

UCO Project Council
Sep. 24, 2013, 10 AM-noon
Minutes, v. 1 draft

1. Summary of major action items and decisions:

1) We established a normal procedure for reviewing instrument grant proposals internally and will apply it to the three NSF ATI proposals that are in preparation. Draft proposals should be sent to the reviewers and to the Business Office by Oct. 15. They are due at the NSF on Nov. 1. The reviewers are:

- Coatings:
- Kast red detector: Bolte,
- CMOS detectors:

2) Special topic for next meeting: we forgot to choose one. Sandy may pick and will let you know.

2. Review of instruments and projects in the UCSC shops: ** means needs follow up.

- The NGAO proposal
 - In the pre-proposal, UCSC has only two projects: NGSWFS and the Student Intensive. This small amount of work is temporary, and the exact work to be done at the various sites will be re-negotiated, with UCSC getting more.
 - The budget is now being reviewed by SPO.
 - Problems: 1) Keck hourly rate is too low; 2) the CARA Board needs to pass a resolution permitting UC to retain property of Keck instruments built by UC; 3) (later) overhead rate of 38% is less than the official ONR rate of 75% for Keck. This could amount to voluntary committed cost-sharing, which NSF prohibits. Note: Keck later increased its overhead rate in the final submitted proposal.
 - ** Sandy prepare a resolution for next CARA Board meeting. (She has written to Elaine Stamman to inquire about method.)
 - ** Myra: check on legality of Keck overhead rate. (Now moot.)
 - Note added later: reasons for the low Keck hourly labor rate are now understood: they do have lower benefits; their CDB is in the overhead, not in the hourly rate; their assumed work week is longer (reflecting Keck work habits).

- K1DM3: nothing greatly new here
 - Funding is now on campus
 - ** Myra and Sandy should resolve the overhead issue. (Sandy wrote an email to Castro and Holman explaining the new resolution before the CARA Board)

- Coatings

- Ordered next two magnetrons
- \$72 K contract to test durability of coating on deformable mirror for Any Norton's laser wavefront correction experiment. Contract with IRIS AO (company). \$72 K, mostly for Andy's salary but some for Drew salary.
 - ** Drew and Don work out the charges for Drew.
- ALD samples were heat-tested. One is superb, providing the basis for an ATI proposal.

- KCWI
 - Camera assembly is on track.
 - Lens coatings: Project is working with Drew and Har to determine leadership of the blue coatings. The Project knows that a delay in getting first coated lenses will add to our costs. First lenses are needed for coating on Oct. 16.
 - UCLA is doing the finish machining on camera barrel.
 - Project is late ordering shutters (not a problem for UCSC cost and schedule).
 - Project is visiting on Sept 18 to discuss. ** Sandy: attend all or part of meeting?

- APF: lots happening, not good
 - Several glitches have occurred in the last week. We reviewed them.
 - Brad not here today; he is on MH replacing a hard drive that broke.

- MOBIE
 - Probable path after the CoDR: MOBIE will be mothballed until more instrument money becomes available. Or at least activity will ramp down.
 - CoDR is no longer a review but rather an informational handoff.
 - Luc Simard was injured on vacation. This has slowed things down.
 - ** Sandy call Luc to see what the CoDR plan is
 - TMT never prepared a workpackage for China to do the guider and WFs. This needs to be picked up.
 - ** Sandy: call a meeting with Rebecca, Bruce, Mike, Connie, and Matt to plan a workpackage to be submitted to the Project for work after November 1.

- ShaneAO
 - Connie and Rennie will start the design of SHARC next week.
 - Rennie is assembling and aligning the Shane AO optical bench.
 - Firm deadline is Nov. 21 on telescope. Gavel is worried that Jim Ward will not complete the bipods, which attach the table to the space frame. Dave C. is aware.
 - ** Connie: research members for the Shane AO science team (from last meeting)
- TMT software
 - Will will start work on the Java Galil controller package. They could use the same package for K1DM3. Nice synergy.

- DEIMOS
 - Many things need fixing. See Matt Radovan email of 8/28.

- Refurbish the software and computers
 - Refurbish the grating system (including lead screw)
 - Slit masks: 2 slots no longer work.
 - Clean the interior and optics
 - ** Connie: solicit a report from Greg – what are the problems?
 - ** Sandy: ask to have DEIMOS put on SSC agenda. What would the SSC need to know in order to discuss? (wrote email to Crystal Martin and Judy Cohen)
- Other questions for the shops:
- Drawings for K1DM3: Decision is to use Workgroup PDM package, which is free with Solidworks. This is OK for K1DM3 but too small for NGAO. TMT tried the expensive Enterprise version of PDM; gave up because it was too hard to manage. MOBIE decided to contract out to a local SolidWorks distributor for this service. TMT telescope models are huge – have to download just the portion you want. BIG PROBLEM for MOBIE and for NGAO.
 - ** Sandy: Check to see if funds for drawings are in NGAO budget. (Sent Peter W. an email to check on this.)

3. Old action items (none)

4. Special topic for this meeting: ATI proposals, first discussion

- Kast red upgrade ATI proposal (Xavier showed slides from PI Brad Holden, who is away)
 - Two paths were shown, refurbish a spare dewar (\$150 k) or build new one (\$250 k)
 - Brand-new dewar does not appear to add appreciably to science capability or to technology advancement. Group consensus was that this proposal should look as cheap as possible by using the spare dewar path.
 - Upper cost limit of \$150 k
 - ** Dave Cowley will investigate whether we can buy a dewar from IR Labs.
 - Reason why this is good ATI candidate: will be the ONLY Hamamatsu CCD in regular use. will surface new behaviors (e.g., psf is flux dependent). GMOS at Gemini-South is trying to use a Hamamatsu device, and our work could be helpful. The science case is also strong on its own merits.
 - ** More detailed plan at next PCouncil.
- Coatings Lab ATI proposal:
- The goal would be a proof of concept to deposit an effective moisture barrier made from the atomic deposition layer (ADL) recipe from Prof. Kobayashi in the SOE. Successfully protect silver coatings down to 340 nm. Demonstrate robust coating on optics up to 0.5 m (e.g., Hamilton spectrograph collimator mirror; 14 in.). Ultimate goal is to do segments in ELTs (1.5 m).
 - Deposit ALD method using the substrate as the back wall of the vacuum tank. Proposal would build and demo a new tank.

- Background info: MOBIE performance is being held to 310 nm even though silver will never go below 330 nm. The UV reflectivity of silver can be increased below 340 nm, but IR emissivity then goes way up. To get to 310 nm on TMT, the plan is either to use aluminum or to use the LLNL coating (for awhile, either way giving up IR performance) The current Gemini coating dies at 400 nm.
 - ** Drew: research other funding sources for coatings.
- Rough amount: \$100 k, plus Drew's salary.
 - ** More detailed plan at next PCouncil.

- Detector labs CMOS ATI proposal: led by Connie and Dale Sanford
 - Goal would be to explore this technology for astronomical use.
 - Dale has found a viable vendor for CMOS and electronics giving right noise, speed, and format
 - Aim is to develop electronics, readout modes for large wave-front sensors for multiple AO guide stars.
 - Staff: Dale, maybe Steve Allen, Mike Peck.
 - ** Possible future strategy: Small Business IR proposal?
 - Note added later: Geoff Marcy is interested in using CMOS CCDs in his SHREK spectrograph. We should find out what his needs and interests are and possibly put in the proposal.
 - ** More detailed plan at next PCouncil.

5. Special topic for next meeting: more detail on ATI proposals

- PIs will come with more details: work to be done, UCO resources needed, rough budgets.
- Goal of discussion is to help PIs with arguments and strategies to strengthen the proposals.
- ** Sandy: how many ATI's is it feasible that we do? What is the limit?

New proposal ideas (from Aug. 13):

- X: ATI proposal for Kast red spectrograph CCD. Holden, PI. Due Nov. 15? ** Get a postdoc to help write this?
- X: Keck NIRSPEC detector? Proposal was turned down by NASA. ** follow-up?
- Gavel: NGAO proposal at Keck will have strong UCSC involvement. Writing is underway.
- Gavel: ATI proposal to convert ShaneAO to usable science instrument (postpone to 2014, when we can show results from FY13)
- Gavel: ATI proposal: high-speed wavefront sensor for multiple laser guide stars
- Drew: ATI proposal: \$100 K. Co-PI Kobayashi. Atomic-layer deposition on 0.5 m optics. This could lead later to a Small Business Innovation Research: up to \$0.8 M.
- CMOS detector testing (Gavel, Rockosi): Too nebulous for NSF? Maybe Small Business IR? Moore Foundation?
- ** Think about Moore and Keck Foundation ideas. Keck might like the ShaneAO upgrade.

Discussion topics for future PCouncil meetings (from Aug. 13):

- UCO detector strategy: in-house technologies and skills vs. outsourcing. What technology development do we want to support? Short term? Long term? Funding ideas.
- Detailed presentations of major projects:
 - ShaneAO + SHARC/IRCAL
 - AO laser mounts for Keck 2
 - KCWI-blue camera
 - Coatings research program
 - K1DM3
 - APF