

May 1, 2006 LGS Facility IPT Meeting Minutes

A. Bouchez

Caltech: Angione, Bouchez, Cromer, Guiwits, Moore, Roberts, Shelton

Palomar: Henning, Thicksten, Tripathi.

Chicago: Kibblewhite

1. Laser

- Ed arriving at Palomar 5/2 (~4pm), leaving 5/10. Renu not taking time off until after departure. Prioritized tasks:
 1. Inspect thermal contacts in 1.06 gain module.
 2. Measure polarization of both lasers. There is good evidence that 40% of light in 1.06 is in the incorrect polarization, even with brewster plates installed.
 3. Install and optimize LBO crystals in SFG (tune both temperature and angle).
 4. Measure spectral linewidth of both lasers. Tune to 1 GHz by changing etalons.
 5. Chris could come up mid-next week if useful. Will have a short telecon on Thu. or Fri. to discuss.
- Chris suggested possible changes in laser alignment procedure.
 - Could split into optimizing gain medium and cavities separately.
 - Since procedure is iterative (adjusting beam inside crystal & optimizing cylindrical lenses) current procedure could walk the beam out of the crystal.
 - Suggestion: Maximize fluorescence using an alignment jig (plate with hole at the front and back of YAG). Then optimize cavity.
- Antonin brought up reliability issues.
 - Could instability be due to air temperature in room? As temp rose and became more stable, flickering stabilized. Some discussion, but no agreement.

2. Laser safety systems

- John C. is half-time on MOSFIRE, half-time on everything else including LGS.
- IR camera seemed to have no sensitivity at start of run. After much cycling power, seemed to be OK. Then it began producing false detections. Seems similar to symptoms several months ago, after which we sent it to the manufacturer for recalibration. Antonin to look into recalibrating IR camera.
- Table Mountain Obs. has 2 IR cameras and a radar. Bob asks whether we should begin copying their system. They offered to bring their system over for us to evaluate. Bob to schedule a demo at Palomar.
- Radar detected one aircraft this run which the spotters missed. John C. will write this up.
- Antonin showed movies made from ASCAM images. Amazing number of aircraft, including apparently a well-used flight path directly over the observatory (likely military?). Movies are available here:
http://www.oir.caltech.edu/twiki_oir/bin/view.cgi/Palomar/PalmLGS/Eng_070423

3. LGS computer

- Renu observed LGS software disconnecting from TECs during run, but Steve thought temp control was working well. Will test this week by running linux software for temp control and informing Steve if there are problems. Steve to send startup/shutdown instructions to Renu.
- Need to test DAC driver, sometime with power on, but LGS software not running. Will schedule this for some period before next run during next meeting.
- Computer reorganization.
 - AB will ask Dan to move delay generator software to Diag. PC & move out the "blue PC".
 - Retain laptop for now as backup for both TEC control and delay generator.

4. Laser diagnostics

- Anna looked at powers last 2 nights of run. No images because fiber connection to prime focus was apparently disconnected.
- Anna to replace velcro with captive screws and have enclosures painted.
- Antonin requested that top panel of PF bench enclosure be modified to eliminate gaps.
- AB to make new mirror cover.

5. BTO

- John A. would like to add a third threshold value for each quad cell, for acquisition.
- Also need to finalize Q3 safety system value. Need to measure during run.
- John A. will organize meeting on finalizing the BTO command set.
- Steve raised concerns about reliability of BTO and LGS. Need spares, and backup operating mode for BTO computer (local look-up tables, etc.). SG and JA will write up a plan.

Meeting adjourned 10:05.