

Two exoplanets postdoctoral research positions in Grenoble and Paris (France)

As part of a research project funded by the ANR (Agence Nationale de la Recherche), the SPIRou Legacy Survey team invites applications for two postdoctoral research positions in the field of exoplanets detections and characterization. The positions will be hosted respectively at the Institut de Planétologie et d'Astrophysique de Grenoble (IPAG) and at the Institut d'Astrophysique de Paris (IAP), France, with a preferred starting date between July and October 2019. Both postdocs will be expected to carry out original research in using SPIRou data of the Radial Velocity (RV) survey dedicated to search and characterize exoplanets. The postdoc at IPAG will have to play an important role in the organization and the exploitation of the systematic RV monitoring of nearby M-dwarfs (under the supervision of X. Delfosse); the postdoc at IAP will have to play an important role to exploit the SPIRou RV monitoring of transiting planet candidates (under the supervision of G. Hébrard).

Context: SPIRou, the new near-infrared spectropolarimeter and velocimeter for the 3.6-m Canada-France-Hawaii Telescope, is designed to bring a major contribution to this field. M dwarfs are much brighter in the near infrared and SPIRou is the first near-infrared velocimeter designed to reach the meter-per-second precision. It is the only nIR velocimeter that combines the K band (totaling ~40% of the near-infrared RV contents for a mid-M dwarfs; Artigau et al. 2018), polarimetry (crucial to filter activity effect on RV measurements), and a large throughput (up to 15%).

The actual performances of SPIRou (obtained during the commissioning) demonstrate already its ability to reach a RV precision of at least 2m/s, leaving the possibility of reaching 1m/s of stability or better in the short term. The SPIRou Legacy Survey has 300 nights allocated over four years and has started in February 2019. **150 nights of the survey are dedicated to the Planet Search component (SLS-PS)**, a systematic RV monitoring of ~100 nearby M-dwarfs (the 50 closest M-dwarfs and a sample of close M6-M8 dwarfs) to detect the best systems for future atmospheric characterization and to determine how diverse planetary systems of nearby M-dwarfs are, in particular for the lowest mass down to the brown dwarfs domain. **75 nights are dedicated to a Transit Follow-up (SLS-TF)**, a RV follow-up of the 50 most interesting transiting planet candidates around M-dwarfs uncovered by photometry surveys (mainly TESS) to understand how the structure and bulk composition of low-mass, small-radius transiting planets change with planet mass and equilibrium temperature, in particular for temperate planets for which only few data exist.

The positions: Postdoc#1 will be located at IPAG (Institut de Planétologie et d'Astrophysique de Grenoble, which is a 160-people research unit of Université-Grenoble-Alpes and CNRS) in the Exoplanets team (13 staff members). She/he will participate on the organization of RV monitoring and will focus on the identification of planetary candidates in the context of the SLS-PS survey under the supervision of X. Delfosse. She/He may be involved in the development of original methods for determining accurate RV, or for organizing follow up of detected planets. Postdoc#2 will be located at IAP (Institut d'Astrophysique de Paris, a 150-people research unit of CNRS and Sorbonne University) in the Exoplanets team (10 staff members). She/he will focus on the selection of the candidates to be observed with SPIRou and on their characterization under the supervision of G. Hébrard. She/he will also participate to complementary observations for their atmospheric characterization under the supervision of A. Lecavelier. Both postdocs are invited to develop original researches in using SPIRou data.

They will benefit to work in close collaboration with the large SPIRou consortium, which includes many well-known world-level experts of all the requested science topics needed to achieve its objectives. Postdoc at IPAG will be able to benefit from the vibrant environment of the cross-disciplinary project « Origin of Life » (funded by Univ. Grenoble Alpes IDEX, <https://origin-life.univ-grenoble-alpes.fr>). Postdoc at IAP will be able to benefit of close interactions with other exoplanets teams in Paris. Both postdocs will interact in the context of the SPIRou-SLS collaboration.

Candidate profile: Applicants are expected to have experience in exoplanets sciences. Candidates should have interest and strong experience in data processing and data meaning. An experience in high-precision radial velocities analysis will be appreciated.

The duration of the postdoc contract is of 2.5 years, with possible extensions depending on available funds. The positions are funded by the Agence Nationale de la Recherche (ANR) with an annual gross salary between 28500 and 40000 euros (depending of experience).

Interested candidates should contact Xavier Delfosse (xavier.delfosse@univ-grenoble-alpes.fr) at IPAG and/or Guillaume Hébrard (hebrard@iap.fr) at IAP, and send (in a single pdf file) a CV, a publication list, a motivation letter, a short research statement describing past achievements and future projects, and arrange for up to two letters of recommendation to be sent before 15 th May 2019. The positions are open for immediate start with a preference to start between July and October 2019.