

The **Rheinische Friedrich-Wilhelms-Universität** Bonn is an international research university that offers a wide range of degree programs. Some 33,000 students and more than 6,000 employees study and work on the foundation of a 200-year tradition. Awarded the status of a University of Excellence, the University of Bonn is one of the leading universities in Germany and enjoys an excellent international reputation

The new **Argelander professorship Integrated System Modeling for Sustainability Transitions**, chaired by Jun.-Prof. Dr. Wolfram within the **Transdisciplinary Research Area "Sustainable Futures"** ([TRA 6](#)) is looking for a

Post-doc Researcher (m/f/d)
(100% working time limited for 24 months)
or a
Doctoral student (m/f/d)
(65% working time limited for 36 months)

funded by the Cooperative AI Foundation. Cooperation at scale is vital for a sustainable future, yet unresolved. Specifically, how can large collectives of intelligent actors, coupled with dynamic environments, seek ways to improve their joint well-being? To move forward with this challenge, we develop mathematical models of collective learning, bridging ideas from complex systems science, multi-agent reinforcement learning, and social-ecological resilience.

Your tasks:

- Develop, implement, and analyze mathematical models to answer which features make large collectives of self-interested, individually learning agents cooperative,
- Disseminate research outcomes in peer-reviewed publications and scientific conferences.

Your profile:

- Master's degree (for doctoral position) or a doctorate (for post-doctoral position) in computer science, mathematics, physics, or a related quantitative subject,
- Proficiency in reinforcement learning in multi-agent systems,
- Proficiency in scientific computing with Python,
- Prior knowledge of evolutionary game theory and/or mean-field games is desirable,
- Proficiency in English,
- Committed, flexible, team-oriented, interested in advanced training.

We offer:

- A diverse and challenging job to grow in an interdisciplinary and transdisciplinary research environment with one of the largest employers in the region.
- As part of the doctoral position the opportunity to obtain a PhD,
- Participation in the university-wide pension system (VBL),
- Access to the extensive university sports program,
- An excellent transport infrastructure due to the central location in Bonn and the possibility to use assigned, affordable parking,
- A salary based on the 13 TV-L scale.

The University of Bonn is committed to diversity and equal opportunity. It is certified as a family-friendly university and aims to increase the proportion of women employed in areas where women are under-represented and to promote their careers. To that end, it urges women with relevant qualifications to apply. Applications will be handled in accordance with the *Landesgleichstellungsgesetz* (State Equality Act). Applications from suitable candidates with a certified disability or equivalent status are particularly welcome.

If you are interested in this position, please send your application documents including cover letter, curriculum vitae and certificates **by 22.03.2024 with the application code 3.2/2024/13** and **only in single a PDF file** by e-mail to Professor Dr. Wolfram Barfuss w.barfuss@uni-bonn.de. Please address any questions regarding the position described to Prof. Dr. Barfuss (email: wbarfuss@uni-bonn.de, phone: +49 228 73 1835).