March 12, 2006 LGS Facilty IPT Meeting Minutes

A. Bouchez 3/12/07

Caltech: Angione, Bouchez, Cromer, Guiwits, Petrie, Pickles, Shelton
Palomar: Henning, Tripathi.

1. Laser

Ed provided the following list of improvements to be made before the present laser is considered "complete". Renu suggests they be worked on during his stay at Palomar 3/27-4/3 in the following order:

1. Match IR laser beam sizes at the SFG
2. Replace output coupler of the 1.06 laser.
3. Optimize diode beam size in the pump region (postpone until after run?)
4. Optimize IR laser micropulse width (diagnostic only before run?)

Laser work planned over next 2 weeks:

1. Realign both IR laser cavities.
2. Test new KTP crystal in 1.06 laser.
3. If LBO arrives in time, install and test in SFG.
4. It time is available, will start on knife-edge test.

RT is planning on attending CfAO laser session on 3/26.

2. Laser safety systems

2.1. ASCAM and IRCAM

Camera frame rate is very slow, possibly due to logging or slow display over VNC. JC suggests going back to the server/client system. No time to address this before the next run (start after 4/19).

Signage on Coude room door is still not optimum, though all agreed that the present system is fail-safe. RT, JH, EK, and AB will meet on 3/28 to discuss possible changes.

Is current situation with interlocks and jumpers acceptable? CS suggests replacing zone 8 jumper with a key switch. No decision made.

2.2. Target list processing for shared-risk science

Keck Observatory provides online software for checking and submitting target lists:
http://www2.keck.hawaii.edu/optics/lgsao/checkStarList/checkStarList.php
AB suggested that Palomar might provide a similar submission tool, linked to the "instrument settings" functions of the Palomar web site. AB will take care of soliciting and forwarding target lists to US-STRATCOM in April, but this responsibility should transfer to the observatory for future runs.

3. Laser automation

Version 1.0 of the Laser Automation Computer Requirements (CIN 617) is now available:
http://www.oir.caltech.edu/twiki_oir/bin/view.cgi/Palomar/PalmLGS/LgsCin
CS suggested that LGS computer read phase delay voltage instead of 1.32 etalon tilt. AB will make change and publish v1.1.

Electronic & Optical tasks (from CS 3/8 email except as noted):
1. Phasing servo

1a The current single lock-enable switch will be split into a switch each for phasing and wavelength.
1b The phasing control voltage will be hooked to an A/D channel and made visible on the same GUI as the temperatures.
1c (Not discussed today) When the phasing lock-enable switch is off, a knob on the laser control chassis will set the output voltage, and will preset the control integrator. The current manual knob on the AOM drive chassis will be rewired to not be additive to the external control input - the switch next to it will select one or the other.
1d (Not discussed today) Dither is disabled when lock is disabled.

2. Wavelength servo
2a. Make separate lock-enable switch for wavelength, as above (1a)
2b The wavelength control voltage will be hooked to an A/D channel and made visible on the same GUI as the temperatures.
2c Combine computer lock-enable with switch lock-enable. Both must be on to enable. Computer lock-enable comes from DIO bit, is arranged to be in "enable" state if computer is down.
2d Computer lock-disable forces preset of analog integrator to DAC value. This provides support for both detune and scanning. If hardware lock switch is off, or computer is down, preset value is zero.
2e (Not discussed today) Dither is disabled when lock is disabled.

3. Diagnostics
3x. (Added 3/12/07) Install new ADC brick.
3a Plumb three power photodiodes and sodium monitor into four A/D channels. Power scaling is 2.00V = 20.0 W, sodium scaling is TBD. These should be wired to duplicate the front panel readouts, so one trimpot adjustment calibrates both.
3b Plumb coude and prime diagnostics bench photodiodes into two A/D channels. Scaling is TBD.

4. Additional hardware tasks (Added 3/12/07):
4a. Hand off circuit diagram of servo box to Palomar staff.
4b. Tune phase dither amplitude to be 20% p-p AC/avg. on maximum slope.
4b. Improve SNR of Na cell, possibly by adding insulating material on optical window.

JH available to work on these tasks with CS this week only. CS will look into going to Palomar Tue.-Thu.

Meeting adjourned 10:00am