



Contribution ID: 13

Type: **Oral presentation (20 minute)**

## **H4RG-15 detector features, performance statistics, and characterization data products for VLT-MOONS**

*Wednesday, 13 March 2024 13:35 (25 minutes)*

MOONS is a multi-object spectrograph that will be installed at the Nasmyth focus of the VLT ESO Telescopes in Chile. The instrument has approximately 1000 fibers over a field of view of 500 square arcminutes, with wavelength coverage from 0.6 to 1.8  $\mu\text{m}$  using CCDs and NIR detectors. Four of the six  $f/0.95$  Schmidt cameras are dedicated to the NIR wavebands and are fitted with H4RG-15 detectors.

We present the results of the characterization of the five H4RG-15 detectors produced for MOONS and discuss how the data products from this characterization program can be used by scientists to aid the development of the analysis pipeline and engineers to assess performance anomalies over the lifetime of the instrument. The characterization program run at ESO was focused on measuring detector parameters to verify requirements as well producing standardized datasets and data products for each detector that could be used in the analysis pipeline or for detector models. We present the statistics for the MOONS H4RG-15 detectors for standard detector performance parameters such as RON, dark current, cross talk, and gain from this batch of detectors, highlighting the unique features of the H4RG-15 detectors uncovered during the several years of measurements. We also provide a look into characterization data products that we have produced for this program, such as persistence trap maps that can be used for pipeline persistence correction or detector modelling.

We are extending the characterization program to the detectors to be used in the ELT instruments. With this talk, we hope to spark discussion between scientists and detector engineers in attendance about the potential uses of information obtained during detector characterization programs. How are these products being used now, and what more could be done with them in the future?

### **contribution subject matter**

CMOS sensors

### **Keywords for your contribution subject matter (this will assist SOC in accurately characterizing your contribution)**

H4RG, NIR detectors, characterization, modeling

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