ODI and QUOTA News

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QUOTA News

QUOTA has been hibernating for the winter, but is about to awaken with the coming of spring. Due to months of delays in the delivery of thinned science-grade OTA detectors, it became necessary to invoke the backup plan that the Board and SAC approved at their October 2007 meeting. This plan utilizes thick Lot 3 OTAs, which appear to work very well. They have excellent cosmetics, with Lumigen coatings to boost the blue quantum efficiency of the CCDs to about 20% (from near zero). While far from the high QE situation that we hoped to have for the upcoming June run, this backup plan allows the implementation of a version of QUOTA that lets us test key concepts needed for ODI (e.g., OT performance, tilted focus sensor, cooling strategies, data reductions and pipelines). If we wish, we can replace these detectors with thinned ones in the future. In the interim, QUOTA is expected to perform well enough to be effective for some science applications. It should, for example, be relatively immune to fringing in the near-IR, and will be capable of fast photometry (20 Hz or slower).

ODI News

In January, George Jacoby and Dan Blanco visited SESO to monitor the progress of the ODI optics fabrication. SESO has made good progress and they report that work is on schedule: all glass blanks were received, and grinding of the lenses and prisms has begun. All four Atmospheric Dispersion Compensator (ADC) prisms have been ground to their approximate wedge figure and several are nearing their final polished state. Dan and George will take advantage of their attendance at the SPIE conference in June to visit SESO again in order to witness the acceptance tests for these prisms before shipment to Tucson. In preparation for receiving these elements, Joe Keyes has been leading the effort to design, test, and evaluate procedures for bonding the two pairs of ADC elements. The first cementing test, performed with dummy parts made of aluminum and acrylic plastic, was very successful (see the picture). After a few small tweaks to the process (which will be repeated 2-3 more times for practice), Joe and Gary Poczulp (NOAO) will be experts in bonding large glass plates together.

The production of ODI's instrument support package is constantly progressing and is keeping the NOAO machine shop very busy. Gary Muller, our mechanical engineer, entered the ODI design into the annual SolidWorks user contest. SolidWorks is a very popular 3D mechanical design software package. Gary won the grand prize, which is perhaps not so surprising. He took first place once before for the GNIRS design. Congratulations to Gary!

The ODI Science Working Group (SWG), WIYN Science Advisory Committee (SAC), and Board discussed the benefits of using high-resistivity (4000 ohm-cm) wafer material for ODI's detectors during the fall 2007 Board meeting: this material has a ~25% throughput advantage over the conventional material in the z' band. Currently, the fourth lot of OTA production for ODI is under way, and we expect to receive the first wafers back from the foundry in mid-April. Mike Lesser, at the University of Arizona Imaging Technology Laboratory (ITL) is nearing completion of a new packaging scheme for the OTAs that will be cheaper and yield a flatter CCD. It was the complexity of this new package design that caused a delay in the QUOTA detector delivery schedule. But, it will significantly improve ODI performance and keep costs down.

Test of the ADC bonding process with dummy wedges.

A major ODI component that had not undergone an extensive evaluation process was the CCD controller system. In order to select the best controller for ODI, we conducted site visits at both potential vendors in November and December at the University of Hawaii (StarGrasp), and at NOAO (MONSOON). In early February, we solicited proposals for the ODI controller system via a formal RFP process, and we received a bid from Hawaii. As a reflection of the importance of this procurement, an external review committee was formed to advise the ODI team on the quality of the Hawaii proposal. The panel included Dennis Crabtree (Gemini), Richard Stover (Lick Observatory), and Greg Bredthauer (STA). In brief, the panel found the proposal to be well-matched to ODI's requirements, for a reasonable cost, and with an acceptable delivery schedule. With the endorsement of the WIYN Board, the ODI team is moving forward to formulate a contract with PanSTARRS.

As noted above, there is an astronomical instrumentation SPIE conference in June. It takes place in Marseille, about 20 km from SESO, our optics vendor. ODI will be represented by 4 papers: Daniel will present an ODI overview, George will present the optical design, Gary will describe the mechanical design, and Andrey will describe the software overview. ~