



**COMPETITION FOR POST-DOC POSITION ASSISTANT PROFESSOR
("ADIUNKT" IN POLISH, POST-DOC) RESEARCH PROJECT CONTRACTOR) IN
THE DIVISION OF BIOMEDICAL PHYSICOCHEMISTRY**

INSTITUTION: Institute of Low Temperature and Structure Research, Polish Academy of Sciences

CITY: Wrocław

POSITION: post-doctoral fellow – co-investigator in research project (assistant professor ("adiunkt" in polish, post-doc) research project contractor)

DISCIPLINE: physical sciences

POSTED: 05th January 2023

EXPIRES: 14th April 2023

WEBPAGE: <https://www.intibs.pl/en/>

KEYWORDS: LUMINESCENCE, MICROSCOPY, IMAGING, SUPERESOLUTION IMAGING, PHOTON AVALANCHE, LANTHANIDE NANOPARTICLES, NANOBIO TECHNOLOGY, LANTANOWCE

DESCRIPTION

Job summary: Division of Biomedical Physicochemistry , Institute of Low Temperature and Structural Research Polish Academy of Sciences in Wrocław (group leader prof. dr hab. Artur Bednarkiewicz) is offering position of assistant professor (post-doc) within the National Science Centre OPUS 22 grant entitled ***"Sensitized Photon Avalanche Emission in lanthanide doped colloidal core-shell nanoparticles: novel materials for superresolution imaging "***.

The objective of the project is to develop and study a sensitized photon avalanche phenomenon in lanthanide doped luminescent nanoparticles for its potential use in single beam super-resolution imaging. First, a wide range of appropriate luminescent colloidal nano-/micro-materials will be synthesized and characterized in terms of structure, morphology and fundamental spectral properties. Next, these materials will be versatily characterized, searching for photon avalanche features (e.g. high non-

linearity, slow emission build up time etc.). For the latter, a unique and dedicated optical setup for temperature and excitation power dependent spectra and luminescence kinetics studies has been developed recently using fluorescence microscope, temperature chamber, photon counters etc. that enables to automate some routine measurements. Within the new project, another dedicated optical instruments will be developed to study the most promising materials for photon avalanche super-resolution imaging (PASSI).

We are looking for a highly motivated, well organized and diligent postdoctoral candidate with background in physics, optics, optoelectronics, spectroscopy (bio-spectroscopy, fluorescence) or similar and possibly with some basic experience in biology.

The successful candidate will join an interdisciplinary team of scientist and will be responsible for designing, constructing and testing optical instruments (multi-beam PASSI microscopes) and spectral characterisation of the obtained nanoparticles and modelling of its photophysical properties.

Responsibilities:

- Design, construction and testing of new optical systems (image acquisition, photon counting and analysis with EM-CCD camera/ Galvano-raster-scanned or piezo stage based imaging and the development of a new fluorescence multi-PASSI microscope. The work is related to localisation microscopy, structured illumination, STED microscopy and development of new methods and materials for superresolution microscopy.
- Characterisation of temperature and excitation power dependent properties of colloidal nanoparticles
- Data / image analysis, writing reports and scientific publications
- Cooperation with researchers, purchasing equipment, support and mentoring of PhD students

Requirements:

- PhD degree in physics - specialization in optics and optoelectronics and related fields
- Experience with design and optimisation of optical instruments (e.g. fluorescence, confocal, STED microscopes, optical setups)
- Experience in optical spectroscopy (fluorescence, biospectroscopy) and good knowledge of spectral instrumentation (spectrographs, cameras, microscopes, PMT/APD photodetectors, photodetection techniques)
- Experience in lasers and optoelectronics
- Experience in software development (C/C++, LabView, Matlab etc.) and electronic circuits development
- Experience in mentoring students is an advantage

Eligibility criteria:

- Enthusiasm, dedication and creativity measured, among others, by the quality and number of peer-reviewed publications and documented projects realized by the Candidate
- Mobility documented by fellowships, research internships (especially in foreign research institutions)
- Number of citations to the publications of the Candidate
- Experience in research related to the project, especially in microscopy systems, optical systems design and optimization, bio-spectroscopy
- Very good skills in spoken and written English
- Outstanding motivation for research

Application details:

- Job Starting date 3rd July 2023 (all formal duties, like visa and permission to work in Poland etc., must be fulfilled to start the position on the indicated date)
- Application deadline 14th April 2023
- How to apply: Send an application to intibs@intibs.pl with e-mail title "recruitment to SPA project"
- For more information contact: a.bednarkiewicz@intibs.pl
- Required Languages: English, Language level: very good

The competition will be held in line with the competition documentation of the National Science Center (NSC) for the NCN OPUS 22 project, including Attachment 79/2021 of the National Science Center dated 09.09.2021.

Recruitment procedure:

Complete application should include the following documents:

- scientific curriculum vitae, including a list of scientific achievements (scholarships, publications, patents, conference presentations, etc.).
- motivation letter
- recommendation letter(s)
- citation report (e.g. from Web of Science) including the number of publication, number of citation without self-citation, h-index of the Candidate
- the scanned diplomas or copies of diplomas in English or Polish (in the case of another language, an English translation must also be attached) which confirm the possession of a doctoral degree and a master's degree (in the case of a degree obtained abroad which is not recognized in Poland on the basis of international agreements, the candidate will apply to the Institute for its nostrification). Information about nostrification can be found under the following link:
https://nawa.gov.pl/images/users/642/Nostrification-of-academic-degrees_1.pdf
- An application for employment addressed to the Director of the Institute containing the clause: "I consent to the processing of my personal data contained in my job offer for the purposes necessary for the current recruitment process (in accordance with Article 6(1)(A) of the General Regulation of the European Parliament and of the Council (EU) 2016/679 of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data and repealing

Directive 95/46/EC and the Act of 10 May 2018 on personal data protection (Journal of Laws 2018, item 1000)".

The Recruitment Commission will take into account the following criteria:

- a. competences of candidates for specific tasks in a research project,
- b. previous scientific achievements of candidates,
- c. awards and distinctions of the candidate resulting from the conducted research.

The Commission evaluates applications on a point scale. In the first stage the submitted documents will be evaluated (50% of total points). Top candidates will be invited of interview (possible also via Skype/Zoom/MS Teams). Interview will be evaluated (50% of total scores).

The position will be awarded to the Candidate who obtains the highest number of points.

The results of the competition are made public.

The competition can be cancelled without a notice.

The candidate will be required to submit an authorization to be counted as a staff member conducting scientific activity at the Institute when signing the contract.

What is offered

- 6-month extendable to 30-month full time work contract in a well-equipped and modern laboratory
- Gross salary of ca. 8 272,67 PLN (which amounts to net salary of ca. 6300 PLN) per month financed by the NCN OPUS 22, 36 days of vacation, social security and health insurance within Institute, support in subscription to commercial medical centre.
- Work in the outstanding scientific institution in the dynamic and young research group with members representing diverse interests and qualifications – see details on the website: <http://lunasi.intibs.pl/>
- Participation in international conferences
- Engagement into an ambitious research program and possibility to build the scientific career

Information clause

Your personal data is collected and processed by the Institute of Low Temperature and Structure Research, Polish Academy of Sciences in Wrocław in accordance with the information on personal data processing available at: <https://bip.intibs.pl/artykuly/173/rodo>