DEIMOS
SSC Presentation: March 3, 1997
Major Milestones: Tenth Quarter

Optics:

- Element 7, with one aspheric surface, is completed.
- Element 8 is probably very nearly done. We are still unsure whether the asphere is rolled/decentered by 0.009 in. If uncompensated, this would increase image size by about 0.01 arcsec. We are improving our measurements and looking into compensation by possibly tilting the focal plane.
- The ORA report was received and has been studied. Some aspects need to be redone but it is basically satisfactory.
- The ORA report predicts a significant change in plate scale with temperature: 150×10^{-6} per $^\circ$ C. To maintain image stability to ± 0.1 px at the edge of the field requires a temperature stability of ± 0.14 $^\circ$ C. Passive compensation and active thermal control are being explored.
- We will shortly resume fabrication of Element 5, the CaF_2 that cracked, to gain more experience before starting the next CaF_2, which is Element 2. Element 5a will remain as a backup. It will take about 2 weeks to put a spherical surface on the other side. When that is completed, we will start Elements 1 and 2. Element 1 is the severe asphere.
- Purchase orders for two 6×8-in gratings and the tent mirror were issued.
- The delivery of the remaining CaF_2 blanks is delayed. Optovac are checking the status of our order. The delay does not presently effect our schedule.

Structure/Mechanical:

- The shell and undercarriage were delivered from L&F to the Lick Shops on February 19, 1997. The workmanship is good. There are two dimensional errors that result in interference with the undercarriage. One, not serious, is caused by the gussets that brace the edge of the drive disk. The other is caused by the filter wheel protrusion and will require some study to resolve. When that is done, the next step is to test the position-angle drive.
- A mini-CDR of the slitmask and grating systems was held on January 9, 1997.
- The slitmask system has been simplified by the complete elimination of frames: each mask is self-supporting and is located by its own aluminum edges. The masks are thinner, and more can be stored in the spectrograph at one time. The mask bar-code reader was successfully prototyped. The system is being fabricated.
- The design of the grating tilt mechanism and mount is complete. Work is continuing on the insertion and slider mechanisms.
- To ease packaging of the grating slide, we descoped such that only one grating slot (down from two) will be able to carry a large 8×12-in grating. This change permits the same axial encoder and drive train on all three grating tilt mechanisms. The Science Advisory Team was consulted before this descope.
- A fabrication error budget for the camera was begun, and the uncertainties of athermalization are now understood. Lab tests on the expansion coefficient of the RTV epoxy are planned.
- The Alignment Report on internal alignment is now 80% complete, through installation of the gratings.

Detectors:

- As of February 24 we had still not received any MITLL CCDs (thick or thin) though delivery is said to be imminent. We are poised to authorize 3/4 of a second run ($300,000) at MITLL as soon as tests show that these detectors are suitable. If similar yield is obtained, we expect 15-20 good devices for DEIMOS to result from our share of the second run.
- The Lick thinning effort very nearly has completed all steps in making a finished, thinned CCD.
- The focus motion and Flexure Compensation x-motion mechanisms for the dewar have been protyped and look promising.
- Two Leach II controller boards have been received, and the third (video) board is expected within two weeks. Reports from SDSU on the performance of this board are positive.
- The new, low-noise CCD preamplifier is nearly finished. Noise tests are expected in the next two weeks.
- The Detector/Dewar CDR has slipped pending receipt and testing of the MITLL CCDs and the Leach II Controller.

Software/Computers:

- The software CDR is now firm for Apr. 29, and the review committee has been finalized. The table of contents and items for presentation are complete.
- Our proposals for the CVS code management system and revisions for the Keck Tasking Library were adopted by CARA. A proposed new directory tree structure is still under discussion. The revisions are essential to enable developers using other Unix platforms to compile and run Keck code.
- We have provisionally adopted the NOAO Mosaic Image Display server (NMID) for DEIMOS. As an interim backup, John Cromer at Caltech is undertaking an upgrade to figdisp for mosaics. We will soon visit NOAO to assess progress. The NMID is promised in beta form for Summer 1997.
- A prototype instrument GUI hs been completed for ESI that is relevant also to DEIMOS. It uses a flexible software package that is easily reconfigurable for DEIMOS.
- Work has begun on the design of a calibration and testing plan and the Calibration Database.

TV Guider:

- The Photometrics 1K$\times$1K CCD TV was received and tested.