FORM FOR EMPLOYERS

INSTITUTION: AGH University Of Krakow

DEPARTMENT: Institute of Electronics

CITY: Krakow

POSITION: post-doc research assistant

IN THE GROUP OF researchers

DISCIPLINE: biomedical engineering, biological sciences, chemical engineering, automation, electronics, electrical engineering and space technology

POSTED: 25.03.2025

EXPIRES: **27.04.2025**

WEBSITE: https://www.agh.edu.pl/o-agh/praca-w-agh

KEY WORDS: sensor, technology, biomarkers, detection of nanostructures

DESCRIPTION (field, expectations, comments):

Requirements:

1) Doctoral degree in biomedical engineering, biological sciences, mechanical engineering, automation, electronics, electrical engineering, and space technologies or related obtained in 2025,
2) degree: recognized researcher (R2),
3) **Minimum** one project realized as a principal investigator funded by external financial agency NCN, NCBR, MniSW, ERC
4) experience in working in interdisciplinary teams, including medical sciences,
5) English at B2/C1 level,
6) knowledge of additive manufacturing of organs-on-a-chip,
7) knowledge in the field of optical signal analysis,
8) knowledge of AI/ML machine learning techniques,
9) ability to program in Python, C++, C,
10) scientific and organizational achievements,
11) active participation in conferences and symposia,
12) knowledge of biosensory approaches,
13) general knowledge of biosensors,
14) ability to prepare samples and biosamples.

The candidate will be responsible for preparing the test bench for the analysis of optical signals and for modeling optical metamaterials at the nanoscale based on lithograph-free, quasi-ordered arrays of plasmonic nanoantennas obtained with TDW/GLAD, development of plasmonic metasurfaces that will be optimized (e.g. metallic layer thickness, all-metal stacks or metal-dielectric) to achieve maximum surface sensitivity for low molecular weight biomarker biorecognition events at low concentrations (range from picomolar to nanomolar), with particular emphasis on biomarkers associated with diabetes and liver failure (such as insulin and interleukin-6) in organ-on-chip models, for developing manufacturing processes that will result in highly ordered and reproducible plasmonic metasurfaces between batches, taking into account various deposition

parameters (e.g. deposition rate, substrate temperature, chamber pressure and substrate rotation, among others), for designing biointerfaces with highly antifouling properties that will enable direct and targeted chemical-based antibody attachment using dedicated G protein and polymer brushes. Research experiments should make it possible to determine the limit of detection, specificity and selectivity of biosensors. The sensor response will be realized on the candidate-designed and developed optical system and the forthcoming commercially available reference measurements, for designing a digital signal processing method to analyze the sensor's optical response for potential real-time monitoring and multiplexing capabilities, taking into account the various potential applications of metaplasmonic substrates in other techniques such as amplified surface Raman spectroscopy and FTIR spectrophotometry. Experience required for technology of metal/metal oxide deposition with the utilization of magnetron sputtering technology, for optical analysis of SPR/LSPR sensors, and for sensor technology in general. Employment under a contract of employment fully financed by the NCN.

DOCUMENTS REQUIRED:

1) application, CV, personal questionnaire,
2) a copy of diplomas or other certificates confirming qualifications,
3) list of scientific achievements (list of publications: books, articles, papers published in conference materials, etc.; list of research and practical studies, patents, etc.) and organizational achievements (list of functions performed in the past and present, at the university or outside the university, etc.),
4) supervisor's opinion or opinion from a previous workplace or interim evaluation,
5) a document confirming language proficiency at least at B-2 level.

The candidate must fulfil the following requirements defined in the Polish Law on Higher Education:

1) possesses qualifications defined in the Law,
2) has full legal capacity,
3) has not been punished by final court judgement for intentional offence,
4) enjoys full public rights.

DOCUMENTS MUST BE SUBMITTED by email: rydosz@agh.edu.pl not later than **27.04.2025.**

Result announcement not later than **28.04.2025.**

The AGH University will be the candidate’s main place of employment.

*The AGH University of Science and Technology does not r*equire *you to provide any information or data other than those resulting from the applicable law (name/names, surname, date of birth, contact details, education, professional qualifications and employment history). However, if you choose to include your photograph or any other information, please fill in and attach this statement of consent to the processing of personal data, which constitutes an attachment to this information.*

The controller of your personal data processed in order to carry out the recruitment process for the above-mentioned position is the Stanisław Staszic AGH University of Science and Technology in Krakow, al. A. Mickiewicza 30, 30-059 Krakow. You can read the full information concerning the processing of your personal data on the AGH University of Science and Technology’s website after going to the “Protection of personal data” tab at (https://www.agh.edu.pl/ochrona-danych-osobowych).

The University reserves the right not to settle the competition without providing any reason or justification.

Winning the competition is not tantamount to ensuring the candidate's employment. The result of the competition serves solely as a recommendation to the Rector in this regard. The final decision concerning the employment will be made by the Rector.

Cracow, date.....

.....
name and last name

CONSENT TO PERSONAL DATA PROCESSING

(recruitment - employee)

By virtue of Article 7 of the Regulation of the European Parliament and Council (EU) 2016/679 of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC, hereinafter referred to as "GDPR", I hereby give my consent to the processing of my personal data other than the data mentioned in Article 22^1 § 1 of the Labour Code and contained in my CV and other application documents, and to the reproduction of my physical likeness for the purposes of recruitment and selection for the position of ……

Additionally, I hereby represent that the request for consent has been presented in an explicit and clear form and that I have been informed about a possibility of withdrawing my consent at any time as well as about consent accountability. I have also been informed about the fact that the data are collected by **AGH University of Science and Technology**, **al. A. Mickiewicza 30, 30-059 Krakow,** the purpose of their collection, freedom of their disclosure, and the right to access and rectify the data.

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Date and signature