

HIRES Dewar Upgrade

Project Monthly Report – October 20/3

Progress

Detectors

The Science grade CCD mosaic is installed in the dewar

The mosaic is flat to 20 microns peak to peak, and the spacing between the chips is 100 microns +/- 30 microns. The spacing could not be made closer due to concerns of the silicon overhanging the aluminum nitride package.

Mechanical

Construction of the footlocker is complete. Exterior surfaces have been painted. All panels have been fitted with Ethafoam 220 insulation; Poron gasket material applied to panel edge surfaces. Bulkhead coolant plate designed by the shop has been implemented and the entire coolant hose plumbing has been implemented.

As a result of the thermal shorts encountered in the last system cold test, the coldfinger was modified to accommodate Teflon buttons to proper centering and insulation. Further testing revealed some mechanical alignment problems. These were addressed along with adjustments to the coldfinger transfer pipe.

A second system cold test was performed. This one incorporated the x-ray source to test CCD performance and software. At minimum coolant flow (less than .5 gpm) the temperatures within the CCD controller are no more than .5 C warmer than the inlet coolant temperature. And the average temperature inside the footlocker is about 4 C above coolant; the highest temperature less than 6 C above this baseline.

An alignment jig is being designed and fabricated by the shop. This will allow external rotational adjustment of the dewar and vacuum assembly to properly orient the mosaic about the optical axis. This will avoid having to remove the field flattener and affect the same adjustment by rotating the CCD support spider.

Documentation is essentially complete, current, and includes all top assembly drawings.

Crating and shipping will be addressed now.

Electronics

A daughter board to control the auto fill and the shutter is being designed and fabricated to test those two functions in Santa Cruz rather than having to wait until we get to Hawaii. It should be complete by the beginning of November.

Software

Software is complete to the point characterization of the science array can begin with the instrument computer that will be used in Hawaii.

Issues and Concerns

Schedule

The current target date for the Pre-Ship review is Nov 26th, but this will likely be moved to early Dec. to avoid conflict with Thanksgiving.

Budget and Spending Profile

To the end of Sept the project has spent \$681,029 or 84% of the project cost estimate, not including contingency. A summary of the budget is attached as is a chart and the spending profile. At this time it seems probable we will spend part of the contingency for this project, but complete below the project total.