ADAM MICKIEWICZ UNIVERSITY POZNAŃ

EPICUR EUROPEAN UNIVERSITY

RESEARCH UNIVERSITY EXCELLENCE INITIATIVE

HR EXCELLENCE IN RESEARCH

Changing the present to make a difference in the future

— Mission of AMU —

We create a working environment supporting both male and female scientists

— HR Excellence in Research —

VICE-RECTOR

for Human Resources and Doctoral Schools

at the Adam Mickiewicz University, Poznan

announces a competition for the position of:

POSTDOCTORAL RESEARCHER

in the NCN SONATA Bis project:

Nanomechanics of van der Waals materials, molecular layers, and heterostructures

at the Faculty of Physics and Astronomy

Basic information

1. Competition reference number	UMO-2024/54/E/ST3/00232_Konkurs3
2. Research discipline	Physics
3. Number of work hours per week	Full-time position, 40h/week in a task-based work time system.
4. Monthly salary	
a. Basic salary	14 500 PLN/month
b. Other remuneration components	AMU Remuneration Regulations
5. Type of an employment contract and expected duration of employment	Fixed-term contract for 2 years
6. Anticipated job starting date	**01.09.2026**
7. Workplace location	Faculty of Physics and Astronomy, Collegium Physicum
8. Work rules	AMU Work Regulations
9. Application deadline and process	Electronic submission to bartlomiej.graczykowski@amu.edu.pl. Application deadline: 17.05.2026.

10. Required documents	■ **Submission of the candidate's application to the call** (email with the project number in the subject line: UMO-2024/54/E/ST3/00232_Konkurs3. ■ **Curriculum Vitae** including information on scientific achievements (max. 3 A4 pages). ■ Diplomas or certificates issued by colleges and universities attesting to education and degrees or titles held (in case of academic degrees obtained abroad - the documents must meet the equivalence criteria set out in Article 328 of the Act of 20 July 2018 Law on Higher Education and Science (Journal of Laws of 2023, item 742 Polish: Dziennik Ustaw 2024 poz. 1571 t.j.). ■ **Two letters of support.** ■ **The email body must include consent to the processing of personal data as follows:** In accordance with Article 6 (1) (a) of the General Data Protection Regulation of 27 April 2016. (OJ EU L 119/1 of 4 May 2016) I consent to the processing of personal data other than: first name, (first names) and surname; parents' first names; date of birth; place of residence (mailing address); education; previous employment history, included in my job offer for the purpose of the current recruitment."

Conditions of the competition determined by the competition committee

I. Determination of qualifications according to the Euraxess guidelines	☒ **R2** Recognised Researcher (PhD holders or equivalent who are not yet fully independent)
II. Job offer description	In the last decade, two-dimensional van der Waals (vdW) materials, sparked by the "graphene revolution", have become a major direction in modern technology development. At the same time, it has become increasingly clear that the mechanical fragility of 2D materials remains a key challenge for their scalable manufacturing and deployment in durable, real-world devices. In this context, several fundamental questions arise: • Can we build an unambiguous and comprehensive empirical knowledge base that enables predictive design and fabrication of mechanically robust 2D vdW structures? • What drives the discrepancy between the frequently reported, exceptionally high mechanical properties of vdW materials and today's limited ability to

manufacture durable structures at the technological scale?

- Do we have experimental tools for a consistent and complete mechanical assessment of vdW materials across the full thickness range, from bulk crystals, through thin layers and membranes, down to single molecular layers and their heterostructures?

The aim of this project is to address this challenge by investigating the nanomechanical properties of vdW materials, from macroscopic crystals to monolayers, using state-of-the-art optical tools. We will focus on transition-metal dichalcogenides (TMDCs) and perform a comprehensive study of how spatial confinement, interlayer twist, and strain affect the intrinsic elasticity of freestanding vdW structures and heterostructures.

To achieve this, we will develop a new, contact-free experimental platform based on fully optical inelastic light-scattering methods probing thermal and non-thermal phonons/acoustic waves. This approach will provide fundamental insight into the anisotropic elastic properties of TMDC monolayers and their stacked heterostructures (multilayers). The project's breakthrough potential stems from a contact-free, non-destructive methodology based on Brillouin light scattering, which we will advance toward the technological and physical limits of precision.

The postdoctoral researcher's tasks will include:

1. Setting up the experimental system for the fabrication of vdW monolayers and membranes.
2. Preparing samples from vdW single crystals (thin layers, membranes, and heterostructures).
3. Characterizing samples using Brillouin and Raman light-scattering techniques as well as SEM, TEM, and AFM microscopy.
4. Reporting results, preparing manuscripts for publication, and presenting findings at conferences and seminars.
5. Short-term international research visits (approx. one month per year) focused on sample fabrication (Spain, the Netherlands, and Japan).

III. Requirments and qualifications

The competition is open to individuals who meet the requirements specified in Article 113 of the Law on Higher Education and Science of 20 July 2018 (Journal of Laws of 2024, item 1571, Article 113 as amended) and who meet the following requirements:

1. **Ph.D. in Physics.**
2. Fulfilled formal requirements regarding the date of obtaining the doctoral degree in accordance with the regulations of the National Science Center https://www.ncn.gov.pl/sites/default/files/pliki/uchwaly-rady/2021/uchwala81_2021-zal1.pdf. Persons without a doctoral degree may apply, provided they plan their

	defense no later than the date of signing the employment contract. 3. Proven experience in writing scientific publications. 4. In the case of a person who does not yet have a doctoral degree, a certificate of the planned date of defense.
IV. Required languages	English – fluent or native
V. Required research experience	1. **Ph.D. in Physics recognized in Poland** (https://kwalifikator.nawa.gov.pl/). 2. Experience in independent preparation of nanomaterials (thin films/layers, membranes). 3. Experience with Raman (and Brillouin) scattering, SEM, TEM, and AFM imaging techniques. 4. Experience in building and automating optical systems using lasers. 5. Independence, good work organization, and ability to work in a team. 6. Availability: The project includes research in teams of project partners 7. Experience in writing scientific publications and conference presentations. 8. Knowledge of software such as: Mathematica, Matlab (or LabView), OriginLab, COMSOL, CorelDraw, LaTex. 9. An additional advantage will be knowledge of issues from solid-state mechanics, polymer physics, heat transport, and nanofabrication.
VI. Benefits	■ supporting employees with disabilities ■ flexible working hours ■ funding for language learning ■ co-financing of training and courses ■ pension plan ■ savings and investment fund ■ preferential loans ■ additional social benefits ■ leisure-time funding ■ subsidizing children's vacations ■ "13th" salary ■ healthcare package
VII. Eligibility criteria	1. Compatibility of the candidate's scientific profile with the advertisement (40/100 points). 2. Number, scientific level and thematic compatibility of the candidate's scientific publications and presentations (40/100 points). 3. Assessment on the doctoral diploma (10/100 points). 4. Internships and participation in research projects (10/100 points).

VIII. The selection process	1. Competition committee begins working no later than 14 days after the deadline for submission of documents. 2. Formal evaluation of submitted proposals. 3. Call to provide additional or missing documents if necessary. 4. Selection of candidates for the interview stage (score above 75/100 points). 5. Interviews for candidates who meet the formal requirements and have at least 75/100 points. 6. The chair of the competition committee announces the results and informs the candidates. This information will include a justification referencing the candidates' strengths and weaknesses. **NOTE:** Applications must include the reference number in the email subject line and consent to the processing of personal data in the email body. Applications that do not meet these requirements will not be considered.
IX. Prospects for professional development	1. Supervision in building a scientific profile through the publication in high-impact scientific journals, 2. Assistance in writing grant applications in domestic (FNP, NCN) and foreign (MSCA, Humboldt) research projects, 3. Establishing cooperation with renowned research centers in the world.

RODO Information Clause

Pursuant to Article 13 of the General Data Protection Regulation of 27 April 2016. (Official Journal of the EU L 119 of 04.05.2016) we inform that:

1. The controller of your personal data is Adam Mickiewicz University, Poznań with the official seat: ul. Henryka Wieniawskiego 1, 61 - 712 Poznań.
2. The personal data controller has appointed a Data Protection Officer overseeing the correctness of the processing of personal data, who can be contacted via e-mail: iod@amu.edu.pl.
3. The purpose of processing your personal data is to carry out the recruitment process for the indicated job position.
4. The legal basis for the processing of your personal data is Article 6(1)(a) of the General Data Protection Regulation of 27 April 2016 and the Labour Code of 26 June 1974. (Journal of Laws of 1998 N21, item 94 as amended).
5. Your personal data will be stored for a period of 6 months from the end of the recruitment process.
6. Your personal data will not be made available to other entities, with the exception of entities authorized by law. Access to your data will be given to persons authorized by the Controller to process them in the performance of their duties.
7. You have the right to access your data and, subject to the law, the right to rectification, erasure, restriction of processing, the right to data portability, the right to object to processing, the right to withdraw consent at any time.
8. You have the right to lodge a complaint to the supervisory authority - the Chairman of the Office for Personal Data Protection, ul.Stawki 2, 00 - 193 Warsaw.
9. Providing personal data is mandatory under the law, otherwise it is voluntary.
10. Your personal data will not be processed by automated means and will not be subject to profiling.

Procedure for reporting violations of the law

Recruitment: Positions and Competitions for Academic Teachers: Information on the internal reporting procedure referred to in the Act of 14 June 2024 on the Protection of Whistleblowers (Journal of Laws, item 928), announced by Regulation No. 5/2023/2024 of the Rector of Adam Mickiewicz University, Poznań of 17 September 2024 concerning the introduction of the Internal Reporting Regulations regarding the breach of law and follow-up actions at Adam Mickiewicz University, Poznań. Below are links to the regulation together with its annexes:

Ordinance No. 5/2023/2024
Rules for submissions
Information clause