Narodowe Centrum Badań Jądrowych
National Centre for Nuclear Research
ŚWIERK

INSTITUTION National Centre for Nuclear Research

CITY Otwock

POSITION postdoc

DISCIPLINE physical sciences

POSTED 12.12.2025

EXPIRES 04.01.2026

WEBSITE https://www.ncbj.gov.pl/en/praca/adiunkt-postdoc-uz3464

KEY WORDS postdoc, sonata, NCN

DESCRIPTION (field, expectations, comments):

The National Centre for Nuclear Research opens the competition for the position of

Postdoc (BP2_464)

Localization: Otwock - Świerk - in the outskirts of Warsaw with daily transport services provided.

The position will be funded within the project titled ”A Probabilistic Inverse Model for Identifying the Source of Atmospheric Contamination on a Continental Scale” funding under the prestigious SONATA 20 competition organized by the National Science Centre (NCN). The Principal Investigator is Dr. Eng. Piotr Kopka, email: Piotr.Kopka@ncbj.gov.pl

Project description:

The project, funded by the SONATA NCN grant, “Probabilistic Inverse Model for Source Identification of Atmospheric Contamination on a Continental Scale” (Edition 55), implemented at NCBJ, focuses on modeling the atmospheric transport of contaminants, particularly radionuclides, on a continental scale. The aim is to develop a new class of inverse Bayesian models, STE-EU-SCALE, combining innovative forward dispersion models, machine learning techniques, and surrogate models. The method employs modern posterior sampling algorithms, using measurement data. The developed tools will enable faster and more accurate reconstruction of past and future emergency events, supporting experts responsible for crisis decision-making and utilizing measurement data.

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Job/tasks description:

- The Post-Doc will be responsible for reviewing and evaluating transport models used on a continental scale, including models of atmospheric transport of pollutants, particularly radionuclides. The duties will include processing meteorological data used in prognostic models and testing forward transport models, including running these models on a computing cluster. The work involves using models such as FLEXPART and other models of similar purpose.
- The person employed in this position will participate in the development of the STE-EU-SCALE framework, verify model performance, support model validation, and provide expertise in atmospheric radionuclide transport modelling. Additionally, the Post-Doc will process large meteorological and emission datasets, prepare input data for the models, and contribute to scientific publications.

Requirements:

- PhD degree in physics/mathematics/computer science/environmental engineering, or a related field(obtained no earlier than 7 years before the year of employment in the project).
- Proficiency in MATLAB and/or Python.
- Experience working with atmospheric transport models of pollutants, particularly radionuclides, such as FLEXPART or similar models.
- Experience with computational environments, including running transport models on computing clusters.
- Ability to process and analyze large datasets, especially meteorological data formats (e.g GRIB2, NetCDF, GDAS, GFS).
- Strong analytical skills, including the ability to evaluate and validate transport models.
- Experience in preparing scientific publications and the ability to collaborate within research teams.

Additional requirements:

- Familiarity with small-scale or Gaussian atmospheric dispersion models.
- Strong practical skills in high-performance computing (HPC) environments, including job scheduling and performance optimization on computing clusters.
- Knowledge of Bayesian statistics and its applications in data analysis or modeling.
- Experience with inverse modeling approaches.

Required documents:

- CV with a clause: "I consent to the processing of my personal data contained in my job application for the purposes necessary to carry out the recruitment process"
- A scan/ copy of degree diploma
- Full publication list
- A list of 2 reference persons including their positions and contact details (e-mail address)
- A brief description of important scientific achievements and scientific outlook (max. 2 pp)
- Research plans
- Cover letter (1 page)
- Any other possible documents that might influence the assessment.

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We offer:

- employment in one of the largest research Institute in Poland
- good learning environment. Support of an experienced team
- external and internal trainings in hard and soft skills as well as participation in conferences
- personal and professional development with diverse range of tasks and challenges
- stable working conditions without overtimes and friendly atmosphere
- working with cutting edge technology at one of the largest supercomputer centers in Poland
- company transport from Warsaw to Świerk and backwards (more information: https://bus.swierk.pl/rozklad-jazdy/)

Contact:

The Principal Investigator is Dr. Eng. Piotr Kopka, email: Piotr.Kopka@ncbj.gov.pl

The application documents in electronic form should be sent to: piotr.kopka@ncbj.gov.pl

As an attachment to your application please sign & enclose the following declarations:

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I agree for my personal data included in the application documents to be processed by National Centre for Nuclear Research with its registered office in Otwock, 7 Andrzej Sołtan Street, 05-420 Otwock, for a period of 12 months from their submission, in order to carry out future recruitment processes.

Others information:

We reserve the right to contact only selected candidates & the right to inform about the decision to fill the post only to the selected candidate.

At NCBJ there is the internal procedure for the report of breaches of law. Anyone interested in its content can access it at any time on the website: https://www.ncbj.gov.pl/sites/default/files/prasa/INTERNAL%20NOTIFICATION%20PROCEDURE.pdf

Information in accordance with Article 13 RODO on the processing of personal data:

1. The Personal Data Controller of your personal data is the National Centre for Nuclear Research (hereinafter referred to as Controller or NCBJ) with its registered office in Otwock, 7 Andrzej Sołtan Street, 05-400 Otwock.
2. Your personal data will be processed for recruitment purposes on the basis of applicable law, including the Labour Code. Data not required by law, provided by you in your documents, will be processed on the basis of your consent. Your consent is given by the transfer of this data.

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The National Centre for Nuclear Research is awarded by "HR Excellence in Research". Recruitment is based on OTM-R system (Open, Transparent and Merit-based recruitment practices in Research Performing Organisations).