

## Hosting offer for Marie Skłodowska-Curie Postdoctoral Fellowships (PF) 2022 at IUP-LAMOS/University of Bremen

[MSCA Postdoctoral Fellowships](#) are individual research grants offering excellent postdoctoral researchers the chance to develop their skills by means of international mobility. Through the implementation of an original and personalised research project, MSCA Postdoctoral Fellowships aim to foster excellence through training and mobility and to equip researchers with new skills and competences in order to identify solutions to current and future challenges.

The Laboratory for Modeling and Observation of the Earth System (LAMOS) of the Institute of Environmental Physics (IUP) at the University of Bremen invites motivated postdoctoral researchers to jointly prepare an application for the [Marie Skłodowska-Curie Postdoctoral Fellowships](#) call ([MSCA-PF-2022](#)) with them as host organisation.

### Description of Hosting organisation/group

The hosting **Institute of Environmental Physics and Remote Sensing, IUP** (<https://www.iup.uni-bremen.de/eng/>) is one of the leading European research institutions investigating the physical and chemical processes which determine the behavior of the system comprising the sun, the Earth and its atmosphere. One particularly important focus is the development and application of remote sensing techniques to study atmospheric composition. Instrumentation for ground-based, shipboard and space-borne platforms has been developed, including the pioneering satellite instruments GOME and SCIAMACHY. Concepts, instruments, software and algorithms for all components of such measurements have been developed at the institute, covering instrument design and calibration, data retrieval algorithms, radiative transfer calculations, measurements of absorption cross-sections and reaction kinetics, and state-of-the-art numerical simulations. The latter is pursued by the **Laboratory for Modeling and Observation of the Earth System (LAMOS)**, the newest department of IUP. LAMOS focuses on the understanding of the complex mechanisms controlling emission, transport, transformation, and removal processes of natural and anthropogenic trace species having an impact on air quality, climate and human health. LAMOS develops and uses a large range of numerical Eulerian and Lagrangian models (box models, WRF-CHEM, TM4-ECPL, TM5, TM5-4DVAR, FLEXPART, FLEXPART-WRF, EC-EARTH). All simulations are performed at the High-Performance-Cluster "Aether". Aether, funded by the German Research Foundation, DFG, through the EXC initiative, has 56 computing nodes with a peak performance of 65Tflop/s and a total storage capacity of 1PB. Its primary mission is to conduct research based on expensive computationally numerical simulations runs in 4 dimensions. It is also used for educational purposes.

An important component of the Institute of Environmental Physics is its strong involvement in four educational programmes Masters in Environmental Physics (PEP), Space Sciences and Technologies (Space-ST), Master of Science in Space Engineering and the "Postgraduate International Programme of the Faculty of Physics and Electrical Engineering (PIP). These programmes dedicated to undergraduate and graduate-level education, are taught in English and have a strong international component, providing an ideal framework for training in Environmental Physics on all levels. They also offer unique opportunities in acquiring teaching experience.

## Topics/expertise

We welcome applications on the following topics:

- Atmospheric physics and chemistry
- Atmospheric pollution and impacts
- Atmospheric modeling (Eulerian/Lagrangian)

**Prof. Mihalis Vrekoussis (MV)** is a tenured professor at the University of Bremen in Germany and an adjunct professor at the Cyprus Institute in Cyprus. MV's main scientific goal is to shed light on the understanding of the complex mechanisms controlling emission, transport, transformation, and removal processes of natural and manmade trace species having an impact on air quality, climate and human health. He is the (co)-author of ~80 peer-reviewed publications (Citations 4850, H-factor=38), PI/participant of 26 national/international projects (3 ongoing). MV currently supervises 3 post-doctoral fellows, 7 Ph.D. and 2 Master Students.

**Email:** mvrekous@uni-bremen.de

**Dr. Nikos Daskalakis (ND)** is a postdoctoral researcher at the University of Bremen. ND is an atmospheric modeler, with many years of experience in the development and use of chemistry and atmospheric processes modeling using a variety of models. His main expertise lies in global gas-phase and aerosol modeling, but he is also experienced in regional, earth system and inverse modeling for emission optimization. His main scientific interest lies in explaining atmospheric tendencies, optimizing emissions and creating emission scenarios to explain air quality and predict the outcome of emission policies. ND has (co) authored 29 peer-reviewed journal papers (1206 citations, h-index 17), and has participated in several national and international projects. ND currently co-supervises 6 Ph.D. students.

**Email:** daskalak@uni-bremen.de

**Dr. Alexandros Panagiotis Poulidis (APP)** is a postdoctoral researcher at the University of Bremen, Germany. APP's main research interest lies in furthering our understanding of local and regional meteorological processes that impact the transport of atmospheric pollutants and assessing how to better form and carry out mitigation strategies. To this end, APP primarily employs numerical modeling and has significant experience in a number of state-of-the-art atmospheric (transport) models - both Eulerian (WRF, WRF-chem, FALL3D) and Lagrangian (FLEXPART, Hysplit). Air pollutants under study vary greatly, from everyday anthropogenic emissions to radioactive particles released from accidents to the transport and deposition of tephra after volcanic eruptions. APP has written or co-authored a total of 17 papers (122 Citations, H-factor of 7) and has received 1 international fellowship project. APP currently co-supervises 3 Master students.

**Email:** alepou@uni-bremen.de

## Your profile

- Expected qualifications/expertise of the candidate:
  - Proven experience in atmospheric modeling studies.
  - Good/excellent knowledge of programming in Python or R.
  - Experience in evaluating model output based on observational datasets.
  - Strong Linux/Unix knowledge.
  - Proven publication record in atmospheric modeling.

- Ph.D. degree in the field of atmospheric computational sciences such as physics, chemistry, mathematics, computer science, or any other relevant field.
- You must have a completed Ph.D. at the time of the call deadline (14 September 2022).
- Candidates must have a maximum of 8 years of full-time research experience from the Ph.D. award date until September 14, 2022. Periods of inactivity in research (e.g. unemployment, periods of employment outside research, parental or sick leave) do not count towards the time of research experience.
- For European fellowships, candidates can be of any nationality and must not have resided or carried out their main activity (work, studies, etc.) in Germany for more than 12 months in the 36 months immediately before September 14, 2022.
- Highly motivated candidate with an excellent research track record appropriate to career stage, as evidenced by academic publications and other scientific output.

### **What we offer**

- Support and guidance for the preparation of your MSCA PF proposal, backed by the expertise of the Funding Advisory Service at the University of Bremen
- A stimulating, interdisciplinary environment for high-level research.
- Scientific and administrative support at all levels.
- Teaching/supervision opportunities.
- Strong collaborative network.

### **How to apply?**

Indicate your interest by contacting the host institution as follows:

Please contact one of the above supervisors by email with a short CV and motivation to indicate your interest to prepare an MSCA-PF application with the LAMOS group on a topic relevant to the interests of the group.

After the supervisor agrees to support you as an MSCA-PF candidate, you can start the preparation of the MSCA PF project proposal which will be supported further by the Funding Advisory Service of the host university.

For more information please contact the MSCA coordinator of the host institution: eu@vw.uni-bremen.de

