

*innoFSPEC Potsdam is a research and innovation centre pursuing multidisciplinary research in the field of optical fibre spectroscopy and sensing. The centre was created in 2008 as a joint initiative of the Physical Chemistry Group at the University of Potsdam and the Leibniz Institute for Astrophysics Potsdam. Around 40 scientists from more than twelve nations and ten scientific disciplines conduct cutting-edge research. The innoFSPEC activities include basic and applied research, knowledge transfer, education and teaching.*

We are continuously offering topics and opportunities for students regarding their Bachelor, Master and PhD thesis. Using high-tech equipment of applied laser-spectroscopy we work in many different research fields of material, environmental and life sciences. Amongst others, we are focusing on the following topics:

### Key topics in Physical Chemistry

- Development of experimental (fiber-optical) setups for the characterization of nanomaterials
- Analysis of chemical, biological or physical processes with different Process analytical Technologies (PAT)
- Synthesis of highly scattering, inorganic, polymeric or other nanomaterials as model systems for applied Photon Density Wave (PDW) spectroscopy
- Monte-Carlo (MC) calculations for the simulation and validation of Photon Density Wave spectroscopy experiments (evaluation of experimental parameters)

### Key topics in Astrophysics and Astrophotonics

- Laser-based optical frequency combs for the calibration of high-resolution spectrographs
- Aperiodic fiber Bragg gratings (FBG) for suppression of the near infrared sky OH emission
- Adaptive optics for compensation of image distortions caused by atmospheric turbulences
- Astronomy-on-a-chip: planar light wave circuits (PLC) for rigid and miniaturized astronomical spectrometers
- Photonic lanterns: fiber optic multimode-singlemode converters for integration of FBG's and PLC's into the light paths of telescopes
- Multi-channel spectroscopy: capturing of spectrally-resolved images within one single exposure. Technology transfer to imaging Raman spectroscopy

If you are interested in working with us either in one of the above mentioned topics or if you have your own suggestions, please do not hesitate to contact us:

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