



A technical specialist (MSc or MScEng) with experience in microfluidics and/or optics

About the Dioscuri Centre

The Centre's main objective is to better understand the growth and evolution of pathogenic cells in human diseases from the chemistry and physics viewpoint. While most of the group works on bacterial infections, the Centre is also developing a research programme in cancer biology. In particular, we would like to improve the knowledge of mechanisms that lead to resistance to cancer chemotherapy. The members of the Centre use experimental *in vitro* models, computer simulations and mathematical theory to create data driven, quantitative models of bacterial infections and cancer. We anticipate that these models can help to develop new treatment modalities. To facilitate translation from the bench to the bedside, the Centre collaborates with biological and biomedical researchers and with industrial partners.

The Centre is co-funded by the Polish Ministry of Science and Higher Education and the German Federal Ministry of Education and Research, with additional support coming from NAWA and POLS.

To find out more please visit <https://dioscuricentrebacteria.com>

Key responsibilities:

Designing and building experimental set-ups in close collaboration with the Dioscuri team. This will involve deciding (with the supervisor) on how to translate a set of experimental objectives into an experimental kit (a microfluidic device, a simple custom-made microscope, etc.), formulating a strategy for day-to-day work, implementing the strategy (without close supervision) and reporting progress to the supervisor and other research team members.

What do we offer:

A successful candidate will support our post-doctoral researchers working on experimental *in vitro* models of bacterial infections. In particular, the candidate will have the opportunity to contribute to the following projects:

- Microfluidics-based device for co-culturing bacteria and animal epithelial cells
- Novel optical methods for accurate, real-time, *in situ* measurement of bacterial growth in opaque fluids, and inside animal cells
- Microfluidics for detection and phenotypic profiling of antibiotic-resistant mutants

The successful candidate will benefit from working in an international, interdisciplinary research group, a newly refurbished, modern lab and office space, and a competitive salary of 7000 PLN gross/month

The position is for 6 months, with the possibility of extension for another 6 months. The position can be converted to a fully-funded PhD position, subject to excellent performance.



Requirements:

Essential

- Msc or MScEng in physics, chemistry or engineering
- Hands-on experience with optical systems and/or microfluidics
- Very good academic achievements as evidenced by academic transcript.
- Ability to communicate in English orally and in writing.
- Enthusiasm for learning new techniques
- Ability to propose and develop new ideas for technical improvements of experimental set-ups.
- Ability to develop and maintain effective working relationships.

Desirable

- Basic experience in biological physics, bioengineering, soft matter, physical chemistry, microbiology, or another related topic.
- Experience with AutoCAD or similar, programming language such as Python, Java, or C++
- Experience with programming microcontrollers such as Arduino or R-Pi.
- Experience (via a Master's project, summer internship, or work) in one or more of the following areas: optical imaging (microscopy: imaging biological samples, image processing, building DIY microscopes); bioreactors (chemostats, turbidostats); continuous-flow microfluidics
- Ability to work hard and organise work so as to perform multiple tasks simultaneously.
- Ability to maintain a clean and well-organised laboratory environment.
- Potential for career advancement as a PhD student.

Required documents:

- motivation letter
- professional curriculum vitae
- list of publications
- personal data processing consent
- reference letter would be an

All documents (including the reference letters) should be emailed to rekrutacja@ichf.edu.pl quoting "Rekrutacja nr 27/2022" in the subject line.

Application deadline: 17/08/2022

Start date: 1 October 2022 or later at a mutually agreed date.