

APPLY 09-2026

Research Scholar (Pre-doctoral or Postdoctoral) in Social Metabolism, Energy-Materials-Climate Nexus, and Resilience in MESSAGEix

The **Energy, Climate, and Environment (ECE)** Program invites applications for a Research Scholar at the pre-doctoral or post-doctoral level. The successful candidate will strengthen the representation of material and mineral cycles, supply chains, and resilience in the MESSAGEix-GLOBIOM-GAINS integrated assessment modeling framework. The role contributes primarily to the REMASS project (Resilience and Malleability of Societal Systems), with cross-cutting contributions to the ECE Program's broader portfolio of projects related to resilient energy and material transitions and circular strategies (e.g., PRISMA).

BACKGROUND

The position sits at the interface between social metabolism research, energy-economy-environment modelling, and resilience analysis. The work will directly inform how the next generation of MESSAGEix scenarios captures the material underpinnings of energy systems transformations, changes to the built environment, and implications of disruptive innovations like AI. It will also inform how supply disruptions and malleability shape the feasibility of transformation pathways and disruptive technologies such as AI. Your work will also inform how supply disruptions and systemic malleability affect the feasibility of deep transformation pathways.

MAIN TASKS AND RESPONSIBILITIES

- Synthesize social metabolism datasets (material flow accounts, stock-flow analyses, lifecycle inventory and sectoral material-intensity data) and integrate them into the MESSAGEix framework to improve the representation of material cycles and supply chains.
- Develop and implement sectoral representations of materials and mineral demand and supply for energy systems, mobility, buildings, household services, and digitalization.
- Design model formulations for supply disruptions (geopolitical shocks, resource bottlenecks, trade disruptions) and endogenize the resilience and malleability of the energy-materials-emissions system in MESSAGEix.
- Quantify interdependencies between energy, materials, and GHG emissions, including feedback between mitigation pathways, material requirements, and supply-side vulnerabilities.

- Run, document, and analyze MESSAGEix scenarios; produce IAMC-formatted outputs for use by the REMASS consortium and broader ECE research.
- Publish findings in peer-reviewed journals and contribute to project deliverables, policy briefs, and stakeholder engagement
- Collaborate with REMASS partners, partners in other projects, and across IIASA research groups.
- As part of IIASA collaborative culture, you may occasionally contribute your expertise beyond this appointment, reflecting the institute's spirit of cross-disciplinary teamwork

SKILLS, QUALIFICATIONS AND EXPERIENCE

- A PhD (postdoctoral level) or substantial progress toward a PhD (for the pre-doctoral level) in a relevant discipline, including industrial ecology, social metabolism, energy systems, integrated assessment modelling, environmental or chemical engineering, sustainability science, economics, or a related quantitative field
- Demonstrated experience with material flow analysis, social metabolism, or supply-chain modelling, ideally connected to climate or energy and or materials applications
- Strong programming skills in Python; familiarity with scientific data formats and version control (Git).
- Experience handling and analyzing large, heterogeneous datasets (IAMC, EXIOBASE, UN Comtrade, USGS, IEA, or comparable).
- Excellent written and spoken English; demonstrated ability to publish in peer-reviewed journals.
- Ability to work independently and as part of a multidisciplinary, international team.

Desirable qualifications

- Hands-on experience with MESSAGEix, GAMS, ixmp, or pyam, or with comparable bottom-up energy systems and integrated assessment tools (e.g., TIMES, REMIND).
- Knowledge of resilience theory and supply-chain disruption analysis.
- Familiarity with input-output analysis, life-cycle assessment, or hybrid IO-LCA methods.
- Experience with one or more of the focus sectors (energy systems, mobility, buildings, digitalization) from a materials or minerals perspective.
- Track record of collaborative, open-science research practices.

APPOINTMENT TERMS

The successful candidate should be available to take up the position as soon as possible. We offer an initial fixed-term, full-time employment contract for one year, with the possibility for extension thereafter.

The corresponding profile for this opportunity is R1 (pre-doctoral) or R2 (postdoctoral). IIASA reserves the right to hire a researcher at a lower profile, and at a correspondingly lower salary than the minimum stated below, if the qualifications and professional experience of the selected candidate do not adequately meet the criteria described in the researcher profiles.

The place of work is at the IIASA premises in Laxenburg, near Vienna in Austria.

The successful candidate will be appointed in accordance with the [IIASA profiles for research careers](#).

WE OFFER

- Career development perspectives.
- An international atmosphere and pleasant working environment in a historic market town surrounded by green areas.
- An attractive salary which is exempt from income tax in Austria and negotiable, based on the qualifications, skills and experience of the selected individual and *at least*
 EUR 42,374.00 for R1 researchers
 EUR 55,215.00 for R2 research scholars
 Salaries are gross per annum (subject to deductions for health insurance and/or social security).

IIASA salaries are:

- 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).

OTHER BENEFITS

- Educational subsidies for children of school age

enrolled in private schools in Austria.

- A generous leave entitlement.
- Relocation allowances and paid home leave for employees in scientific and professional categories who are hired from international locations.
- Assistance for newcomers to Austria with visa, work and residency permit applications.
- Support finding accommodation in Austria.
- Access to high-performance computing, the IIASA Scenario Explorer, and the full MESSAGEix-GAINS modelling ecosystem
- A strong network across the REMASS consortium and IIASA's wider European and international project portfolio

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 [IIASA core values](#). We encourage qualified candidates 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 [Member Organization](#).

Further Information

For further information about this opportunity please contact:

[Shonali Pachauri](#) - Research Group Leader of the TISS

For general information about working at IIASA, please contact: recruitment@iiasa.ac.at

Applications

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

- A cover letter (maximum 2 pages) that outlines your motivation, fit with the position, and how your background bears on social metabolism, materials modelling, and resilience.
- A detailed Curriculum Vitae, including publications and a list of any relevant code or data contributions (links to GitHub or Zenodo are welcome).
- A research statement (maximum 2 pages) outlining how you would approach one of the tasks listed above.
- The names, addresses (including e-mail), and telephone numbers of two work-related reference givers.

Shortlisted candidates will be invited for an interview. A short technical exercise may be requested.

Deadline for receipt of applications: 22 May 2026

APPLY

