

Project: [PHAICELL] *Coherent quantitative phase microscopy: revisiting the basics and proposing novel numerical reconstruction methods with applications for advanced label-free bio-imaging*

Principal Investigator: dr. Maciej Trusiak

Position in the Project: Postdoctoral Researcher in the Institute of Micromechanics and Photonics.

Institution: Photonics Engineering Division, Institute of Micromechanics and Photonics, Faculty of Mechatronics, Warsaw University of Technology.

Requirements:

1. PhD degree in the field of Optics, Physics, Data Sciences or Biomedical Engineering (obtained not later than 7 years before this call).
2. Expertise in optical design of microscopes and interferometers. Very good experimental skills.
3. Very good knowledge of Matlab/Python/LabView environments.
4. Outstanding track record, documented unique optonumerical skills. Expertise in the field of coherent optical measurement methods, microscopy and complex amplitude retrieval.
5. Fluent English.
6. Strong motivation and passion for scientific work both independently and as a part of a team in an interdisciplinary environment, with the ability to creatively propose solutions to problems at hand, pay close attention to detail and to meet deadlines.
7. Excellent soft skills.
8. Experience in dissemination of research results to the scientific community, writing grant proposals and establishing international cooperation.

General description of key responsibilities:

The project aims at investigating the limits of the quantitative phase imaging, pushing them via novel phase demodulation algorithm, and proposing new applications for biomedical imaging of live specimen. Postdoctoral Researcher will be responsible for

- developing and optimizing experimental setup (WUTscope 2.0) of the grating shearing interference microscope aided by coherence-engineered light source and novel numerical reconstruction framework;
- implementing data acquisition and modifying interferogram analysis procedures,
- testing various biological objects in close cooperation with project Partners using the developed software and hardware,
- developing 3D printed mobile WUTscope 2.0 platform,
- testing and optimizing novel 2D fast adaptive local iterative filtering method for local frequency-guided interferogram analysis enabling significantly increased SNR (signal-to-noise ratio) and SBP (space-bandwidth product) of quantitative phase reconstruction; studying Bedrosian theorem violation.

A successful dissemination of results to the scientific community is expected. Moreover, co-supervising PhD students and Master students will be required. Establishing and expanding international cooperation within the project will be most welcomed.

What we offer:

1. Employment contract and competitive remuneration package.
2. Work in dynamic and competent scientific group with excellent research environment and international cooperation promoting publications in high impact journals.
3. Financial support of abroad scientific visits and attending conferences.
4. Encouragement and support in preparing grant applications.

Type of NCN Project: OPUS – ST.

Application deadline: 31.03.2021, 23:59. Results available on 19.04.2021.

Please submit the following documents to: maciej.trusiak@pw.edu.pl

Conditions of employment:

Full time position for 36 months at Institute of Micromechanics and Photonics, Warsaw University of Technology. Total remuneration of 10000 PLN per month (“brutto brutto” NCN-regulated postdoc salary).

Preferred time of starting the position: 1st June 2021.

If your application is successful and you accept our offer of employment, you will receive the employment agreement and all other relevant documents. The call deadline may be extended at any time without previous notice to improve the suitability and effectiveness of the recruitment process.

Additional information:

Motivation letter (in English).

CV (in English).

PhD thesis and PhD degree confirmation.

Contact details of the scientific supervisor and other referees (if available).

To apply, please send your application, including motivation letter, CV with the list of your publications and achievements, PhD thesis and a copy of PhD degree or equivalent confirmation of having PhD degree alongside with contact information to the scientific supervisor and other referees (if available) to the following e-mail address: maciej.trusiak@pw.edu.pl until the 31.03.2021. Applications from PhD students that will receive their degree before 1 June 2021 are also welcomed.

We thank all applicants for their interest, however, only selected candidates may be invited for an interview. Applications will be accepted until the position is filled. If the winner of the competition resigns from signing the contract, we reserve the right to choose the next best person from the ranking list.

Due to the entry into force of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, all candidates are requested to provide consent to the processing of his or her personal data by the institution which carries out the recruitment process.

Thus, please include in your application the following statement: “I hereby agree to the processing of my data included in the application documents by Warsaw University of Technology, Warsaw, Poland, to carry out the recruitment process.”

Your personal data is processed on the basis of the Article 6 Part 1 Points (c) and (f) of the Regulation (EU) 2016/679 of the European Parliament and of the Council 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 (GDPR; Official Journal of the European Union L 119/1).