MAX PLANCK INSTITUTE
FOR RADIO ASTRONOMY

The Max Planck Institute for Radio Astronomy (MPIfR) is a research institute of the Max Planck Society for the Advancement of Science that conducts basic research in the field of astronomy. In Effelsberg we operate one of the largest fully steerable radio telescopes on Earth, and we design and maintain astronomical receiving systems at locations all over the world.

MPIfR invites applications for a postdoctoral position (m/f/d) to work in the *dynaverse* Excellence Cluster funded by the German Research Foundation (DFG). The successful applicant will work in the Fundamental Physics in Radio Astronomy department and Lise Meitner Research Group.

Postdoctoral researcher position (m/f/d) in fast transient astronomy as part of the DFG-funded dynaverse Excellence Cluster

The astrophysical sources of fast transient emission, observable as fast radio bursts (FRBs) or pulsars, are laboratories for extreme physics as well as useful astrophysical probes. FRBs are highly luminous radio flashes that originate from so-far unidentified extragalactic sources. Large-scale surveys are aiming to unlock their origin, as well as use them for many astrophysical applications including measuring the distribution of ionized baryons and expansion of the Universe. Radio pulsars are neutron stars in our own galaxy, and through precise radio timing, they can be used to test theories of gravity and measure the equation of state.

Advances in our understanding of the astrophysics of fast transient sources, as well as finding increasingly powerful astronomical “tools”, requires searching for and discovering new sources. Each generation of survey pushes the boundaries of the previous generation with, for example, more sensitivity, wider bandwidths, higher time resolution, or larger fields-of-view. These advances come with a commensurate increase in complexity and, in particular, the number of candidates. Zeroing in on the true, astrophysical candidates is a computational needle in a haystack. To tackle these “big data” challenges, astronomers have begun to employ machine learning techniques.

The application of machine learning in astronomy is at the core of the new field of astroinformatics. One goal of the new DFG-funded *dynaverse* Excellence Cluster is to bring together experts in radio astronomy and machine learning to make the Cologne-Bonn region a world-wide leader in astroinformatics.

What we expect from you:

The successful candidate will develop new ML techniques for the classification of FRB or pulsar candidates in large-scale survey data and apply these to new data and then lead the scientific analysis of the resulting discoveries. He or she will also have the opportunity to co-supervise students and contribute to the scientific exchange within the department.

Necessary skills:

- A Ph.D. in physics, astronomy, computer science or a related field by the appointment date
- Prior experience with radio astronomy observations and data analysis
- Strong proficiency and experience in scripting/programming, in particular in Python

- Strong interest in programmatic problem solving and developing pipelines
- Strong proficiency in the Linux operating system
- Enthusiasm for disseminating results in scientific publications and conferences
- Enthusiasm working in a large, international team

Desired skills (one or more of):

- Prior experience with standard software used for FRB or pulsar searches and analysis
- Practical experience in applying Machine Learning methods to data
- Experience with computer clusters and HPC
- Willingness to supervise Masters/PhD students

What we offer:

The Fundamental Physics in Radio Astronomy department and Lise Meitner Research Group at the Max Planck Institute for Radio Astronomy are world-leaders in the study of radio pulsars and FRBs. Researchers are involved in surveys with the world's most sensitive telescopes, including the Effelsberg 100-m radio telescope and the MeeKAT radio interferometer. The successful candidate will have access to the large network of 25 PIs in astronomy and computer science within the *dynaverse* Cluster. We welcome independently-led research ideas and will allow the successful candidate to spend 25% of their time on their own research.

Appointments will initially be for 2 years, with the possibility of further extension of one more year based on mutual agreement and funding availability. The preferred starting time of the candidate is between April 2026 and August 2026, but this is open for negotiation. We have dedicated funds for the postdoc to present their work in national and international conferences.

Remuneration is within the framework of the German wage agreement for the public system (TVöD-Bund), which includes comprehensive healthcare coverage and other social benefits.

The Max Planck Society and our group are committed to increasing the number of individuals with disabilities in its workforce and therefore encourage applications from such qualified individuals. Furthermore, we seek to increase the number of women and other gender minorities in areas where they are underrepresented and therefore such people are particularly encouraged to apply. The Max Planck Society and our group encourage diversity in its work culture. People from all backgrounds and genders are invited to apply.

How to apply:

Interested and qualified individuals are encouraged to apply by submitting a curriculum vita, a list of publications, research statement (max 2 pages), and have at least two letters of recommendation sent to the MPIfR application portal (see link below) before 17:00 UTC (18:00 CET) **on January 9, 2026**. After submission, shortlisted applicants will go through an online interview process before selecting the most suitable candidate. We expect this process to be done by mid February 2026.

https://jobs.b-ite.com/en/jobposting/bc719cb283fb26939679dd013d2420f58e61d1120/apply

Contact information:

Prospective applicants can contact Dr. Laura Spitler lspitler@mpifr-bonn.mpg.de.