

PhD student in bio-optics (f/m/d)

The Chair of Biological Imaging (CBI) at the Technical University of Munich (TUM) and the Institute of Biological and Medical Imaging (IBMI) at Helmholtz Munich are an integrated, multi-disciplinary research structure and form the cornerstone of a rapidly expanding bioengineering ecosystem in Munich, Germany; including the Research Center TranslaTUM and the Helmholtz Pioneer Campus, which integrate bioengineering with oncology and metabolic disorders, respectively. CBI scientists develop next-generation imaging and sensing methods to measure previously inaccessible properties of living systems, hence, catalyzing breakthroughs in biology, medicine and the environment. Comprising 11 inter-disciplinary laboratories and scientists from more than 25 countries, CBI offers state-of-the-art infrastructure for innovative research and a perfect environment to accelerate your career.

Join our team and be part of our rich and dynamic research culture of enquiry and innovation. CBI researchers come from the top ranks of physics, chemistry, engineering, and biomedicine and attract significant investment from national and international sources. Our scientists serve in international societies and conferences and are recipients of a multitude of top international and German awards, including the prestigious Gottfried Wilhelm Leibniz prize and 11 ERC awards. In addition to scientific excellence, CBI promotes entrepreneurship, company spin-off activities, and collaborations with other top academic institutions and leading corporations in the photonics, pharmaceuticals and healthcare sectors.

We now seek a highly qualified and motivated PhD student in bio-optics (f/m/d) to drive the development of novel imaging and sensing systems for non-invasive detection of metabolic parameters.

The Mission:

At CBI, we are reaching the next frontiers in label-free optical microscopy and non-invasive biosensing by development and application of mid-infrared optoacoustic imaging and spectroscopy that have a direct impact in the clinics. Optoacoustic sensing combines the high-contrast and high-resolution of optical excitation with the imaging depth of ultrasound detection. Additionally, the high-scalability and multidimensionality of optoacoustic imaging allows its combination with chemical-specific laser excitation that can be applied in living cells, animal models, and humans. To accomplish this, we develop innovative custom-built sensing technologies and apply state-of the-art laser technologies found in just few places around the world. Our main goal is to enhance the impact of biological/biomedical discovery promoting its swift transfer to the clinics.

The successful candidate will contribute in our developments toward **non-invasive detection of metabolic parameters**, as part of our highly impactful research programs backed by the European Union and the German government. You will be involved at every stage of sensors design, testing and application and the expected results will not only accelerate your scientific career, but they will also greatly impact society, improving the quality of life of patients world-wide and yielding a vast potential for commercial exploitation.

Your profile:

The successful applicant must have the following:

- Strong motivation, scientific curiosity and commitment to scientific excellence
- Master degree in Physics, Optics, Engineering, Medical Technology or a related field
- Outstanding academic study record
- Experience in optics and photonics, electronics and system integration, computation and data analysis, sensing and imaging
- Excellent programming skills (for example: Matlab, LabView, C/C++, Python, etc); in particular in real-world programming
- Team player skills and enthusiasm to work in a, collaborative, multi-disciplinary, and highly-competitive environment
- Excellent communication skills
- Excellent command of the English language written and spoken

The following qualifications are considered advantageous:

- Proven experience in experimental research
- Basic knowledge of microscopic imaging
- Practical experience with laser-based optical systems
- Practical experience in hardware control, data acquisition and synchronization, system development and integration

Our offer:

We offer you the unique chance to make a difference in future healthcare. At IBMI, we strongly believe in scientific excellence and innovation. This is your opportunity to be part of and to advance your career in a world-leading research institute, where bioengineering principles meet today's challenges in biology, medicine and environmental health to develop the solutions of tomorrow. CBI provides a highly international, multi-disciplinary environment with excellent opportunities for professional growth. You will be part of a dynamic, professional and highly motivated team within a stimulating environment and gain international exposure through our partners and collaborators across Europe and the world. TUM offers a wide variety of inspiring and challenging PhD programs, which will supplement your research training with outstanding opportunities for career development, continued education and life-long learning.

Situated on the foothills of the Alps, Munich is consistently ranked as one of the most vibrant and enjoyable cities in the world, with an exceptionally quality of life. Greater Munich is also home to several world-class universities and research institutes, creating a truly inspiring intellectual atmosphere.

The successful applicant will initially have a 3-year contract, with the possibility of extension. Salary will commensurate with work experience and seniority (TV –L E13 -65%). As an equal opportunity and affirmative action employer, TUM explicitly encourages applications from women as well as from all others who would bring additional diversity dimensions to the university's research and teaching strategies. Qualified applicants with physical disabilities will be given preference.

Your application:

We are looking forward to receiving your comprehensive application including your letter of motivation, CV and academic transcripts of records preferably in English and in a single PDF file, via email to cbi.recruitment@tum.de. Please indicate **PhD student in Optics (f/m/d)** in the subject line.

For any question, please contact:

Prof. Dr. Miguel A. Pleitez

email: miguel.pleitez@tum.de

tel.: +49 89 4140 9024

Technical University of Munich (TUM)
Chair of Biological Imaging (CBI)
Ismaningerstr. 22
81675 Munich, Germany

Web page:

www.cbi.ei.tum.de

www.translatum.tum.de

www.pioneercampus.de

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