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## Emplois, stages

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### Offre d'emploi

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#### Postdoctoral position : Laboratory validation of the MICADO SCAO performance (M/W)

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**Type de contrat** Postdoctoral position

**Contexte** The selected postdoctoral researcher will work in LESIA, located in the Meudon site of Observatoire de Paris. He will be integrated within the SCAO team made of 5 senior researchers and a dozen of engineers (optics, mechanics, electronics, instrument control software, real-time computer hardware & software, AIT) and a PhD student developing the MICADO SCAO module within several French laboratories: LESIA and GEPI at Observatoire de Paris, LCF at IOGS, UTINAM at Observatoire de Besançon, LMA at IP2I Lyon. The selected postdoctoral researcher will benefit from the infrastructure put in place at LESIA for the development of the MICADO SCAO module, in terms of hardware, integration room, software, team support.

**Missions** MICADO is the European Southern Observatory (ESO) Extremely Large Telescope (ELT) first light instrument, whose commissioning is expected around 2028. Until the integration of the MCAO system developed by the consortium MORFEO, MICADO diffraction-limited observations will be performed using its SCAO module, developed in France under the responsibility of LESIA.

The project is about to enter in its manufacturing, assembly, integration and tests (MAIT) phase and for SCAO it concerns:

- a wave-front sensor (WFS), based on a pyramid optical component and including several functionalities such as pupil movement compensation, static NCPA compensation, atmospheric dispersion compensation, etc
- a real-time computer, based on the COSMIC platform and making use of GPU servers,
- a calibration unit,
- AO control algorithms, to properly handle the specifics of the pyramid (e.g., optical gains, NCPA, mis-registrations, interaction matrix calibration), of the telescope (windshake, vibrations, differential pistons, telescope AO interface).

The postdoctoral researcher will have a key role in the AO tests done at the different steps of the integration. He will participate to the developments and on-bench tests of AO control algorithms in order to validate the performance of the MICADO SCAO system. It will concern first the core part of the MICADO SCAO WFS (basically its pyramid) coupled to our AIT ALPAO high order deformable mirror and our prototype SCAO RTC. This first SCAO prototype is about to be installed on our Sésame bench, historically dedicated to our AO developments and already fully equipped to perform the required AO tests. With a major involvement of the selected postdoctoral researcher, functionalities will then be integrated and tested step by step in our ATLAS AIT room, until reaching the complete SCAO system described above.

The selected postdoctoral researcher will hence have the opportunity to validate the performance of the first AO system delivered at the ELT !

**Activités**

- Participate to the preparation of the benches used for the AO tests (installation of subsystems, optical alignment)
- Define the test plan for the different functionalities or algorithms to be tested system.
- (Co-)develop the required algorithms
- Perform the AO tests to validate the algorithms
- Write the appropriate documentation for the project
- Communicate the results during conferences or in journal articles

**Compétences** Applicants must have a PhD degree in Astronomy, Astrophysics, Physics or equivalent field, in relation with high angular resolution. Experience in instrumentation in high angular resolution will be considered positively. Applicants should submit a CV with a publication list, a motivation letter and at least two letters of recommendation. Applications received after the deadline will be considered until the position is filled.

**Nom du contact** Yann Clénet

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**Téléphone** 33 1 45 07 75 48

**Durée** 2 ans

**Date d'embauche** 01/12/2022

**Salaire** 2870 € net/month (which comes with the French public health care system, the reimbursement of 50% of the daily commuting costs and a contribution to a complementary health insurance)

#### Modalités

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### Déposer une demande de stage post-bac

Compte-tenu des circonstances exceptionnelles dues à la pandémie de Covid-19, le stage pourra être réalisé en présentiel dans le strict respect du protocole sanitaire et basculera automatiquement en stage à distance en cas de confinement.

Avant de déposer une candidature, merci de vérifier que vous êtes correctement équipé pour le télétravail (ordinateur, bonne connexion Internet, espace de travail à domicile) et que votre formation accepte que le stage soit effectué en distanciel.

Vous pouvez déposer votre candidature pour un **stage post-bac**, en [remplissant ce formulaire](#) .

Les demandes de stages de collège et lycée ne sont pas acceptées dans ce formulaire.

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Vous pouvez déposer votre candidature pour un **stage de collège ou lycée**, en [remplissant ce formulaire](#) .

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### Demandes de contrats d'apprentissage

Nous ne recevons aucune demande de contrat d'apprentissage via ce site web.