

## Open Position: PhD researcher

### Topic: Raman Spectroscopic Drug Sensing



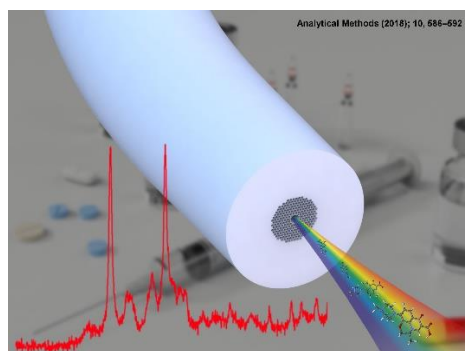
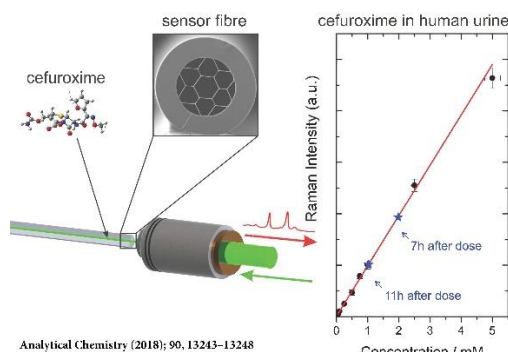
TECHNISCHE  
UNIVERSITÄT  
DARMSTADT

The [Biophotonics](#) research group at TU Darmstadt, Germany, is currently looking for a PhD-researcher for the topic Raman Spectroscopic Drug Sensing.



The [PhD position](#) is **fully funded** (100% E13 salary, approx. 5000 EUR per month). The researcher will benefit from a **structured doctoral training** with excellent opportunities for **interdisciplinary research**, **skills development** and **building a scientific network**.

The project focuses on **innovative Raman spectroscopic techniques for rapid and label-free monitoring of disease biomarkers and drug levels in body fluids**. The focus lies on research into signal enhancement techniques for highly sensitive Raman spectroscopy of active pharmaceutical ingredients. An important goal of the project is to **enable rapid therapeutic drug monitoring (TDM) at the point-of-care in order to achieve personalized treatment for individual patients**. In the future, these developments will enable the efficient treatment of critical illnesses without the risk of treatment failure and without serious side effects.



#### Your knowledge and skills:

- Solid knowledge of optics, photonics, and optical spectroscopy
- Experimental skills in the development and application of new instruments and setups
- Interest in analytical or physical chemistry
- Interest in Raman spectroscopy, fiber sensing, biomedical and instrumental analytics
- Experience with quantum chemical calculations (DFT) of molecules are a plus
- Interest in data analysis and programming
- Interest in interdisciplinary research
- Highly motivated and creative 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 Master's degree or equivalent (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.

The candidate must not have lived or worked in Germany for more than 12 months in the past 3 years.

Please send your detailed application as one pdf-file by e-mail to: Prof. Dr. Torsten Frosch, **E-Mail:** [application@biophotonics.tu-darmstadt.de](mailto:application@biophotonics.tu-darmstadt.de)



**Literature:**

[Clinical Spectroscopy \(2023\); 5, 100026, 1-7](#); [Analyst \(2023\); 148, 3057 – 3064](#); [Analytical Chemistry \(2023\); 95, 12719–12731](#); [Nanophotonics \(2020\); 9, 19-37](#); [Molecules \(2019\); 24, 4512, 1-11](#); [Analytical Chemistry \(2018\); 90, 13243–13248](#); [Analytical Methods \(2018\); 10, 586–592](#); [ACS Photonics \(2017\); 4, 138-145](#); [Analyst \(2016\); 141, 6104-6115](#)