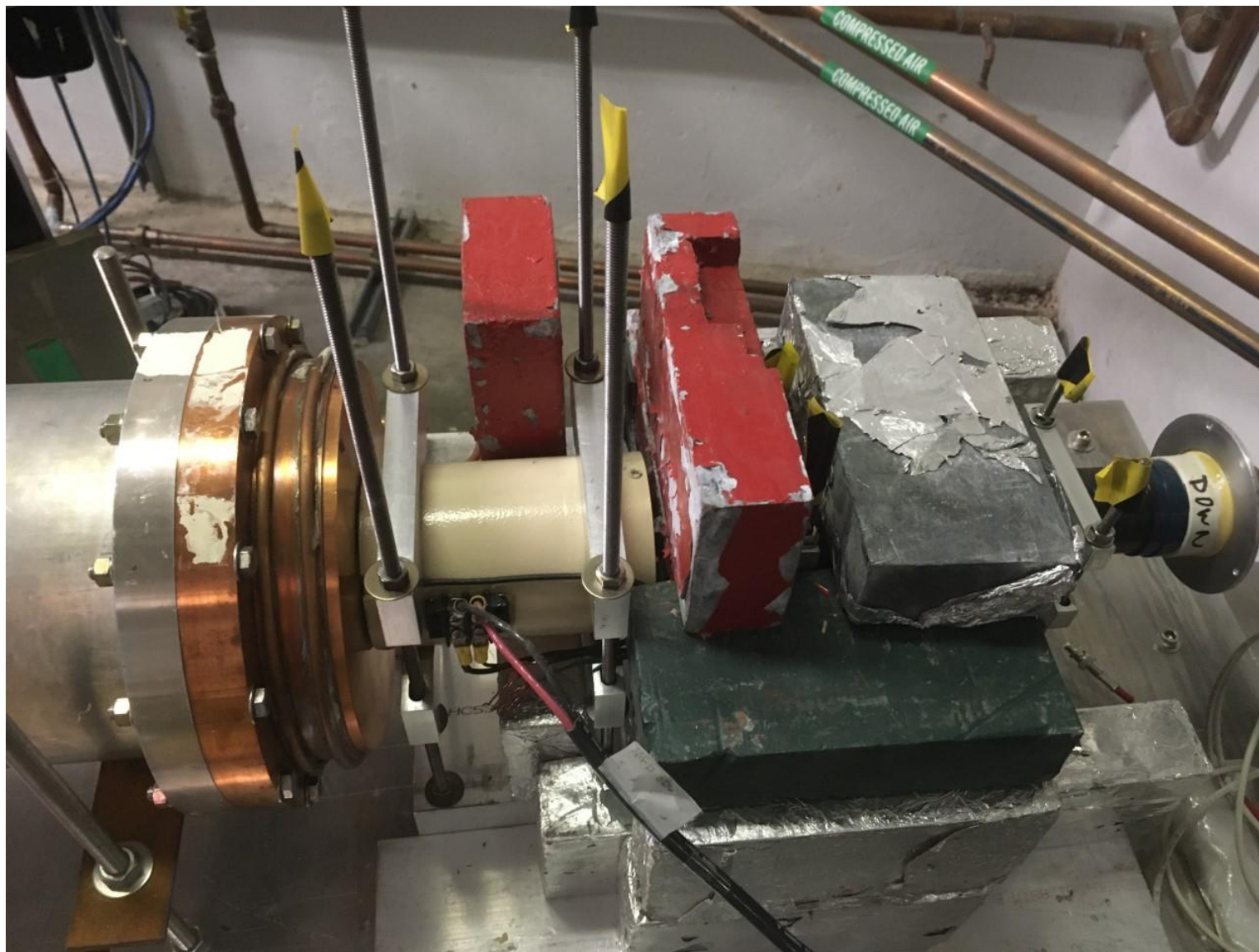
Achievements, Milestones and Timeline

- FY22 Q2:
 - Bismuth Germanate ($\text{Bi}_4\text{Ge}_3\text{O}_{12}$) (BGO) crystals are ready to order – three crystals from Alpha Spectra, Inc, each: 76.2 mm diameter x 200 mm long
 - Design of magnet with iron core is underway
 - Collecting/precuring parts of the portable DAQ
 - Build a second radiator

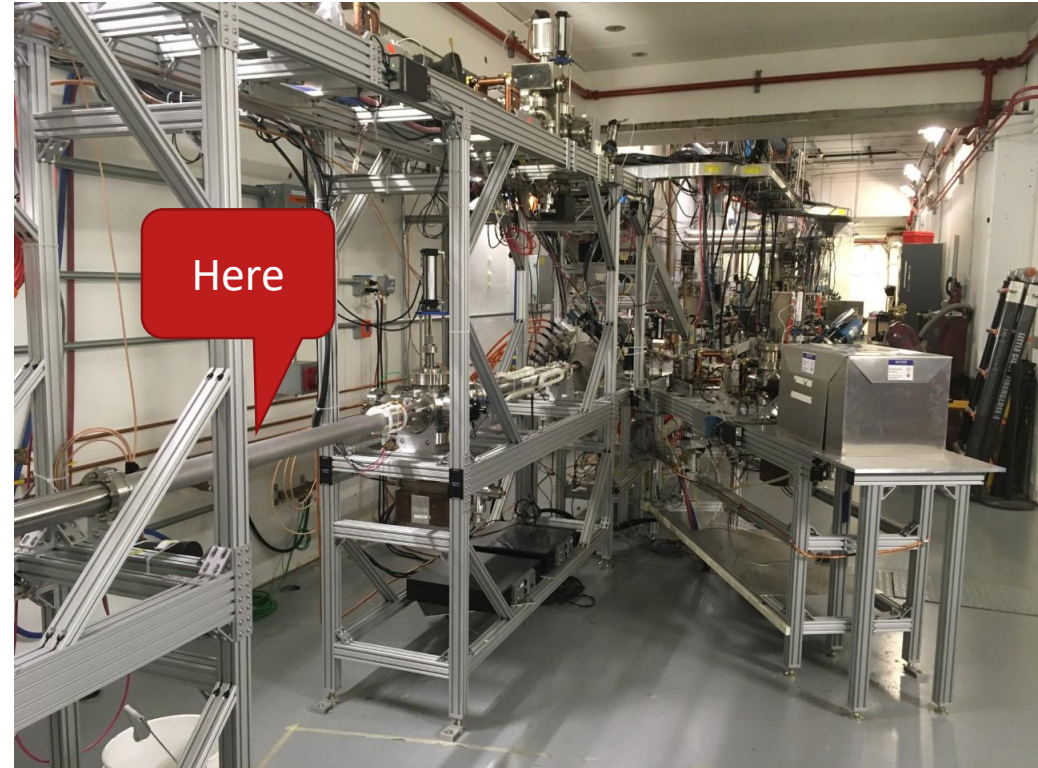
- FY22 Q3-Q4:
 - Install old polarimeter at UITF
 - Portable DAQ is ready
 - Test portable DAQ with old magnet and detector

- FY23 Q1:
 - Install new magnet and new detector at UITF
 - Calibrate polarimeter

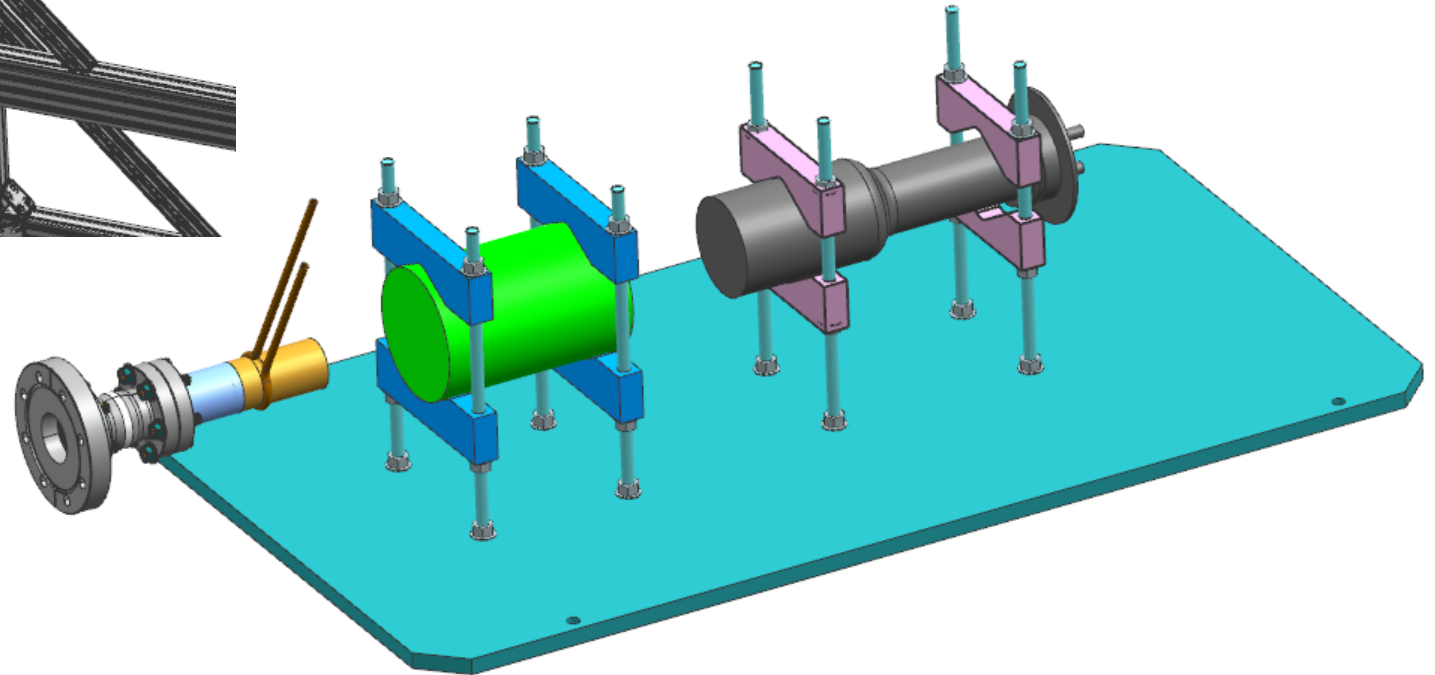
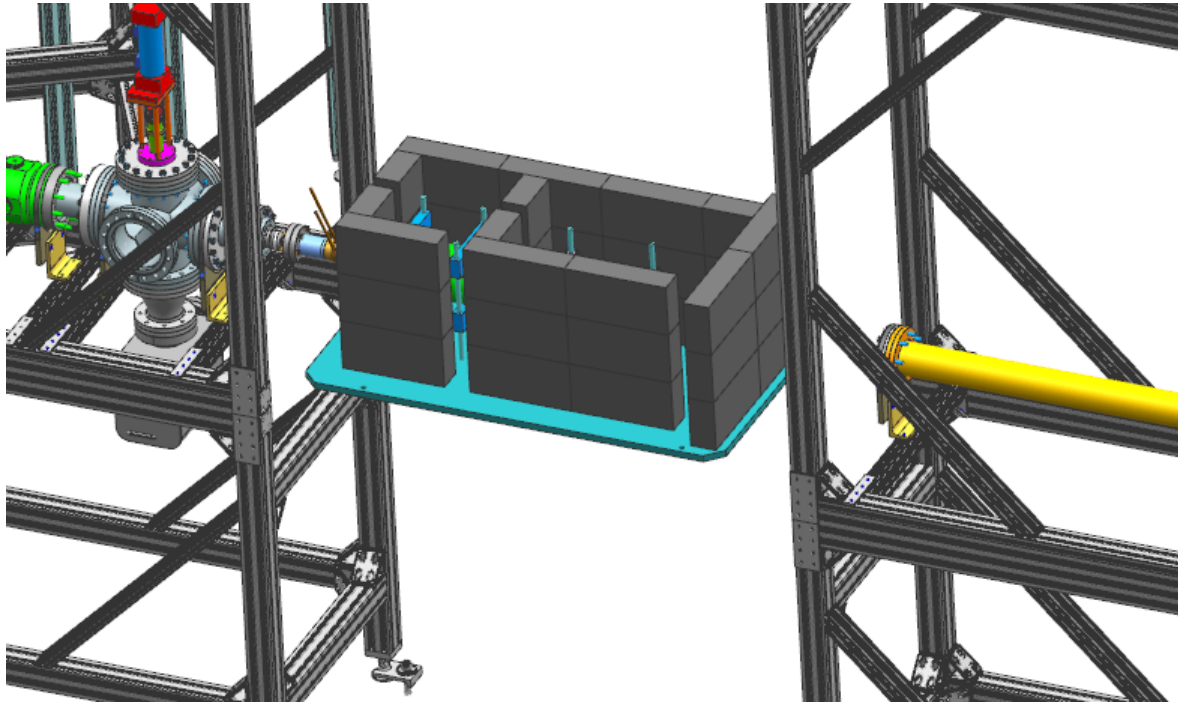
Polarimeter at CEBAF – Summer 2018



Planned Test at UITF

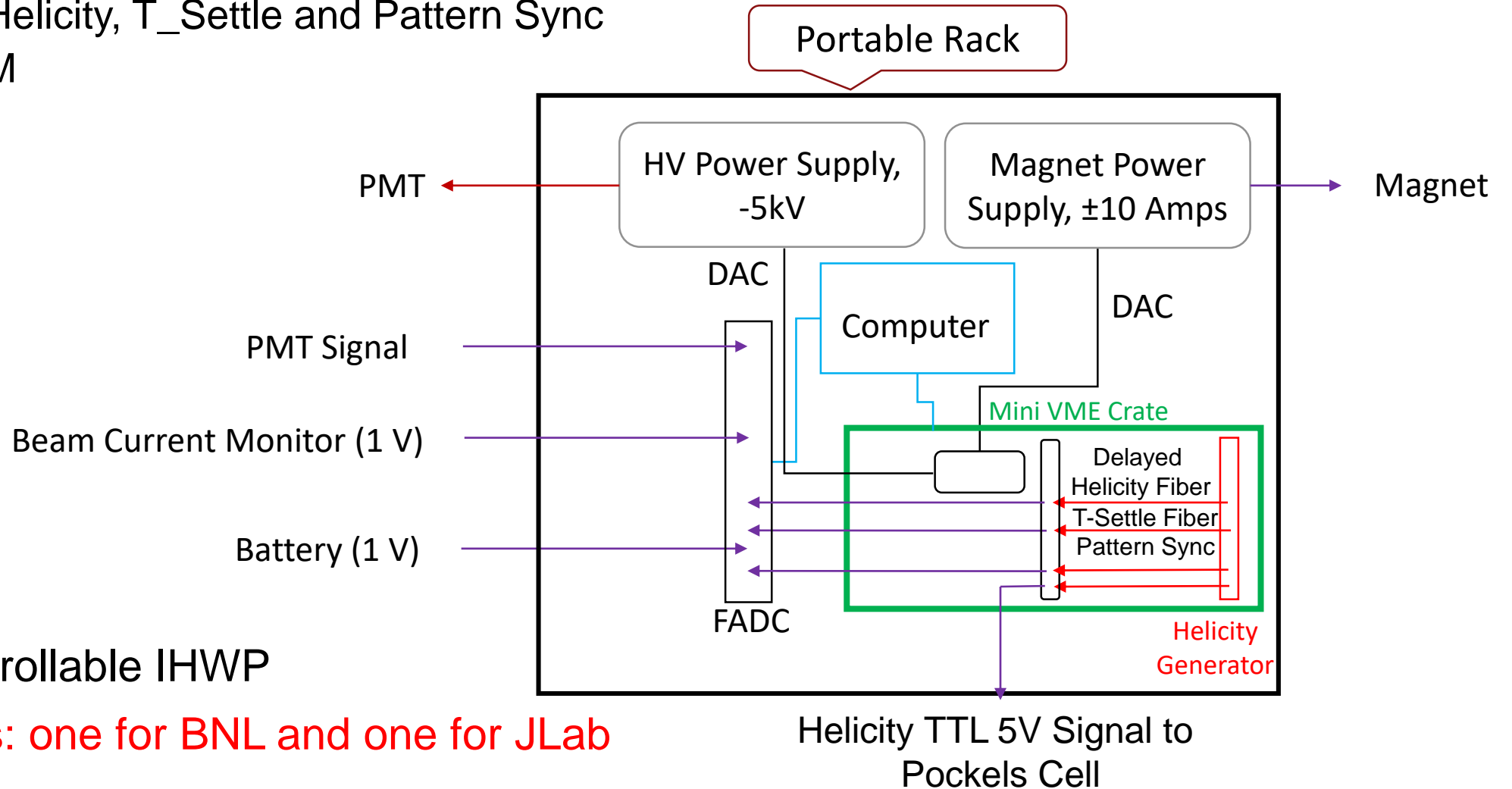


Planned Test in UITF



New Portable Data Acquisition System (DAQ)

- DAQ Readout:
 - Delayed Helicity, T_Settle and Pattern Sync
 - PMT, BCM
 - Battery



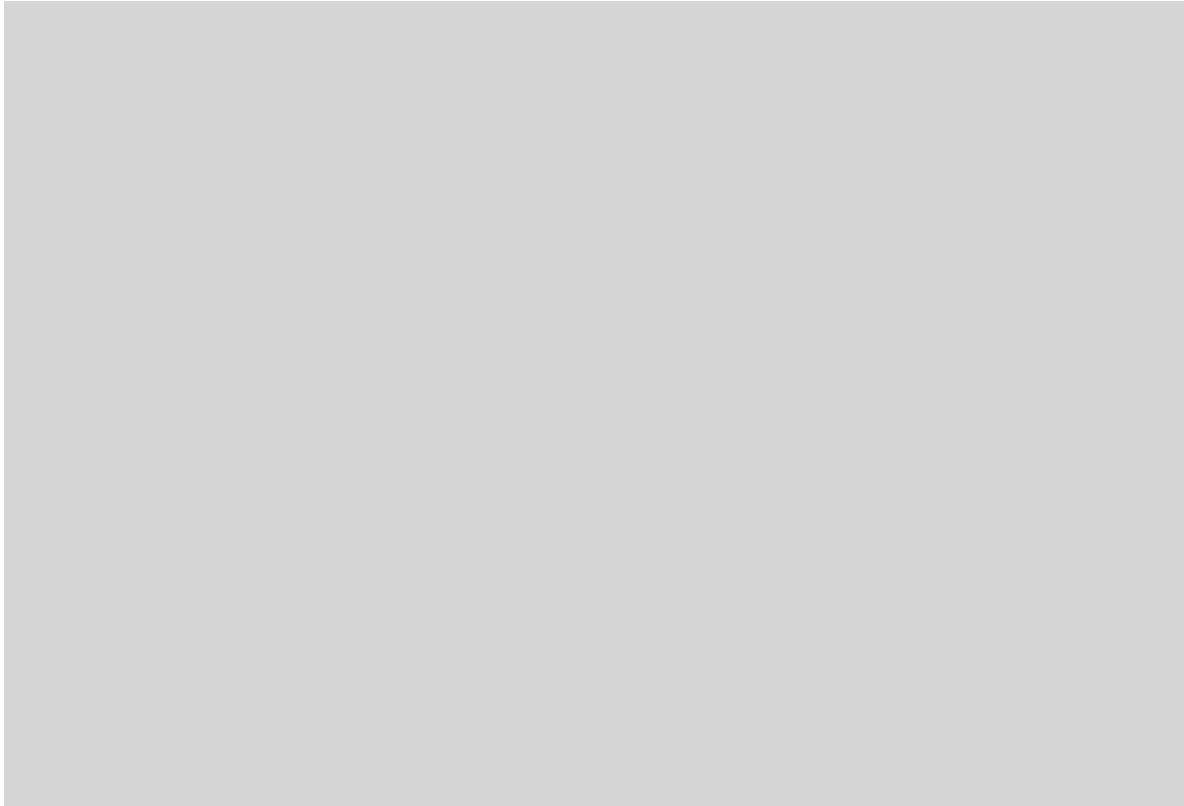
- Remote controllable IHWP
- **Two systems: one for BNL and one for JLab**

DAQ List

ID#	Item	Description	Needed Quantity	On-site	To Order	Model#	Cost	Software	Ordered?
1	Portable Rack	Equipment rack	2		2	?			?
2	5kV Power Supply	CAEN VME HV	2		?	V6533P	\$0.00		On Site
3	Magnet Power Supply	1.5kW, 20A, 75V programmable, bipolar	2	2		?	?	Used at CEBAF	YES
4	Mini VME Crate	WEINER 7 slot '64x crate	2	2		195-X-64X	\$0.00		On Site
5	VME Controller	VME Single Board Computer	2		2	VP E2x/msd	\$3,000.00		YES
6	VME Digital-Analog-Converter	DAC module	2		?	?	?		NO
7	VME NIM-ECL level translator	CAEN 6U single slot	2		2	V538AB	\$2,700.00		YES
8	Helicity Decoder Module	New module	2		2	HD-FEDAQ	\$2,200.00		YES
9	Helicity Generator	EES designed and built	2	2		EES	\$1,000.00	Used at CEBAF	On Site
10	Ethernet Flash ADC-250MHz	16 channel ADC	2	2		FEDAQ-EFADC	\$3,500.00		YES
11	EFADC250 Power supply	Power supply and cable	2	2		FEDAQ-EFADC	\$1,800.00		YES
12	Computer	DELL/LinuX	2		2	?	\$2,500.00		NO
13	Fluxmeter	Integrating Flux Meter	1		1	Hirst IFM03	\$5,000.00		NO
14	Cable Patch Panel		2		2				
15	Signal cable + terminators								
16	HV cable + terminators								
17	Magnet cable + terminal block								



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