UNIVERSITÄT BERN

PhD Position in observational direct imaging of exoplanets

A 4-year PhD position is currently available in the newly founded Laboratory of Exoplanets Imaging and Adaptive optics (LEIA) of the University of Bern (Space Research and Planetary Sciences Division), starting no later than September 1st, 2023.

The successful candidate will exploit novel instrumentation techniques for exoplanets high-contrast imaging in the near-infrared, from the laboratory to a 4-m ground-based telescope equipped with a state-of-the-art adaptive optics system. The research is part of the ERC "RACE-GO" project (Rapid Adaptive Coronagraphy of Exoplanets from a Ground-based Observatory), funded by the Swiss Secretariat for Research and Innovation (SERI).
She/he will be fully integrated within the vibrant Bernese space and planetary sciences academic environment, and as full member of the Swiss research network on exoplanets (NCCR PlanetS, planets.ch).

Applications are invited for one research assistant position (PhD student) at the University of Berm (Space Research and Planetary Sciences Division) to work under the supervision of Prof. Jonas Kühn on exploiting novel instrumentation techniques to directly image exoplanets. The successful applicant is expected to exploit new exoplanet imaging techniques using pixelated "Spatial Light Modulators" (SLMs) display panels. The latter can be used as "programmable focal-plane phase mask coronagraphs", to mask the unwanted light from the host star, in order to reveal faint off-axis astrophysical sources of interest (exoplanets, circumstellar disks). This position is part of the ERC Consolidator "RACE-GO" project , which aims at investigating how SLMs could be used as "active coronagraphs" to adapt to various observing conditions, target types (binary stars, giant stars) or to implement coherent differential imaging (CDI) techniques at high-speed. The RACE-GO project team will be allocated 60 Guaranteed Time Observing (GTO) nights spread over 2 years on the new Turkish 4-m DAG Telescope, to implement, validate and scientifically exploit the approach on-sky, and the student is expected to play a major role in this observing campaign.

Tasks
In particular, the student will work on observational aspects of adaptive coronagraphy, by leading several on-sky observing runs on the DAG observatory, and selecting engineering and scientific targets of interest within the reach of the instrument capabilities. In consequence, the applicant is expected to travel to Turkey (Erzurum Plateau) several times per year, and spend a few dozen nights observing. The student will be able to set up his own observation program towards the end of the position, if conditions allow.

Requirements
A MSc (or equivalent) degree in Astrophysics. Prior experience in exoplanets science, observational astronomy, and/or Python programming is a plus.

We offer
Starting at 47,000 CHF/year gross salary, commensurate with experience and with 5-week paid holidays per year, according to rules of the University of Bern and Canton of Bern. Childcare allowance is available.

Application
The following application materials should be sent as a single pdf file to jonas.kuehn@unibe.ch:
- A motivation letter including contact details, information on skills and previous experience, and the names of 2 references/referees (max. 2 pages).
- Curriculum vitae (max. 2 pages), including a list of publications (if applicable).
- Academic transcripts of master and/or bachelor grades.

Two letters of recommendation should be sent directly to Prof. Kühn by the referees themselves, and it is the responsibility of the applicant to ensure that the letters are sent on due date.

Deadline to apply: April 30, 2023, for full consideration, then until the position is filled.

www.space.unibe.ch

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