

## Pre-installation

### *Mechanical*

- Complete cable layout (Paulo)
- Complete design work (Paulo)
- Check on ownership and any work to be done for the corrector magnet (Dave G)
- Obtain and install heavy gauge ground cable from chassis to ground SHMS (Simona/Paulo?)

### *Complete calo trigger*

- (DSG) Low Voltage: solve regulation problem, EPICS control, logging scripts
- (DSG) High Voltage: all channels supply -1.6kV, <1mA, EPICS control, logging scripts
- (Simona/FEG) LED system: install, use to test PMTs, EPICS driver, control, PWO curing
- (Yeran/Hakob) Signal cables: run cables 2/3 of system, PMT checks
- (DSG) Thermal monitoring and control, develop a procedure for and calibrate the thermal readback/humidity sensors
- (FEG) VTP cluster trigger
  - Firmware development, test logic, rate tests
  - Implement cluster trigger
  - Implement VTP fadc 5x5 mask readout firmware once cluster trigger up and running
- (Bob) DAQ and Software: fADC firmware update, support for separate fADC libs, multiblock mode tests, 2/3 system tests
- (David H) Hcana support: support for DAQ/software, analysis scripts
- (David H) Cosmic tests: equalize gains

### *Upgrade HMS DAQ to CODA3.10*

- (Bob) Compile CRL w/CODA 3.10 for three crates
- (Ole) Upgrade to CentOS7
- (Bob) Upgrade hcvme03: replace with Linux SBC, Check timing on DCs, simulate synch loss, check recovery
- (Ole) Update computers: bring cdaq13 when finished in EEL, possibly new cdaq14, more disk, 10gigE in SHMS
- (Bob) Modify trigger master module to control
- Install NPS DAQ in Hall C

### *(Iuliia) HMS Checkout*

### *(Paul King) Helicity and scalers*

### *NPS calorimeter*

- Identify support for: dry air (source, pumps) → detector support group
- Need to attach additional sensors (16) → could be done after moving detector into hall
- Identify where to attach the ground on the calorimeter frame
- Cooling system certification (checked for leaks, but need to certify, Temperature regulation/stabilization)

## Installation

### ***Installation items for collaboration***

- Check magnetic field impact from HMS dipole on NPS → see Simona's tests (Steve L. has a profile), then can check what impact would be on NPS PMTs
- Check on racks in SHMS hut (Simona/Paulo)
- Add transportation of racks and crates from EEL 108 – ADD to Steven L schedule (2 racks)
- Check and if needed modify the size of penetration holes for cables into SHMS (Simona/Walter)
- Run 1 cable the full length (Simona/Walter)
- Install racks and patch panels (Simona/Walter)
- Cables from NPS to SHMS (Simona/Walter)
- Plan to start disconnecting things (disconnect cables) in EEL 108 by mid-April to be ready to transport on 3 May
- Move NPS from EEL108 to Hall C (Simona/Walter)
- For transportation, mark on the NPS box the front of the detector and which direction is "crystal point up"

### ***Things to do after the NPS is in Hall C***

- Cable hook-up – planned for mid-May to 1 June
- Cable checkout can be May 30 to July 21 (new experiment start date); note that the posted date is 17<sup>th</sup>, so aim for closing the hall on 14<sup>th</sup> July
- Perform spot checks of sweeper magnet with handheld probe (Simona?)
- Trigger setup (Bob)
- Synchronization system – verify DAQ is in sync (Bob)
- DAQ tests – establish full DAQ and rate tests (Bob)
- Analysis scripts (David H)
- EPICS alarms, archiving, logbook entries (Bob)
- Cosmic checkout (David H)

## Run Plan

- Confirm solid targets on the ladder
- Separate pre-beam items → check list from checkout with beam (Carlos)
- Optics → Get list of PionLT optics settings (Mark)
  - If within a few percent of central momenta then might use the existing matrices
  - Max momentum of HMS is  $\sim 7.4$  GeV/c, but NMR may not work there (have been running NMR at 6.8 GeV/c) – note: highest setting for DVCS is  $\sim 7$  GeV/c
- Trigger setup → talk with Simona/Iuliia on details
  - What is the threshold for pions firing? – need to determine the pressure of Cherenkov, if have high threshold then Cherenkov has low number electronics; presently set threshold to 4 GeV/c – anything above calorimeters can handle
- What rates expected in HMS? – up to 20kHz electrons → need to determine total rate
- Plan to do a target boiling measurement per setting
- Confirm magnet tilting settings for Phase 1 experiments
- Post documents on NPS Wiki and also Hall C Wiki
- Update kinematics table and post for SIDIS to check
- Determine a procedure to decide on final running current

## Preparations for final readiness certification

- Make 1 slide with when what happens when for outside users (when dismount EEL, when move detector etc)
- Document the procedures for angle and distance changes of NPS
- Prepare shift schedule and Run Coordinators including required number of shifts etc.
- Finalize the documents, e.g. OSP – Alexandre is the liaison and in charge of this
  - NPS calorimeter
  - Magnet
  - Changing angles for calorimeter
- Submit all documents by the end of April
- Make list of things to do once the detector is in the hall
- Have weekly installation/preparations for NPS meetings
  - **Thursdays at 8:30am ET – aim for relatively short, e.g., 30min meetings**
  - Global longer NPS meetings every month

