



innoFSPEC Potsdam, located at the Leibniz Institute for Astrophysics Potsdam (AIP) invites applications for a

## **Doctoral student**

for a project on applications of adaptive optics and micro-structured fibers for astronomical instrumentation and photonic sensors

### **Overview**

The position is offered in the frame of the “Integrated Astrophotonics” project at the innoFSPEC Center, which aims at investigating applications of advanced integrated optics concepts to astronomy and beyond. innoFSPEC Potsdam is an Excellence Center for research and innovation created as a joint venture between the Leibniz-Institute for Astrophysics Potsdam (AIP) and the University of Potsdam (UP). The head office of the centre is based at the AIP in Potsdam-Babelsberg.

The AIP is located in the beautiful Potsdam/Babelsberg area, at the southwestern border of the Berlin metropolitan region. About 130 scientists at AIP work on a variety of topics in astrophysics spanning from solar physics to cosmology, as well as on the development of new technologies and instrumentation for astronomical spectroscopy and ground-based telescopes.

### **Your tasks**

- Execution of comprehensive numerical optimization and experimental laboratory validation tests for AO-assisted photonic instrumentation for astronomy and advanced optical sensors based on micro-structured fibers.
- Upgrade of existing adaptive optics simulation software and development of numerical models of micro-structured fibers (photonic lanterns, multi-core fibers, etc.) for applications ranging from astronomy to integrated optical sensors.
- Design and modification of a commercial adaptive optics test bench for use in astronomy
- Development of prototypes of few-modes photonic lanterns and/or multi-core fibers in collaboration with AIP personnel and/or external partners
- Support development of Adaptive Optics-assisted photonic instruments for on-sky tests.

### **Your profile**

- Master degree in Physics, Engineering or Astronomy
- Experience in experimental and theoretical optics, micro-optics, adaptive optics and /or control systems

- Good analytical and mathematical skills are an advantage
- Good programming skills (e.g. C++, MATLAB and/or LabView)
- Good general ICT skills (e.g. standard Office packages, Latex, Linux, Windows)
- Hands-on experience in micro-optical design with commercial software (e.g. R-Soft) is desired
- A background in the development of astronomical instrumentation and/or photonic sensors is a plus
- Self-motivation, creativity, flexibility and the ability to work alone and in a team are highly appreciated

### Conditions

The AIP is an equal opportunity employer and particularly encourages women to apply. It values diversity. The appointment is **part-time** for the duration of 49 months and planned to start by January 1, 2017. Further extensions of the contract will depend on the availability of third party funding and the overall performance of the candidate. Salary and social benefits are calculated based on the German public service scale (TV-L).

To apply, please send a single PDF (up to 10 MB), with your Curriculum Vitae (including publication list), cover letter, a list of references (3 or more) and statements on education and skills to [zik2-pl2@aip.de](mailto:zik2-pl2@aip.de). For questions on the offered position please contact Dr. Minardi at the address below. Review of applications will continue until the position is filled.

### Contact

Dr. Stefano Minardi  
 Leibniz-Institut für Astrophysik Potsdam (AIP) – innoFSPEC Potsdam  
 An der Sternwarte 16  
 D - 14482 Potsdam  
 Email: [sminardi@aip.de](mailto:sminardi@aip.de)  
[www.aip.de](http://www.aip.de)  
[www.innofspec.de](http://www.innofspec.de)

