DEIMOS
SSC Presentation: Sep 18, 1995
Major Milestones: Fourth Quarter

Optics:

- Couplant experiment with Sylgard 527 failed – layer too thin. Fallbacks available.
- Tests of raw and MgF_2-overcoated Ag show excellent reflectivity at high-inclination (for tent mirrors). Samples now in place inside HIRES enclosure for life-testing.
- Profilometer tests: device is qualified.
- Optical tooling for spherical surfaces is in progress.
- Collimator blank being ground at Kodak with polished flat outer annulus on front face and central counterbore for alignment. Delivery expected Oct. 1.

Structure:

- Collimator cell: design complete and in fabrication.
  - Radial support is by counterweight at center of CG in centerhole.
- Tent mirror cell and support: design well along. Space problem near drive disk solved by cutouts – will be necessary to strengthen drive disk with plate on forward side.
  - Flexpivots successfully tested.
  - Piezoelectric actuators arrived and under test.
  - Dummy mirror and cell model completed.
- Grating slide and cells: clearances determined. Attachment to drive disk determined (4 points).
- Caterpillar (slitmask handler): Detailed design 75%complete. Model complete and mounted on spectrograph. Will fit in allowed space.
- Camera: little progress, awaiting final coupling scheme.
- Drive disk: diameter increased to 96-in for added strength. Central cutouts a concern: FEA planned.
- Mechanical error budget: now 90% complete.
- Stowage scheme under discussion on platform with NIRSPEC.

Electronics:

- Vault: Compact instrument control electronics means much of control electronics can be moved out of vault and mounted on external skin of DEIMOS. Simplifies many cable connections (RS232).
- Electronics design and schematics 85% complete.
- New models of Galil motor controller and Girley encoder received and tested on 1m Nickel Telescope and cold-tested on HIRES image rotator.
- Chris Wright, New electronics engineer, on board.

Detectors:

- Lincoln Labs: contract by end of this month. Devices are now under design.
- SITE: first 2k$\times$4K device under test, but still not flat or thinned.
- Lick in-house development effort encountering delays:
  - First DEIMOS run at Orbit had poor charge transfer – 1/40 devices usable.
  - Thinning effort delayed 3 mos, to Apr 1, 1996. Multiple steps are taking longer than planned, though no fundamental problems foreseen.

Software/Computers:

- Lantronix terminal server received and tested.
- User interface requirements 50% complete. Prototype will be ready for CDR. Emphasis on legibility, consistency, and truth.
- DEIMOS funds merged with grant funds to order powerful DecAlpha 600/255 computer with 1 Gby memory and fast RAID disk array. Development platform for data-taking and data-reduction software. $35 K saved by sharing machine.
- Software PDR planned for Jan 15, 1996.

Slitmasks/Cutter:

- Bye-bye laser, hello NC end mill – saves $100K.
- Sample slitmasks cut by present NC mill from 0.010-in and 0.015-in Al stock. Excellent slit smoothness and position accuracy at the level of a few microns.
- 15 minutes to cut one mask.
- Bar code impressed at cutting; read automatically when masks inserted in spectrograph.
- Request permission to purchase NC mill soon after CDR. Will be useful for life of project.
- Need coordinated slitmask plan for Keck: LRIS, DEIMOS, ESI, HIRES all need slitmasks. Two machines are desirable for backup. Locations and workload TBD.

Miscellaneous:

- Prospectus complete. Kickoff meeting for fund-raising for second beam on Sept. 27 with three captains of industry.
- CDR planned for Nov 17, 1995. Will *not* include Detector/Dewar, Software/Data-Handling, or TV guider. Proposed committee members: Fabricant (chair), Melsheimer, Birge (Mirror Lab), Robinson (NOAO), and Bida.