Detector Support Group
Weekly Report, 2016-08-10

Ongoing Projects

Hall B

SVT
- Brian Eng, Marc MacMullen, and Sahin Arslan populate insertion cart with crates.

Insertion cart populated

- Insertion cart trays modified since they did not accommodate crates.
- Group assisted with move of insertion cart to Hall B.

Sahin Arslan locating insertion cart on the transport pads.

- Insertion cart installed in Hall B

RICH

- CMM measurements for mirrors 3 and 4 performed.
- Initial spot tests to determine radius of curvature done.
- Status report talk presented by Tyler Lemon.

Forward Tagger

- Amanda Hoebel, Brian Eng, and Peter Bonneau communicating with Marco Battaglieri regarding signal list and CRIO items that need to be procured.

HDIce

- RF Attenuation/Switching Unit's test code developed by Mary Ann Antonioli and Peter Bonneau.
- IBC's cRIO controller froze due to power outage.
  - ✶ Peter Bonneau and Pablo Campero, reloaded code and reset controller.
- Oxford Mercury iPS set and readback test completed by Pablo Campero.
  - ✶ DSG note written by Pablo Campero.
  - ✶ Edited and posted by mary Ann Antonioli.

DC

- George Jacobs and Sahin Arslan setup provisional gas system to put N_2 in chambers.
  - ✶ Helps testing by preventing shorting of guard wires with gas bag.
- Gas manifolds not yet received.

HTCC

- Restarted after power outage.
  - ✶ System was not on UPS.

Antonioli, Mary Ann

- Worked with Pablo on AutoCAD procedure to measure radii of sides of **RICH** mirror 5C.

HDice

- Wrote LabVIEW subVI for LCD screen readout on RF Attenuation/Switching Unit.
- Researched LCD screen commands.
- Tested subVI to read remote interlock.
- Edited ppt on work requests.

DSG

- Made final edits to, and posted, **DSG** Note 2016-010.
- Changed **DSG** website photo.

Arslan, Sahin

- Completed AutoCAD modeling of CMM measurements of **RICH** mirror C3.

DC

- Tested R1S3, with Mindy, to check for broken wires before installation; fixed five guard wire HV pins
- Filled chamber of R1S4 with N_2 gas to inflate aluminized window before testing, so that it will not lay on wires.
- Helped transport R1S4 to hall.

SVT

- Working with Brian, transferring electronic components and power supplies to insertion cart, and made necessary modifications (drilling holes, cutting tray).
- Drilled a 79 mm hole with hole saw to route HV cables to power supply.
- Helped with transporting and rigging insertion cart.

Bonneau, Peter

- Received and verified **RICH** Interlock cRIO modules and touch screen components; controller chassis is expected to ship on Thursday.

HDice

- Debug of cRIO-9073 Real-Time Controller for in-beam cryostat.
    - ✦ Controller was not connecting to host computer.
    - ✦ A status light on controller indicated that software was corrupted.
    - ✦ LabVIEW software was reloaded into controller.
    - ✦ Resets were needed to bring system back on-line after software downloaded.
    - ✦ IBC LabVIEW project software was then deployed to controller.
    - ✦ Raw data signals from cRIO modules was checked by NI Distributed System Manager

- ✶ Main front panel for IBC was started and checked for proper operation by Mike Lowry.
- ✶ Given this type of failure, we strongly recommended to HDice group that this outdated controller be replaced ASAP and then updated to latest version of LabVIEW.
- ✶ HDice has requested that DSG order and replace controller at start of fiscal year.
- Working with Mary Ann on program for LCD display of data from coax switch, attenuators, and cable / termination keys on RF Attenuation/Switching Unit.

- Updated LabVIEW software on the **DSG** development cRio-9082 controller.

Campero, Pablo
RICH
- Worked with Tyler on Spot Test for mirrors 3 and 4.
  - ✶ Set up CCD equipment, light fiber, and software to measure diameter of spot reflected by mirror.
- Worked with Mary Ann on mirror 5C measurements in AutoCAD.
  - ✶ Testing planarity of points generated by Amanda's algorithm (Python) for curvature of one side of the mirror. Noted ~500 microns offset between Python and AutoCAD.
  - ✶ Plotted data points generated in Python in a single plane. Fit circle in points generated for the curvature, and calculated radius.
  - ✶ Compared with value calculated in Python.
- Calculated length of each side and diagonals of mirror surface of 5C in AutoCAD, using five points from best fit line generated in Python.

HDice
- Assisted Peter in debugging cRIO 9073 controller used for cryostat in HDice lab.
  - ✶ Checked connection between controller and computer.
  - ✶ Noted a malfunction status light on controller.
  - ✶ Deployed LabVIEW program to controller and reset system using NI MAX.
- Tested reading of data signals from controller with NI Distributed System Manager.

Eng, Brian
- Temporarily moved svtsystem1 from EEL/124 to EEL/231 since network switches were installed on SVT cart; this computer needs to be online as it is softIOC for **gas system** cRIOs (SVT and HTCC) that are on 86 (also MM uses it as a DAQ computer).

SVT
- De-cabled SVT, then separated grouped cables (LV, HV, Data, Pulser and SC) back into module bundles, finally placing bundles into lower tray of transportation cart.
- Moved equipment from racks in EEL/124 to EEL/125, then moved into insertion cart in high bay.

- Modified trays to properly secure equipment.
- Updated cart drawing and VXS VSCM assignment drawings.

- In process of upgrading various **DSG** computers to LabVIEW 2016.

Hoebel, Amanda
RICH
- Spot-tested new mirrors in cleanroom with Tyler, Pablo, and Ilaria.
- Refined mirror radius Python code to rotate projected points into x-y plane.

Forward Tagger
- Created presentation in PowerPoint.

Jacobs, George
- Receiving components for **RICH** air cooling and N2 system.

- Operators Manual in progress for **LTCC** gas system.

- Assembled gas test setup for **DC** after chambers transported to hall.
- Created or modified diagrams for PP.
  - ✦ LTCC-C4F10-Distillation
  - ✦ LTCC Controls
  - ✦ DCGAS Mixing and Supply
  - ✦ DCGAS Pressure Safety Interlocks
  - ✦ DCGAS-PID-Basic
- Hall B Detector Gas Utilities PP in progress.

Leffel, Mindy
No report - vacation

Lemon, Tyler
RICH
- Wrote status report presentation to give at DSG weekly meeting.
- Coordinated CMM measurements of mirrors 3 and 4.
- Visually inspected 13 aerogel tiles received on 8/4.
- Measured minimum diameter of image observed (D0) for reflected fiber-optic light for Mirrors 3 and 4 using CCD.
  - ✦ Distance Z between mirror surface and CCD where minimum diameter is observed is an approximation of mirror's radius of curvature.

  ✶ Mirror 3: D0 = 1.401 mm, Z = ~2702 mm.
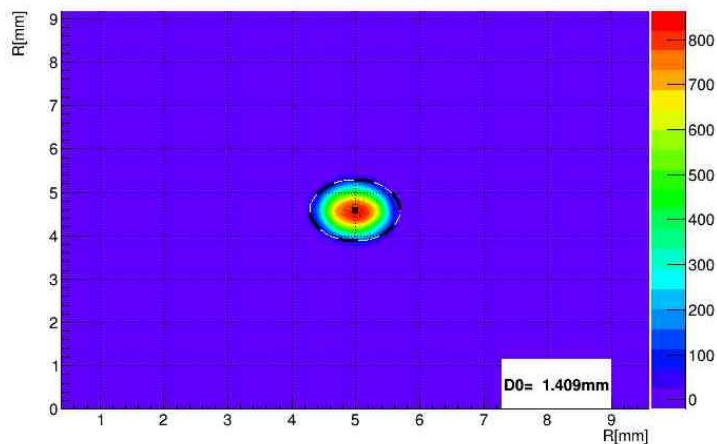 ✶ Mirror 4: D0 = 1.401 mm, Z = ~2709 mm.

Image of spot take by CCD for Mirror 4. The intensity of the image observed is shown in the color scale to the right. The axes show measurements in x and y of D0.

McMullen, Marc

HTCC
- Started migration to final gas controls.
  - ✶ Converted initial MKS mass flow controller software to software using standard LabVIEW Modbus VIs.
  - ✶ Started integration testing on software. New software will no longer require an initialization of MFCs.

RICH
- Procurement
  - ✶ Received all of cRIO order, except cRIO itself. Ships Thursday.
  - ✶ Received quote for interface chassis from vendor.

SVT
- Worked with Eng and Arslan on de-cabling detector from crates and patch panels.
- Installed crates on insertion cart.