

Monthly Status Report
Robert Stobie Prime Focus Imaging Spectrograph
July 2010

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This monthly report summarizes the RSS status as of August 10, 2010.

Optics and Testing

- Polarizing beamsplitter. The repaired calcite wedges are being assembled into the mosaic by Pilot Group. They report:
 - During assembly, a small chip and crack were found in the corner of one new wedge. The crack is about 4 mm long, and is out of the clear aperture, but there was concern that the crack might propagate. After consultation with Karl Lambrecht Corp, the crack was successfully stabilized by wetting the surface with Norland 89 UV-curing epoxy, then putting the element under vacuum to draw any air out of the crack. The crack is now nearly invisible.
 - Two of the three replacement prisms are aligned, and the third alignment is in progress. Casting the Sylgard will take place in the current week.
- Fabry-Perot calibration.
 - A full week of Fabry-Perot calibration tests were accomplished at the end of July. A report will be included in the next Monthly Report.
 - The HR etalon could not be operated, due to damage which prevented closing the control loop. The etalon has been returned to Queensgate for repair, now in progress.
- Focus calibration. Focus curves have been run for the remaining interference filters, and the results for all filters assembled, allowing for small focus shifts between focus runs taken on different dates. This will be incorporated into an automatic focus implemented whenever a new RSS configuration is executed from the high-level PCON control software.

Mechanical.

- RSS was installed on the modified dolly interface, which permits tipping the instrument to all extreme angles. During Fabry-Perot testing, a mechanical shift was observed in which the articulation home indication was lost, and the clearance between the etalons and the grating holder changed noticeably. This was corrected by taking the instrument to a less extreme angle, but the nature of the shift is still unclear and is under investigation. Attention has focused on the articulation bearing preload.
- Slitmask mechanism. After many repeat operations, the magazine elevator has begun squealing. A similar problem has been observed for the filter magazine, which has a similar design. Replacement lead screws and one spare stage have been received by UW.

- Grating rotator. A grating rotator modification designed to greatly reduce the cross-dispersion flexure is proceeding at UW. Machining of attachment brackets is 50% complete.
- Baffling. Work continues on conceptual design of baffling modifications to be installed on RSS before lift.

Control/ PIPT

- RSS proposal tool/ simulator.
 - The PIPT has been upgraded to allow adding slitmask files to the proposal.
 - An atlas of RSS arc lamp spectra is being assembled, starting with the spectra documented by Alexei Kniazev in SALT2115AA0100, plus additional spectra covering the full wavelength coverage of RSS for most of the six arc lamps. These will be used to establish a table of arc lamp settings to be used by the OCS to automatically implement standard on-sky arc spectra for each RSS configuration.

Management

- Schedule. A schedule of RSS tasks through Acceptance is attached to this report. The scheduled RSS lift date has been slipped by one week to 27 Oct, 2010, corresponding to the slip of the SAC lift.
- Commissioning planning. Feedback was sent to PI's for the 16 top-ranked MOS and MOS/ Longslit proposals for RSS Commissioning.
- Documentation.
 - The maintenance document "Cleaning Procedures for Exposed Optics Surfaces" has been completed, reviewed, and is available on the RSS website at http://www.sal.wisc.edu/PFIS/docs/rss-vis/archive/protected/pfis/3120/3125AM0005_Optics_Cleaning_Procedures_v1.0.pdf
 - Work proceeds on a Pneumatics Control System document.

Activities for next month

- Optics
 - Finish assembly of UV calcite beamsplitter. Monitor for lens fluid bubbles. (Pilot Group)
- Mechanical
 - Resolve mechanical shift event that occurred during Fabry-Perot testing. (SALT, UW)
 - Deliver grating stage modifications. (UW)
 - Design work for baffling improvements. (UW)
- Control
 - Continue coding of new PCON/ TCS high-level control software. (SALT)
 - Continue testing new high-level software on the instrument. (SALT)
 - Work on control documentation improvements. (UW, SALT)
- Management
 - Finish review of commissioning proposals. (UW, SALT)
 - Continue work on Arc Lamp, Functional Testing and Pneumatics Control documents. (UW)

