

Project title:

Imaging using Quantum Optical Coherence Tomography

Position:

Scholarship Student

Number of positions: 1

City: Toruń

Website: <https://www.fizyka.umk.pl/en/>

Requirements:

- Master's Degree in Physics or a relevant discipline.
- Background in theoretical and experimental physics.
- Knowledge of Optical Coherence Tomography or Quantum Optical Coherence Tomography preferred but not mandatory

Description of duties:

The student's aim will be to participate in the development and optimization of advanced Quantum Optical Coherence Tomography (Q-OCT) systems, in particular a Swept Source Quantum OCT (SS-Q-OCT) setup integrated with the existing Fourier-domain Quantum OCT (Fd-Q-OCT) system. The student will work on improving imaging speed, sensitivity, and artefact suppression, including the analysis and mitigation of dispersion effects. The research will also involve experimental work with entangled-photon-based imaging systems, optimization of experimental parameters, and attempts at biological imaging within the framework of the project "Advancing light-based imaging using Quantum Optical Coherence Tomography and Machine Learning".

Tasks:

- A Swept Source Quantum OCT will be developed, allowing comfortable switching with the existing a Fd-Q-OCT.
- Optimization of experimental parameters for maximum speed and sensitivity.
- Biological imaging will be attempted.

Competition type: Opus

Field of science: ST

Application deadline: 25 June 2026, 23:59

Application form: e-mail

Employment conditions:

A scholarship in the amount of PLN 5,000 gross per month (PLN 6,500 gross per month after the mid-term evaluation) for a period of up to 48 months. The remuneration will amount to PLN 5,000 before the mid-term evaluation and PLN 6,500 after the mid-term evaluation.

Planned period of employment: up to 48 months , **1 October 2026–30 September 2030**

Additional information:

The scholarship is awarded in accordance with the rules set out in the Regulations on the Award of Research Scholarships of the National Science Centre, adopted by Resolution No. 25/2024 of the Council of the National Science Centre dated 4 March 2024..

Required documents (please send these to the project manager's email address: kolenderski@fizyka.umk.pl , with the subject line 'Opus 29.1'):

- Cover letter
- CV
- Copies of obtained diplomas and certificates (if any)
- Copy or scan of candidate's publications (if any)
- Information about scientific awards, scholarships and other distinctions (if any)
- Description of current research activity (if applicable)
- Consent to the processing of personal data (https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.umk.pl%2Fuczelnia%2Fiod%2FKonkurs_EN.docx&wdOrigin=BROWSELINK).
- Certificate of student status

Applicants will be evaluated by a selection committee appointed by the Dean of the Faculty of Physics, Astronomy and Informatics. The committee will recommend the awarding (or rejection) of the scholarship no later than 26 June 2026.

Candidates will be notified of the outcome of the competition by e-mail.

In the event of resignation of the selected candidate, the right to indicate the next candidate from the ranking list is reserved.

All documents should contain the candidate's signature or its scan.

Language of application: Polish or English.