

Minutes of SHARK-NIR ComRun2 Post-run Meeting

March 21, 2023

Attendees: Maria, Doug, Jacopo, Luca, Alessandro L., Daniele, Davide G., Davide R., Juan Carlos, Dino, Elena, Fulvio, Simone, Glenn, Jenny, Joe, John, Pat, Manny, Robert, Al, Brandon, Matthieu, Xianyu

1. [ComRun1 report](#)
 - a. The SN team were overall happy with the run.
 - b. However, due to weather, only 2.5 of 6 nights were usable.
 - c. But the team were able to complete many technical tasks.
 - d. These included coronagraphy with the simplest (shaped, gaussian) mask.
 - e. In poor seeing, HD 49197 was observed with this mask and the exoplanet is clearly visible in [the image](#).
2. ComRun2
 - a. A summary is given at the end of the [daily blog](#).
 - b. Only 1.2 out of 3 nights were usable due to weather.
 - c. The run was overall successful, but losses to weather are putting some efforts (i.e., coronagraphy) behind schedule.
 - d. This may require some additional commissioning after ComRun4 (e.g., splitting the 5th run between continued commissioning of coronagraphy with the science verification time).
3. Two AO software efforts for SN
 - a. Z offset for NCPA/PD
 - i. The command is implemented and ready for testing by the SN team.
 - ii. Davide will first test the template containing the offset-Z command with the simulator and then schedule a time for a day test with the real system.
 - b. Fourier command
 - i. The Fourier command will produce an artificial asterism on the DM.
 - ii. The artificial asterism is used to keep the star centered behind the coronagraph.
 - iii. Star centering is critical for using ADI to detect exoplanets.
 - iv. So far, applying the KL mode for the Fourier mode has been performed manually (and has required Guido and Xianyu to be present).
 - v. The long-term goal is to make the command operable from SN templates without requiring any manual steps by LBT staff.
 - vi. This will require more software work: The AO system will be put into a state that blocks conflicting, unsafe commands.
 - vii. This long-term goal should be achievable in time for ComRun4 in the fall.
4. Commissioning in 2023B
 - a. The time requests will come from the 3 TACs providing the time.

- b. The request will likely be for 3 runs: ComRun4, a run split between commissioning and early science, and a third run dedicated to early science.¹
 - c. The SN team wishes to see these runs happen as early in the semester as possible,² but recognizes that LBT will have to work with many constraints (e.g., the return of the SX AdSec, partner programs, moon phase, etc.)
5. Applying LBT telemetry to troubleshoot pacman:
 - a. The methods for using telemetry to troubleshoot pacman are understood.
 - b. But no new data could be collected during ComRun2 due to high winds.³
6. Shutdown script:
 - a. Davide has the two scripts ready.
 - b. Full automation and access via a web page are planned for the near future.
7. Date and time of next meeting: Thursday April 20, 9:00 MST

¹ To be confirmed.

² The primary field for exoplanet observations is Taurus, which is best observed in October.

³ Pacman is also referred to as the "low wind" effect.