



INSTITUTION: National Centre For Nuclear Research (NCBJ)

CITY: Warsaw

POSITION: **PhD student scholarship – Low surface brightness galaxies in the LSST era as a Big Data challenge**

DISCIPLINE: physics

POSTED: 10.07.2024

EXPIRES: 05.08.2024

WEBSITE <https://www.ncbj.gov.pl/en/praca/phd-student-scholarship-low-surface-brightness-galaxies-lsst-era-big-data-challenge>

KEY WORDS: astrophysics, physics

The National Centre for Nuclear Research (NCBJ) in Warsaw invites applications for a 4-year PhD scholarship centered around the subject of Low surface brightness galaxies in the LSST era as a Big Data challenge.

The upcoming Legacy Survey of Space and Time (LSST) will be the benchmark for the next decade, providing unprecedented depth and quality optical data on millions of galaxies, including low and high surface brightness galaxies (LSBGs and HSBGs, respectively). This PhD project focuses on the identification and classification of LSBGs, i.e. galaxies that are very diffuse and fainter than the typical night sky, using the LSST data.

Our team is an active member of the LSST collaboration with access to early data releases that will be available at the beginning of the year 2027. In the team, we have experts in the field of LSBGs, galaxy morphology, as well as SED fitting. Therefore, this PhD project offers a unique opportunity for the student to gain expertise in all these aspects. The results of this research will provide essential insights into the nature of very faint galaxies and their role in galaxy formation and evolution scenarios.

The scholarship will be funded from the NCN MAESTRO project “Barely Visible: Low Surface Brightness Universe in the LSST era,” led by Prof. Agnieszka Pollo.



Description:

The successful PhD candidate will develop and apply methods (in particular, but not only, methods based on different machine-learning-approaches) to identify LSBGs in optical data, starting from the existing survey data, with the aim to apply the developed methodologies to the coming LSST survey.

The next task will be to classify so-obtained catalogs of LSBGs into sub-populations and analyze the properties of these populations with the aim of understanding the physical reasons behind their diversity.

Contact: prof. Agnieszka Pollo (agnieszka.pollo@ncbj.gov.pl)

Requirements:

- MSc degree in physics, astronomy, astrophysics, computer science or equivalent (obtained not later than by the end of September 2024)
- A successful candidate is expected to be already skilled in programming, with a particular emphasis on machine learning applications.
- Previous expertise with handling astronomical data will be an additional asset.

Required documents:

- CV
- a short summary of research interests up to two pages
- the transcript of BSc and MSc courses grades,
- if applicable: list of publications, record of received training courses, internships, scholarships, participation in scientific conferences, received awards etc.,
- a copy of the MSc degree diploma (or of the BSc diploma, if the MSc degree has not been obtained yet)

As an attachment to your application please sign and enclose the following declaration:

„I hereby authorize you to process my personal data included in the job application for the needs of the recruitment process in accordance with the Personal Data Protection Act dated 29.08.1997 (uniform text: Journal of Laws of the Republic of Poland 2002 No 101, item 926 with further amendments).”

We offer:

- A scholarship of 5000 PLN gross per month will be paid for 48 months.
- Place of work: Pasteura Street 7, Warszawa

The application procedure:

Candidates should apply for this position through the registration system of the Graduate School of Physics at NCBJ (<http://gradschool.ncbj.gov.pl/>) and choose the physics research topic No 9 under the name “Low surface brightness galaxies in the LSST era as a Big Data challenge”.

To be considered for a PhD position, the candidate should first pass the entry exam in physics (in English or Polish).

Only the applicants that passed the exam will be qualified for the second stage of the recruitment.

For more information about the Graduate School admission rules please check <https://gradschool.ncbj.gov.pl/overview-2/>

Date of notification of the results: 01.09.2024 r.

Starting date of the contract: 01.10.2024 r.

Additional comments:

Submitted documents will not be returned. We will contact selected candidates.

Information in accordance with Article 13 RODO on the processing of personal data:

1. The Personal Data Controller of your personal data is the National Centre for Nuclear Research (hereinafter referred to as Controller or NCBJ) with its registered office in Otwock, 7 Andrzej Sołtana Street, 05-400 Otwock.
2. Your personal data will be processed for recruitment purposes on the basis of applicable law, including the Labour Code. Data not required by law, provided by you in your documents, will be processed on the basis of your consent. Your consent is given by the transfer of this data.
3. The full content of the information clause of Article 13 RODO is available at <https://www.ncbj.gov.pl/en/information-clause-personal-data-processing>



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