August 1, 2006 Palomar LGS IPT Meeting Minutes

Caltech: Bouchez, Cameron, Moore, Petrie, Roberts, Shelton, Troy
Palomar: Doyle, Henning
Chicago: Kibblewhite

1. Announcements

- Still no word on the PALM-3000 MRI proposal.
- NGS AO science run begins Wed. 8/9 (4 nights).
- Please sign up for the "lgs@astro.caltech.edu" mailing list.

2. Future AO instrument mounting strategy

A. Moore presented a strategy for transporting and mounting new Palomar AO instruments (ie. SWIFT, Project 1640, visible light camera). All instruments larger that PHARO will be required to provide their own handling cart, which is capable of transporting the instrument from the AO lab to the Cassegrain cage and mounting it to the AO bench while either on the telescope or on the AO spit. We are therefore ruling out transporting large instruments with the AO cart. Such instruments will also be required to provide their own FM3 mirror. The present FM3 mirror will be retrofitted for PHARO to mount to one of the SWIFT kinematic points.

The policy was approved by all present.

3. Chopper noise results

J. Roberts has revised her results on the vibration environment on the AO bench while the chopper is spinning, as the previous analysis did not take into account the blank frames in the 2 kHz telemetry. She will post a revised document on the TWiki site.

4. Tasks in support of September engineering run

Priorities for the run

1. Demonstrate >15% K Strehl on bright stars near zenith.
    a. Laser power >7.0 W
    b. BTO transmission >50%
    c. Tel + AO transmission at 589nm same as NGS.
    d. Understand 50% HOWFS flux fluctuations.
2. Understand and improve LGS spot size.
    a. Install diagnostics at prime focus.
    b. Design diagnostics package for Coude.
    c. Design & implement 660/589 alignment system.
    d. Improve laser reimaging telescope.
3. Coude lab facility improvements.

Task List

- Laser upgrades
    - Power upgrades (EK, VV)
        - Ed at Palomar 8/11 - 8/18. We won't have YAGs from VLOC in time.
        - 1 new gain module, new power supplies, new NLX.
    - Coude lab upgrades (AB)
        - Air conditioning
        - Air filtration & mats
        - Planning for platform widening.
    - Diagnostics

        - Develop requirements for diagnostic benches (AB)
        - Design diagnostic benches (AM, CS)
    - Automation
        - Install temp-controlled etalon (EK)
        - Build second temp-stabilized etalon (?)
        - Redesign Na cell
- BTO
    - Measure transmission (AB)
    - Clean optics & install new parts.
    - Test/Optimize off-zenith alignment (AB, JA).
    - Clean up software (JA).
    - Understand optical effect of beam jitter (AB, CS)
    - Design and build LLT mirror cover (Carl)
    - Design LLT cover.
- AO
    - Understand 50% HOWFS flux fluctuations (CS, AB)
        - HOWFS & LOWFS telemetry
        - BTO telemetry (?)
    - Test dichroic reflectivity (JR)
    - Test HOWFS alignment and transmission at 589nm, 90 km (JR)
    - Integration of Chopper - before 8/9 (JR)
    - White light support - before 8/9 (CS)
- Aircraft safety
    - Reduce IRCAM detection threshold (JC)
- Software
    - DM communication problem (CS)
    - Startup problems (TT)
    - Subap flux averaging (TNT)
    - LGS nodding (TT)
    - Acquisition camera problems (?)
    - New IDL tools?
- Observe LGS with auxilliary telescope? (AB)

A. Bouchez will prepare a project schedule which includes these tasks.

5. Mirror support system.

M. Troy brought up the issue that the primary mirror figure during the last LGS engineering run was sufficiently poor to cause the DM to run out of stroke. Very poor image quality was also observed on seeing-limited instruments on several nights. Hal responded that the cause of this degradation was known, and would be addressed in the next several weeks.

Meeting adjourned at 10:10am.