

Questions, Comments and Answers following the presentation

HARPS **Gaspare Lo Curto**

Vanzi:

- 1. ThAr lamp quality and their future availability.*
 - 2. Tip-tilt table efficiency, frequency and reference.*
1. We are using the last high purity ThAr lamps available. New lamps use Th oxide, which is not optimum for high precision spectroscopy because of many molecular features. Moreover they show more molecular contaminants.
 2. The tip-tilt table is working since 2010 with only one major failure so far that required exchange of one LRU component. The centering accuracy improved to **better than 0.1" over the whole integration in most cases, generally it is better than 0.05"**. The correction frequency depends on the star light reaching the guiding detector, and it has a maximum value of 10Hz. For a star of Vmag 7-9 and clear sky the correction frequency is generally in the range of 7-10Hz.

Nave:

- 1. I may have some good news on availability of clear ThAr lamps in my talk this afternoon.*
 - 2. Have you considered other wavelength references for calibrating the Fabry-Perot etalon - e.g., other hollow cathode lamps or an iodine cell similar to the technic used for stabilizing lasers.*
1. Excellent!
 2. Yes, alternative techniques are currently being investigated, for example the "old" ThAr lamps, some of which are still in use on HARPS .

Roth:

- 1. What is the likely reason for the RV offset after the octagonal fiber upgrade - just a mechanical offset of the fiber at the collimator entrance?*
 - 2. Did you measure the line spread function before and after the upgrade, and if so, did you find a difference?*
1. I believe it is a combination of a mechanical offset of the fiber entrance face and the change of the PSF due to the refocussing of the spectrograph.
 2. We refocussed the spectrograph, and the FWHM of the point spread function changed from 3.6 pixels to slightly less than 3 pixels in the red side of the orders.

Ramsay:

Could the speaker comment on a possible difference in philosophy between HARPS and

CRILES+, concerning the use of the FP etalon for wavelength calibration. I understood CRILES+ will use the etalon for wavelength calibrations, getting an offset from a known lamp line.

With HARPS a similar procedure will be used, however to use a simple offset to define the wavelength scale of the Fabry-Perot is a zero order approximation which although it might be suitable for some instruments, it is not acceptable for high precision spectroscopy, and more complex models should be used (work in progress).