Scientist in the field of (Bio-)Physics (f/m/x)

Are you a driven and curious young scientist eager to explore new frontiers in microscopy? Are you passionate about developing groundbreaking imaging systems that could shape the future of scientific discovery? If you possess an insatiable curiosity and a strong desire to create novel methods with broad implications for science, we invite you to join our dynamic team. We are a forward-thinking research organization seeking an enthusiastic scientist to contribute to the development of advanced microscopy imaging systems, with a focus on detection in the short-wave infrared (SWIR) spectrum.

The German Cancer Research Center (DKFZ) is seeking for the Department for Functional Imaging in Surgical Oncology (headed by Prof. Dr. Oliver Bruns) at the partner site Dresden of the National Center for Tumor Diseases (NCT) a Scientist in the field of (Bio-)Physics.

The German Cancer Research Center is the largest biomedical research institution in Germany. With more than 3,000 employees, we operate an extensive scientific program in the field of cancer research.

The National Center of Tumor Diseases (NCT) Dresden is a joint institution of the German Cancer Research Center, the University Hospital Carl Gustav Carus Dresden, the Faculty of Medicine at TU Dresden, and the Helmholtz-Zentrum Dresden-Rossendorf (HZDR). The NCT with sites in Heidelberg and Dresden is the leading oncological center in Germany and is being further expanded to an international center of excellence regarding point-of-care and individualized cancer medicine.

**Position Overview**

As a Scientist specializing in advanced microscopy and SWIR imaging, you will have an exciting opportunity to make a significant impact on the scientific community. Collaborating with a diverse team of researchers and engineers, you will play a crucial role in developing cutting-edge imaging systems that enable us to explore previously unseen realms. We value your fresh perspective and innovative thinking as we strive to unlock the mysteries hidden within the SWIR spectrum.

**Job description**

Our research is focused on the development and application of novel imaging probes and imaging methods in the short-wave infrared spectral range (SWIR imaging) for biological and medical in-vivo applications. SWIR imaging provides several advantages over the visible and near-infrared regions: general lack of autofluorescence, low light absorption by blood and tissue, and reduced scattering. In this spectral range biological tissues become translucent. Recent progress in detection technology and
The development of probes demonstrated that, in principal, SWIR imaging enables applications, which were previously not feasible with any other technique. These advantages will enable new capabilities in preclinical imaging.

We are seeking a highly motivated scientist for an interdisciplinary research position at the junction of physics, biology and chemistry. The candidate will develop advanced imaging setups for deep penetration imaging on microscopic / mesoscopic scales, and collaborate with biologist and clinicians to ultimately advance cancer detection and therapies. The project is expected to be transformative and translational.

The novel applications include SWIR imaging of physiology and metabolic activity and targeted SWIR imaging of tumors. SWIR intravital microscopy will allow imaging the brain vasculature in mice through intact skin and skull and generating detailed blood flow-maps in mice.

Candidates interested in pursuing a PhD degree will be enrolled at the Technische Universität Dresden (TUD).

**Responsibilities**

- Contribute to the research and development of advanced microscopy imaging systems operating in the SWIR spectrum.
- Collaborate with a multidisciplinary team to brainstorm and develop new methods with wide-ranging applications in scientific research.
- Design and conduct experiments to test and optimize the performance of imaging systems, including resolution, sensitivity, and spectral range.
- Analyze experimental data to extract meaningful insights and propose improvements to enhance image quality and analysis.
- Explore and implement innovative image processing algorithms to extract valuable information from SWIR microscopy images.
- Communicate your findings and discoveries through presentations, reports, and potential scientific publications.

**Your profile**

We are looking for applicants with a master’s or PhD degree in Physics/Biophysics (and related disciplines – engineering, mathematics, etc.) who are strongly interested and committed to experimental research, in particular the development and application of optical microscopes, careful experimentation and computer-based quantitative data acquisition and analysis. Strong knowledge, proven by high grades, in STEM (science, technology, engineering, and mathematics) disciplines is expected, as well as a high level of programming skills (MATLAB/Python/C etc.) and computer literacy. Very good verbal and written communication skills in English are expected.
What we offer

- work-life balance
- home office options
- flexible working hours & working-time models
- continuous education and training
- 30 days annual leave
- discounted public transport ticket

The position is initially limited to 2 years with the possibility of prolongation. The position can in principle be part-time. Provided that the prerequisites are fulfilled, a salary level up to TV-L E13 is possible. The position can be filled immediately - we will review applications as we receive them.

Join us in this thrilling scientific journey where your passion, curiosity, and dedication will have a broad impact on the future of microscopy and scientific discovery. If you are a driven young scientist seeking to develop new methods and contribute to the world of advanced microscopy, apply now and help us shape the future of scientific exploration.

Contact

Curious? To apply, kindly submit your CV along with a concise motivation letter to Dr. Andriy Chmyrov (andriy.chmyrov@nct-dresden.de). Should you have any additional inquiries, please feel free to reach out to Dr. Andriy Chmyrov or Maria Voigt (Maria.Voigt@nct-dresden.de), who will gladly provide further assistance.

Important notice: The DKFZ is subject to the regulations of the Infection Protection Act (IfSG). Therefore, only persons who present proof of immunity against measles may work at the DKFZ.