Training Opportunity for Portuguese Trainees

Title	Duty Station
Detector Electronic Engineer or Physicist	ESO HQ, Garching/Germany

Electronic Engineering Department:

The Electronic Engineering Department within the Directorate of Engineering is responsible for the definition, design and manufacturing of control electronic and detectors system/subsystem for telescopes and instruments as well for electrical compliance verification for all ESO projects.
The ESOcast 186: Engineers at ESO gives a glimpse of the engineering work done in the Directorate of Engineering:
https://www.youtube.com/watch?v=thft_cCRo5g#action=share

Proposed field of activity for the FIAT-Cryogenic test facility:

Infrared detectors, cooled to cryogenic temperatures are widely used in astronomical instruments for research in astronomy. Custom test facilities are required in order to evaluate the electro-optical performance of these detectors at cryogenic temperatures. A new test facility called FIAT (Facility for Infrared Array Testing) has been designed, manufactured and being assembled at ESO for characterizing the next generation state-of-the-art large format near infrared detectors for the ESO's ELT instruments. This new instrument (FIAT) has a suitable cryogenic environment for cooling the detectors down to 30K and it will provide a low thermal background for evaluating various performance parameters of the new detectors. It is expected that the instrument will be accepted into the detectors laboratories soon.

As part of its commissioning for use with this next generation of detectors, a series of tests will be performed on the test facility, using an engineering grade near infrared detector. These tests will range from cryogenic and thermal control, ensuring cool downs and warm ups meet the required rate, optical source alignments to project diffraction limited spots onto the detector, electro-mechanical control of various cryogenic mechanisms, to operation and verification of the detector performance in the instrument. In close collaboration with the detector group, the candidate is responsible for this measurement campaign.

Proposed field of activity for the ASIC:

The second part of the placement will be to evaluate the performance of a new analogue ASIC that has been funded by ESO and designed by the IDEAS company from Norway. This device is a 32 channel fully differential cryogenic preamplifier to interface to IR detectors.
Evaluate the performance at room temperature and cold. The trainee would be intimately involved in all aspects of testing and evaluation of this new device with the final goal of interfacing it to an IR detector for final performance verification.

Required education:

Applicants should have completed university and have a degree in Electronics or Physics.
Candidates must be fluent in English (both spoken and written), ESO's official language.