

## August 2, 2007 Laser IPT Meeting Minutes

A. Bouchez

Caltech: Bouchez, Petrie, Pickles  
Palomar: McKenna, Tripathi  
Action items are underlined.

### 1. Laser status and plans

- AOM oscillator failed twice during the July observing run, but came back to life after power cycling. This device failed completely on 4/7/07 and was repaired by IntraAction. We are concerned that it is likely to fail again. RT suggested purchasing electronics and building our own. RT to get quote on a replacement device (estim. \$5-10k). AB to determine whether we can support replacement costs at this time.
- Postponed discussion of replacement of Nd:YAG rods until Ed can join discussion [RT spoke with Ed later in day and he agreed that we need to build up at least one spare head. Could save some money by repolishing and coating an existing rod.]
- Third LBO crystal coatings have degraded. Also some evidence that conversion efficiency is not as high as expected (Ed reported powers of 4.5 W, 7.2 W, and 7.5W after crystals 1, 2, and 3) RT to replace this week, and document power after crystals 1, 2, and 3.
- Documenting laser optical design is a high priority, but will require that Renu have access to a Zemax license (est. \$5k). AB to determine whether we can borrow one from campus.
- Other laser work planned before next observing run (begins 8/23):
  - Replace failed flow switches.
  - Measure laser wavefront quality with AOA wavefront sensor.
- HP inquired about what improved laser power from 5 to 7 W on 7/26, and whether this adjustment was repeatable. Improvement was a realignment of the 1.06  $\mu\text{m}$  laser. RT figured it was repeatable.

### 2. Schedule for next 3 weeks

- RT to work on 1.06  $\mu\text{m}$  laser alignment and LBO crystal replacement and characterization 8/2 - 8/7.
- RT out of town 8/8 - 8/13
- Replace flow switches and final adjustments 8/14-8/17. AB to request Steve Einer's help.
- Laser wavefront quality tests on 8/20-8/21 (pending JR schedule).
- Observing run 8/23-8/26

### 3. Other subsystems

- Discussed LLT alignment and wavefront quality problems. It is clear from last 2 observing runs that there is  $\sim 1.8''$  of wavefront error in the projected laser spot. Could be either due to LLT or laser (AOA wavefront sensor experiment with laser should help distinguish). Many ideas proposed for further testing LLT. Decided on the following for the Aug. observing run:
  - AB to purchase a narrow-band filter for the Pulnix telephoto lens.
  - JR to complete Zemax modelling effort (if not done already).
  - AB to improve video averaging software to improve star imaging SNR.

Meeting adjourned at 9:45 am.