

ADAM MICKIEWICZ UNIVERSITY, POZNAN

ANNOUNCES

A COMPETITION

for the position of Postdoctoral Researcher

at the NanoBioMedical Centre

Basic information

1. Research discipline (research field):

Physics, Chemistry, Material Science and Engineering

2. Number of work hours per week including a task-based work schedule (if applicable):

Full-time, 40 hours per week in a task-based work time system.

3. Type of an employment contract and expected duration of employment,

Fixed-term contract for **18 months - 1.5 years** (An extension for additional 18 months is considered according to performance)

4. Anticipated job starting date:

01.10.2022. (Or to be discussed)

5. Workplace location:

NanoBioMedical Centre, Wszechnicy Piastowskie 3, 61-614 Poznan.

6. Application deadline and process:

Electronic submission to coyeme@amu.edu.pl Application deadline: **15.09.2022**. Please note that the job reference number should be quoted in the application.

7. Required documents

- Application form/letter of the candidate (email);
- *Curriculum Vitae* (max. 5 pages A4);
- 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 2022, item 574 i.e. as amended; Polish: Dziennik Ustaw 2022 poz.574);
- Information on the Applicant's research (publication record and list of conferences attended), teaching and organizational achievements,

- Two reference letters.
- 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: (researcher profile) according to the Euraxess guidelines

(R2) Recognised Researcher (PhD holders or equivalent who are not yet fully independent)

(definition of qualification level and professional experience according to Euraxess guidelines <https://euraxess.ec.europa.eu/europe/career-development/training-researchers/research-profiles-descriptors>)

II) Job Offer description

The job offer refers to the position in the SONATA project (National Science Center) titled "Flexoelectricity in Photocatalysis: Photoflexocatalysis - FlexPho2" (Contract number: 2021/43/D/ST5/01116) under the supervision of dr hab. Emerson Coy, Prof. UAM.

Flexoelectricity is an effect that has gathered increasing attention in the past decade, due to its particular significance at the nanoscale. Flexoelectricity appears as a result of inhomogeneous strain applied to a nanomaterial. Contrary to other phenomena, such as piezoelectricity and ferroelectricity, this effect is not restricted by any geometry or crystalline order, which makes it promising in energy harvesting and ideal for nanoelectromechanical resonators. Recently, the existence of the so-called photoflexoelectric effect has been shown. This discovery is of tremendous importance for the energy production field since the measured photo enhancement of the flexoelectric response was thousands of times higher. The understanding of this effect and possible control could have game-changing implications for energy production and Catalysis.

In this Project -FlexPho2, the investigation of the photoflexoelectric effect on Strontium Titanate (STO) is proposed. STO is a well-known flexoelectric material, which has also been extensively researched as a photoanode in catalysis. Therefore, it aims to basic and fundamental research in the field. The project profits from a unique experimental set-up, developed by the PI, which allows the direct measurement of flexoelectric response by submicrometer oscillations. Additionally, with the successful application of the SONATA project, it might be capable of measuring this effect in liquids and under ultraviolet light irradiation.

The aim of the project is to investigate and determine the photoflexoelectric coefficient in STO and Barium Titanate films (BTO) towards photoflexoelectric catalytic applications.

The project proposes two approaches to achieve its goals: 1) The study and modification of the photocurrent response generated by STO bulk and BTO/STO films by nanoindentation patterning. 2) The direct observation of photoflexoelectric response of STO cantilevers during irradiation and mechanical stimulation. Focusing on their catalytic performance towards model dye decomposition and photocatalysis experiments. The successful SONATA project will provide pioneering studies and reference publications showing the applicability and potential of the photoflexoelectric in catalysis and energy production. These topics, without a doubt, will be heavily studied in the next decade.

III) Requirements 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 20th July 2018 (Journal of Laws of 2022, item 574) and who meet the following requirements:

1. PhD in physical, chemical sciences or materials engineering.

2. They 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 who do not have a doctoral degree may apply, provided they plan their defence no later than 15 August 2022.
3. Proven record of productivity and publications in indexed journals (at least two publications on topics related to the project);
4. Experience in at least three (3) of the following topics: photoelectrochemistry, thin films, ferroelectrics/piezoelectrics/flexoelectrics, Instrumentation/automation (Labview) and Nanotechnology (Electronics/Oxides).
5. Experience in the following techniques: SEM/TEM, XRD, Raman spectroscopy, chemical synthesis methods, (photo)electrochemistry investigation methods, nanoindentation and atomic force microscopy.

IV) Required languages

Language: English - Fluent

V) Required research, teaching or mixed experience

- Proven experience in photoelectrochemistry or ferroelectrics.
- Experience semiconductor materials and thin films.
- Independence, good organization of work, ability to work in a team.
- Experience in writing scientific publications and conference presentations.
- Excellent knowledge of relevant software such as: OriginLab, Labview, CorelDraw.
- Knowledge of nanofabrication, piezoelectrics or flexoelectric will be an additional advantage.

VI) Benefits

- ✓ financial bonuses for high-impact publications
- ✓ an atmosphere of respect and cooperation
- ✓ supporting employees with disabilities
- ✓ flexible working hours
- ✓ remote work applicable
- ✓ co-financing of language learning courses
- ✓ co-financing of training and courses
- ✓ additional days off for education
- ✓ life insurance
- ✓ pension plan
- ✓ savings and investment fund
- ✓ preferential loans
- ✓ additional social benefits
- ✓ leisure-time funding
- ✓ subsidizing children's vacations
- ✓ "13th" salary

VII) Eligibility criteria

1. Matching the candidate's scientific profile with the advertisement.
2. Number, scientific level of the candidate's scientific publications.
3. Number, scientific level and of the candidate's scientific conference presentations.
4. Grade on the diploma.
5. Internships and participation in research projects.

VIII) The selection process

1. The competition committee begins working no later than 14 days after the deadline for the 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.
5. Interviews for candidates who meet the formal requirements.

6. The chair of the competition committee announces the results and informs the candidates. This information will include justification with a reference to candidates' strengths and weaknesses. Submitted documents will be sent back to candidates.

IX) Prospects for professional development

- supervision in building a scientific profile through the publication in high-impact scientific journals,
- assistance in writing grant applications in domestic (FNP, NCN) and foreign (MSCA) research projects,
- establishing cooperation with renowned research centres 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.