Caltech Optical Observatories
Palomar Adaptive Optics

May 14, 2007 LGS Facilty IPT Meeting Minutes
A. Bouchez

Caltech: Bouchez, Cromer, Guiwits, Petrie, Pickles, Roberts, Shelton
Palomar: Renu, Hennings.
Chicago: Kibblewhite.
JPL: Angione

1. Laser status
Investigation of 1.06 um laser performance last week:
Cannot currently control spurious modes, but understand source somewhat better than before. Found that diode laser pump beams were at the very top of the slab, which probably contributed to the spurious mode problem. This has been corrected, and diodes are now aligned to the center of the slab, leading to 26W power with no optics in the cavity. This dropped to 18W after adding optics back in. Tilting AOMs and slabs did not help much. Measured angle of slab, appear to have 4° faces, not 2° as specified and this could be part of the problem. Angle of faces on 1.32 um slab not yet measured. Can get rid of spurious oscillation by tilting HR, but loose some power doing that. Other experiments performed: installed apertures, brewster plates, ...

Current status:
1.06 um laser is currently 18W with mode locking on. Lots of trouble encountered with the laser driver. Beam profile is somewhat elongated, and there are spikes in the pulse shape due to the spurious mode. Total power in the spurious mode is <<1W. Using old KTP crystal as water cooling of KTP has been disconnected (do not want to damage new crystal).
1.32 um laser is currently 10-11W, mode locking working well.

Plan:
Renu will order high-power polarizers to damp out spurious mode in 1.06um laser.
Need water reconnected to KTP crystal mount. Will then install new KTP crystal.
Renu will work Monday on optimizing the 1.06 um laser.
Tue-Wed will reinstall and align SFG.
Chris could possibly go up to Palomar late this week to help with testing, after polarizers arrive.
Need Palomar engineering help to fix shelf above laser.
Request that Pulnix power supply be returned or replaced.

Postponed until after this observing run:
- Replace Nd:YAG slabs with correct face angle.
- Replace LBO crystals.
- Match spot sizes at SFG
- Install micrometers on HR and OC, to keep track of absolute angles.
- Install cabinet in Coude lab for clean optical assemblies.
- Ed will come to Palomar in June. Dates uncertain.

2. Laser safety
John has written up "radar-only" incident. Not posted yet.
John looked at Gemini ASCAM data. Could not read "laptop" data. Our software detected 1 aircraft & numerous false detections on brightly light dome.

John H. brought up the need to document changes in the interlock system. John C. will make changes to SOP. Bob pointed out that we have a notebook in jumper box in which we keep track of daily procedures, etc.

Bob will talk with Fred Battle in next few weeks to plan IR camera demo at TMO or Palomar.

Renu raised issue of replacing stairs in the Coude lab. <u>Andrew to bring this up in the engineering meeting.</u>
<u>AB to send email regarding spotter schedules to Mike and Pam.</u>

3. BTO and LLT

Mtg. on BTO command set tomorrow afternoon.
Changes to BTO software before this run:
- Currently 0.1s delay on Q3 interlock when laser shutter is initially opened. Should we increase this to 1s? Switch to 0.2s approved by voice vote.
- Will add automatic saving of offsets from look-up table.

Boresighting procedure for LLT.
- Hal developing a finder scope for LLT.
- Will be installed for July run.

<u>SG and JA will write up a plan</u> [RE: backup operating modes & spares].
- software in a code repository.
- backup hardware for BTO computer.
- alternate access to files for BTO if LGS is down.

4. Laser automations

Never used linux computer last week (TEC disconnected). Renu will let Steve know when she has 589nm light and ready to test. <u>Steve will write up instructions.</u>
<u>AB to ask Dan about status of PC reorganization.</u> Chris could help if not done by then.

DAC driver written and tested. Postpone connecting it up to hardware until after this run.
LGS computer data logging still needs to be tested. <u>Steve will test this Friday.</u>

5. Other topics

New PHARO computer will be used by NGS observers after our next LGS run. Jenny recommends testing in lab before run, or on Thu. 24 afternoon (second engineering night).

6. Personnel Schedule for 5/23-5/26 Observing Run

	Wed. 5/23 Eng.	Thu. 5/24 Eng.	Fri. 5/25 Science	Sat. 5/26 Science
Angione	X	X	X	X
Bouchez	X	X		
Cromer	X	X	X	X
Dekany	?	?	?	?
Guiwitz	X	X		
Martin (student)	X	X	?	
Moore	X	X	?	
Petrie	X	?		
Roberts	X	X	X	X
Tripathi	X	X	X	X
Truong	?			
Troy	?	X	X	X

Meeting adjourned at 9:50am.