Chair of Biological Imaging
Technical University of Munich

Opportunities for Talents

PhD candidate in non-invasive glucose sensing (f/m/d)

Are you passionate about science? Full of ideas and innovative potential to drive change? Do you see yourself working in an international fast-paced, highly competitive, scientific environment? If you are motivated by the societal impact of science and technology, if you seek an opportunity to play an active role in the development of emerging technologies for biology and healthcare; then, the Chair of Biological Imaging (CBI) at the Technical University of Munich (TUM), and its integrated Institute of Biological and Medical Imaging (IBMI) at the Helmholtz Zentrum München (HMGU), Germany, is the ideal environment for you!

At CBI we are now looking for a highly qualified and passionate **PhD candidate** (f/m/d) to drive the **development of non-invasive glucose sensing** by means our unique label-free molecular detection technology.

CBI is the cornerstone of a rapidly expanding bioengineering ecosystem in the Munich science area; 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 and medicine. Comprising 11 inter-disciplinary laboratories with scientists from more than 25 countries, CBI offers state-of-the-art infrastructure for innovative research and a perfect environment to accelerate your career. Our research aims to shift the paradigm of biological discovery and translation to address major health challenges of our time and to develop the medical solutions of tomorrow.

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, engineering, chemistry, biology, and medicine-frequently yielding to high-impact papers, successful technology spin-offs, and commercialization. Moreover, our studies are regularly featured in major news channels and have received broad recognition including several prestigious awards as well as considerable research funding from national and international sources.

The mission:

In our Translational Optoacoustics team, 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 develop and apply mid-infrared detection technologies for non-invasive glucose sensing in human skin — a work that could positively impact the lives of millions of diabetic patients worldwide. The candidate will also be integral in further development of the optical imaging

methodology, data analysis and image reconstruction as part of her/his research activities. The development process will give the successful candidate the opportunity to strengthen her/his skills in optics, lasers and computation skills, but also in biological systems relevant to medical research. She/he will be involved at every stage of sensors design, testing and application, as well as with dissemination of results in the form of scientific publications, presentations, intellectual property production, spin-offs, and commercialization.

Your profile:

The successful applicant must have the following:

- Strong motivation, scientific curiosity and commitment to scientific excellence
- A degree in Physics, Optics, Engineering, Medical Technology or a related field
- An outstanding academic study record
- 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

The following qualifications are considered advantageous:

- Proven experience in experimental research
- Excellent command of written and spoken English
- 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 CBI, 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 and medicine 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. 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. We offer a competitive salary and benefits depending on work experience and seniority in accordance with the public service wage agreement of the Free State of Bavaria (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. Preference will be given to disabled candidates with essentially the same qualifications.

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 candidate in non-invasive glucose sensing" in the subject line.

For any question please contact:

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