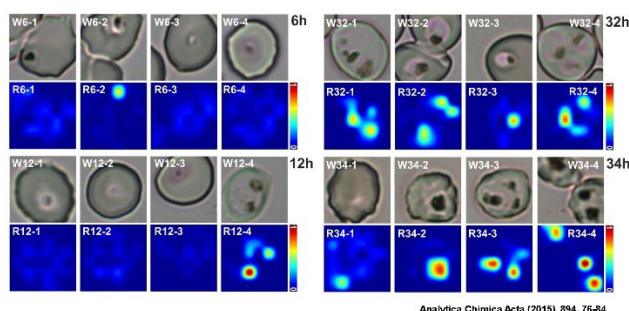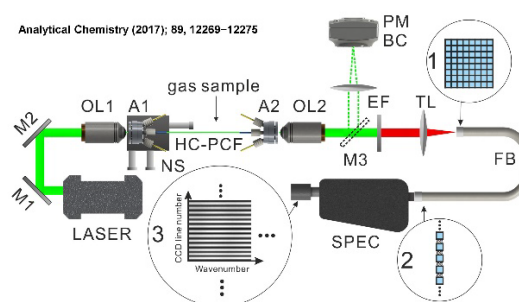# PhD Topic Molecular Imaging

The Research Group Biophotonics-Biomedical Engineering currently has a PhD Topic on Molecular Imaging.

The project investigates new parallelized techniques for rapid chemical imaging of biomedical processes. We are building on our work on fiber-based Raman spectroscopic imaging to generate high-resolution molecular-specific images of biomedical samples. These images can provide valuable insights into the molecular mechanisms of disease, the diagnosis of pathologies and the evaluation of therapies. Raman spectroscopy is a non-invasive, non-contact, label-free and quantitative method that can be used in physiological, aqueous environments and is therefore excellently suited for biomedical applications.

Your knowledge and skills:

- Solid knowledge of optics, photonics, and optical spectroscopy
- Excellent experimental skills in the development and application of new instruments and setups
- Interest in Raman spectroscopy, imaging and fiber sensing
- Interest in data analysis and programming
- Interest in interdisciplinary research
- Highly motivated and creative individuals with scientific ambition
- Excellent English communication skills, both written and spoken

We offer an attractive research environment with a friendly and active team, excellent instrumentation, and diverse interdisciplinary cooperation opportunities.

We expect the candidate to have a university degree (physics, photonics, engineering, physical chemistry, analytical chemistry or comparable) with very good academic results, to be self-motivated and to work independently on the research tasks.

Start is possible on mutual agreement. Please send your detailed application as a pdf file by e-mail to:

Prof. Torsten Frosch, E-Mail: torsten.frosch@tu-darmstadt.de

Literature:

Analytica Chimica Acta (2015), 894, 76-84; Sensors and Actuators B: Chemical (2023); 375, 132949, 1-6; Analytical Chemistry (2022); 94, 10346−10354; Molecules (2019); 24, 3229, 1-14; Analytical Chemistry (2017); 89, 12269−12275; Molecules (2019); 24, 4381, 1-15