

Keck Next Generation AO (NGAO) Technical & Science Instruments Subcommittee (TSIS)

Summary of 1/18/06 telecon (1st meeting). *Action items in blue italics.*

- Attended by Bouchez, Dekany, Flicker, Gavel, Le Mignant, Marchis, Max, Neyman, Wizinowich.
- We generally followed the agenda and materials in the 1/17 email from Wizinowich.
- Noted that Bouchez and Dekany can represent the TSIS on the solar system and extragalactic groups, respectively. Since Larkin will not be joining the TSIS we do not have a representative on the galactic group. We are also weaker on instruments and we now only have one UC participant on the TSIS. Can we find someone from UC with AO instrument experience that could also participate on the galactic science group? *All to think about this and provide recommendations.*
- The question of Interferometer representation on the science groups was raised. *Wizinowich to talk to the AOWG co-chairs about either interferometer representation on the science teams or a separate Interferometer science group.*
- Initial input from Max (note that none of the science groups have met yet): Two thrusts for extragalactic. Morphologies of small galaxies with gaps between objects such as in the Hubble deep fields and stellar populations in crowded fields. Questions - Would you do better by mosaicing smaller fields with higher Strehls or by having a larger field? What is the added science benefit versus performance and cost of going to shorter wavelengths?
- Initial input from Marchis: The science topics of most interest will likely be Titan (0.8") and multiple asteroids. For Titan would like a better estimate of the atmospheric structure and to use an optimal window in red light to see the surface. For multiple asteroids (largest ~0.3") would like better detectivity of moonlets and better estimates of composition (requires visible and IR observations on time scale short compared to the typical 10 hr rotation). Another area might be the dynamics of clouds on Jupiter (Max mentioned correlation tracking). Need a set of psfs at different wavelengths in different seeing conditions (assume R=18 NGS). Would like to compare to HST.
- Dekany summarized the above as requiring the following technical input: 1) On-axis performance. 2) Sky coverage versus performance & complexity. 3) Anisoplanatism studies and issues of psf photometry. He also wondered to what extent multiple wavelengths was a requirement.
- Noted that TMT has separate narrow and wide field AO instruments. Le Mignant wondered if we shouldn't separately deal with different requirements with separate AO systems on our two telescopes. Also raised the issue of what constraints are imposed by the Observatory. Wizinowich pointed out that the constraints are summarized in KAON 237. *TSIS member should read KAON 237 (which can be found on the KPAO web page).*
- Wizinowich showed the KPAO summary table. We should share with the science teams but be careful to represent this as simply a historical starting point that is not intended to limit their thinking. *Wizinowich to post to NGAO web page.*
- *Wizinowich to also post draft competition table and Neyman's modeling capabilities summary.*
- Agreed that architecture options may confuse science teams. *Dekany to prepare an ~ 1 page high level summary for the science teams and a longer technical discussion (~8 pages) for the technical part of the proposal.*
- *Wizinowich to work with Neyman and Dekany to define the 1st few performance items to be developed by the end of this week.* We have to balance this against potentially less useful work with lots of computer time prior to getting the more official science group requests. Marchis suggested, as a starting point, that we produce some on-axis psfs at R, J, H and K for excellent, good and bad seeing.
- Action items due (if not explicitly stated) by start of business on the Monday of a telecon week.
- *Wizinowich to collate and distribute the science team technical questions (due on 1/27) by cob on Mon., 1/30.*

- *Next meeting(s): Telecon every two weeks on Tuesday at am 9 am HST / 11 am PST. Next telecon on Tuesday, Jan. 31. Wizinowich to setup next 3 telecons.*

Remember that the AOWG NGAO science case web page is <http://www2.keck.hawaii.edu/optics/ScienceCase/index.htm>. Go to the end of this page for the TSIS materials.