

Deadline: Until filled



APPLY 30/2021

# Research Scholar Macroeconomic Agent-Based Modeling

EXPLORATORY MODELING OF HUMAN-NATURAL SYSTEMS RESEARCH GROUP

We are looking to hire an outstanding researcher in the overlapping fields of Computational Economics and Data Science/Computer Science. The successful candidate will contribute to the development of a macroeconomic agent-based model (ABM) that can compete with mainstream approaches, such as econometric and DSGE models, in out-of-sample forecasting and work on related applications of the model.

## BACKGROUND

The **Exploratory Modeling of Human-natural Systems (EM)** research group is one of four new research groups in the new IIASA **Advancing Systems Analysis (ASA) program**. EM's mission is to produce methodological advances that will underpin IIASA research on transformations toward sustainable social-economic-environmental systems with a focus on socioeconomic complexity, integrative Earth systems models, and macro-level systems models. As part of EM's focus on socioeconomic complexity and building on methodological advances from the former ASA program, a novel macroeconomic ABM is developed that can compete with mainstream approaches, such as econometric and DSGE models, in out-of-sample forecasting and allows more reliable policy analysis and could revolutionize the way we monitor and forecast economic activity. This ABM has recently received the Complexity in Macroeconomics Award from the Rebuilding Macroeconomics Network in the UK and is currently used in several applications.

## MAIN TASKS AND RESPONSIBILITIES

The successful applicant will contribute to the development and application of the IIASA macroeconomic agent-based model under the supervision of the research group leader. Specific tasks of the successful applicant include but are not limited to:

- Develop the IIASA macroeconomic agent-based model further according to the needs of the applications
- Coordinate with internal and external project partners from central banks; universities and other research institutions
- Calibrate the ABM with micro- (firm-level and register-based data) and macro-economic (national accounting) data sources; This includes data processing from various sources

- Setup, run, exploit, and share simulations made with the ABM
- Write and contribute to scientific articles and science-policy reports derived from the above work, and present those at scientific workshops and conferences
- In line with the team spirit that prevails at IIASA, the incumbent may occasionally work on other tasks assigned by their superiors, that might not be directly related to this appointment but where the post holder has relevant experience and skills, and/or a shortage of immediate personnel capabilities requires such.

## QUALIFICATIONS AND SKILLS

The successful applicant should have a PhD (or equivalent) in economics, mathematics, statistics, computer science, or other relevant fields. Thus, either an economist with the ability to work with computationally and data-intensive models or a computer scientist with economic knowledge would be suitable. Prior experience with agent-based modeling is not required.

### The following skills and qualifications are required:

- Knowledge of macroeconomic or econometric modeling
- Excellent communication skills (both written and verbal) in English, good presentation skills and the ability to write scientific articles and contribute to science-policy reports
- Experience working with empirical data
- Excellent organizational skills, results-oriented mindset, proactive and adaptable

### The following experience would be highly desirable:

- A publication record in international, peer-reviewed journals in economics
- Practical knowledge of economic forecasting
- Advanced knowledge of macroeconomic modeling, e.g., DSGE modeling
- Knowledge of systems of national accounts
- Practical knowledge working with firm-level data (e.g. Bureau van Dijk ORBIS) and household-level data (e.g. register-based data)
- Experience with large-scale computer simulations

IIASA offers an interdisciplinary and international workplace, and the possibility to interact with researchers of different nationalities, with strong ties to a world-wide network of research institutions engaged in environmental systems research. The successful candidate must be able to work in, and have respect for, an intercultural environment, and [IIASA core values](#).

## APPOINTMENT TERMS

The selected candidate should be available to take up the position as soon as possible in 2021. We offer an initial fixed-term, full-time (40 hours per week) employment contract for one year, with the possibility of extension thereafter. Eligible applicants wishing to work part-time hours may be considered.

Duties will be carried out at the IIASA premises in Laxenburg, near Vienna in Austria.

The corresponding profile for this opportunity is **R2** according to the [IIASA profiles for research careers](#). IIASA does however, reserve the right to hire a researcher with a lower profile, and at a corresponding lower salary than the minimum stated below, if the qualifications and professional experience of the selected candidate do not meet the criteria described in the researcher profiles adequately.

### WE OFFER:

A **minimum** gross annual salary of EUR 43,000.00 (full-time), which is exempt from income tax in [Austria](#).

The advertised salary is:

- Negotiable, based on the qualifications, skills and experience of the selected individual.
- Subject to deductions for health insurance and/or social security.
- Not directly comparable with other employers in Austria, due to the unique legal status and privileges granted to IIASA.
- Subject to the principle of income aggregation (Progressionsvorbehalt in German).

### IN ADDITION:

- Educational subsidies for children of school age enrolled in private schools in Austria.
- A generous annual leave entitlement.
- Moving and settlement allowances and paid home leave for employees in scientific and professional categories hired from international locations.
- Assistance for newcomers to Austria with visa, work

and residency permit applications.

- Support finding accommodation in Austria.

Further details [here](#).

## About IIASA

IIASA is committed to a working environment that promotes equality, diversity, tolerance and inclusion within its workforce. This is reflected in our [Core Values](#). We encourage qualified candidates, irrespective of gender, from all religious, ethnic, and social backgrounds to apply. In the case that candidates are equally qualified, preference will be given to applicants from countries where IIASA has a [National Member Organization](#) (NMO).

## Further Information

For further information about this opportunity please contact:

[Sebastian Poledna](#), Acting Research Group Leader and Research Scholar, EM Research Group

For general information about working at IIASA, please contact:

[recruitment@iiasa.ac.at](mailto:recruitment@iiasa.ac.at)

## Applications

To apply for this opportunity, you will need to provide the following documents in English:

- A cover letter outlining your motivation for and fit to the position
- A detailed Curriculum Vitae
- A recent example of your research work (preferably published and single-authored)
- The names, addresses (including e-mail), and telephone numbers of two work-related reference givers.

**Deadline for receipt of applications: Until filled**

**APPLY**