

Lublin, 13 October 2026

OPEN CALL

for a postdoctoral researcher in the NCN SONATA 21 research project

Lublin University of Technology announces an open competition for a postdoctoral researcher position in a research project funded by the National Science Centre, Poland (NCN).

The competition is open to **candidates holding a doctoral degree** and concerns research work in NCN project No. **DEC-2025/59/D/ST11/00238**, entitled *“Analysis of the antiplane shear fracture of elastically coupled composite laminates by using integration of the acoustic emission technique and machine learning algorithms”* (hereinafter referred to as the Project). The Project is carried out at the Department of Fundamentals of Production Engineering, Faculty of Mechanical Engineering, Lublin University of Technology.

Conditions of the competition

The competition is open to candidates who meet the requirements for employment in a postdoctoral position set out in the “Regulations on awarding funding for research tasks financed by the National Science Centre in the form of research projects”, in the version annexed to NCN Council Resolution No. 18/2026 of 12 February 2026, in particular the conditions specified in section 2.1.1 of Annex No. 2, “Costs in research projects” (https://ncn.gov.pl/sites/default/files/pliki/uchwaly-rady/2026/uchwala18_2026-zal1.pdf).

Employment conditions

1. **Number of positions:** 1.
2. **Employment period:** 1 January 2027–31 December 2027.
3. **Gross remuneration for the Project implementation period:** PLN 140,000.
4. **Expected starting date:** 1 January 2027.
5. **Place of employment:** Lublin University of Technology, Lublin, Poland.

Selection procedure

The recruitment procedure will include:

1. Evaluation of submitted applications, taking into account the candidates’ scientific achievements, qualifications and experience relevant to the Project.
2. Assessment of candidates’ competences to perform the specified research tasks through interviews with shortlisted applicants. Online interviews are permitted.

Applications should be submitted electronically to **j.rzeczkowski@pollub.pl** no later than **8 November 2026, at 15:00**.

Interviews will be conducted within seven days after the application deadline. Candidates will be informed of the interview date by email.

Required documents

1. Curriculum vitae (CV), including a list of scientific publications, research achievements and distinctions.
2. Motivation letter describing the candidate's research interests and suitability for the position.
3. Copy of the PhD diploma or another official document confirming the award of the doctoral degree.
4. Brief description of previous research experience, particularly in finite element modelling, fracture mechanics and scientific programming.
5. Language certificates, if available.

Responsibilities of the postdoctoral researcher

1. Conducting research in accordance with the Project schedule and the instructions of the Principal Investigator.
2. Performing the research tasks assigned to the postdoctoral position, with particular emphasis on finite element modelling of delamination processes.
3. Cooperating with other members of the research team in numerical and experimental investigations.
4. Preparing research reports and documenting the results of the assigned tasks.
5. Participating in the preparation of scientific articles and dissemination of research results.
6. Performing other research-related duties necessary for the successful completion of the assigned Project tasks.

Requirements, skills and personal qualifications

1. PhD degree in mechanical engineering, materials engineering, computational mechanics, aerospace engineering or a related discipline.
2. Advanced knowledge of finite element modelling and computational mechanics.
3. Practical experience in the use of Abaqus/Ansys for nonlinear structural or material analysis.
4. Knowledge of fracture mechanics, damage modelling and crack propagation.
5. Experience with finite element techniques for delamination modelling, particularly the Virtual Crack Closure Technique (VCCT) and Cohesive Zone Modelling (CZM).
6. Experience in developing Abaqus user subroutines, particularly UMAT or VUMAT.
7. Practical programming skills in Python, including scripting and automation of numerical analyses.
8. Ability to analyse numerical results, prepare scientific reports and present research findings.
9. Ability to work independently and as part of a research team, with good communication skills, reliability and timely completion of assigned tasks.
10. Fluency in written and spoken English.

Experience in modelling fibre-reinforced polymer composites or experimental fracture mechanics will be considered an additional advantage.

Description of research tasks

1. Development of three-dimensional finite element models of elastically coupled composite laminates.
2. Numerical simulation of delamination initiation and propagation in Split Cantilever Beam (SCB) and Edge Crack Torsion (ECT) test configurations.
3. Application of VCCT and CZM techniques to analyse interlaminar fracture processes.
4. Development and implementation of Abaqus VUMAT subroutines to describe elastically coupled material behaviour.
5. Investigation of the influence of laminate stacking sequences and boundary conditions on fracture mode decomposition, particularly the contribution of Mode III.
6. Development of Python scripts for finite element model generation, numerical analysis and results post-processing.
7. Assistance in experimental tests and cooperation with the research team to validate numerical models.
8. Preparation of reports and contribution to scientific publications presenting the research results.

This competition announcement will be published on the website of Lublin University of Technology and through the appropriate recruitment channels, in accordance with the applicable NCN regulations.