



The Max Planck Institute for Radio Astronomy is one of the 84 independent research institutes of the Max Planck Society for the Advancement of Science (MPG). As an innovative research institution with numerous collaborations abroad we carry out fundamental research in the field of astronomy. In Bad Münstereifel-Effelsberg we operate one of the largest radio telescopes in the world. We also maintain astronomical receiver systems at locations all over the world. We are currently looking for a

Backend development scientist/engineer (PhD preferred)

As a member of the newly founded Backend Development group within the Electronics division, you would work in close collaboration with the head of the group and report directly to him/her. You would participate intensively in the development, deployment and management of powerful new data processing back ends on radio telescopes worldwide.

In the framework of large development projects you will case by case be responsible for the organization, technical developments and documentation of your own sub-projects. You will be given the opportunity to develop, test, and implement your own ideas. Intensive interactions, exchange of skills, experiences, and assistance within the working group and furthermore within the division are a fundamental part of your daily work. We offer a team of highly motivated and extremely talented people with the best technologies, preparing the ground to imagine, discuss, and finally create new and maybe unusual technical solutions – and hence grow and sustain the innovation pipeline for next generation backend systems.

Your work tasks will cover:

- leading your own self-contained sub projects for technical developments
- technical guidance of assigned project members
- keep up and, if appropriate, extend existing national or international contacts
- participation in the installation, testing, and commissioning of systems in the lab and at the observatories
- being responsible for the capabilities, functionality and quality of your developments

We expect:

a relevant doctoral qualification in either Physics or Computer science, or equivalent relevant professional experience.

- First-hand experience in large software or instrument development projects. Previous experience with astronomical instrumentation development is preferred but not required.
- Willingness to work hands on in the lab and at observatories around the world
- Deep insights in at least two of the following areas:
 - Software engineering with experience in software design, construction, testing and maintenance.
 - Software development with specialization in graphics processing units (GPUs). Here experience with CUDA is preferred.
 - Software development with expert-level C++ skills.
 - Firmware development with familiarity of the CASPER / JASPER tool flows.
 - Signal processing algorithms (in particular polyphase filter banks, band filters, synthesis filter banks) and their implementation in software.

- High performance Ethernet and Infiniband networking with experience in high-speed network ingress and egress using COTS hardware. Familiarity with multicast Clos networks is desirable.
- Linux-based HPC cluster administration. Experience with tools such as Foreman, Puppet, Munin, Icinga2, Prometheus, Kerberos, OpenLDAP etc. as well as with virtualization systems such as KVM and containerization systems such as Docker and Singularity are desirable.
- Container orchestration with experience working with and extending tools such as Kubernetes, Apache Mesos/Marathon or Docker Swarm.
- UI development, with experience implementing RESTful web applications for user control and monitoring of instrumentation.
- Control and monitoring system development with experience in databases (e.g. MariaDB, MongoDB), key-value stores (e.g. etcd, Redis) and message brokers (e.g. Apache Kafka, RabbitMQ). Familiarity with control systems such as Tango, Epics or KATCP is desirable.
- Outstanding analytical capabilities and the willingness to independently familiarize oneself with new subjects outside the core competencies.
- Excellent communication in English (required) and German (preferable) in written, verbal and presentational forms.
- Willingness to undertake travel to national and international partner institutes and observatories (at the time mostly in Europe, China, South-Africa and Australia).

You have a proactive personality combined with an inextinguishable intellectual curiosity, reached a very high level in your core competencies, and offer an accurate scientific work approach which enables you to analytically evaluate, to group, and present your results.

The full-time position is available immediately. The initial contract is for four years . Salary and social benefits will be in accordance with the regulations of the German TVöD Bund (salary agreement for public service employees). We are trying to balance gender within the division, hence encourages women to apply.

The Max Planck Society is committed to increasing the number of individuals with disabilities in its workforce and therefore encourages applications from such qualified individuals.

Please submit your application (CV-publications-achievements-plan) and your reference letters preferably in electronic form via mail indicating the **reference number 1804** to

**Max-Planck-Institut für Radioastronomie
Human Resources Department
Auf dem Hügel 69
53121 Bonn
Email:job@mpifr-bonn.mpg.de**

Closing date for applications: 13.04.2018

notice: 13.03.2018

