External Job Advertisement Reg. Nr. 5-11538/26-D

The Faculty of Natural Sciences II, Institute of Physics, at Martin Luther University Halle-Wittenberg at the Interdisciplinary Center of Innovation Competence (ZIK) SiLi-nano, is seeking a part-time (60%)

Research Associate (m-f-d)

for a fixed term until 30.09.2029, starting as soon as possible.

Remuneration will be determined based on job duties and responsibilities and will be aligned with the fulfillment of listed personal requirements, up to pay grade 13 under the TV-L (Tarifvertrag für den Öffentlichen Dienst der Länder – 'German Public Service Pay Agreement for the Federal States').

The "Light to Silicon" group at ZIK SiLi-nano combines ultrashort-pulse laser structuring of silicon with Raman spectroscopy. In the ERDF-funded project "Integrated Filter Analysis System for the Detection and Characterization of Microplastics" (Sachsen-Anhalt WISSENSCHAFT STEP), we develop laser-fabricated, SERS-active silicon filters that separate micro- and nanoplastics by size and identify them chemically directly on the filter.

Job Responsibilities:

- analytical characterization of the laser-fabricated silicon filters and filter cascades developed in the project (pore size, pore distribution, surface morphology) using scanning electron, optical and atomic force microscopy
- planning, performing and evaluating filtration experiments with micro- and nanoplastic reference particles (e.g. PS, PE, PP, PET; particle sizes from below 10 µm to below 1 µm) to determine retention, recovery and flow rate
- Raman microspectroscopy and surface-enhanced Raman spectroscopy (SERS) on LIPSS-structured, metal-coated filters: determination of enhancement factors, detection limits and reproducibility
- development of a measurement and evaluation protocol for automated on-filter particle analysis (size, number/concentration, polymer identification via spectral libraries and chemometric methods)
- validation of the integrated filter analysis system on real water samples from the region, including sample preparation and blank and contamination control
- close coordination with filter fabrication and laser structuring within the project team and cooperation with Fraunhofer IMWS
- publication of results in peer-reviewed journals and at conferences; contribution to project reports and patent applications

There is an opportunity to pursue a doctoral degree as part of the project.

Requirements:

- a completed university degree (Master's or Diplom) in physics, chemistry, materials science, environmental science or a related field
- sound knowledge of Raman spectroscopy, ideally with experience on polymers or microplastics; knowledge of surface-enhanced Raman spectroscopy (SERS) is an advantage
- experience with microscopy techniques (SEM, AFM, optical microscopy) is desirable

- skills in data analysis and programming (e.g. Python, COMSOL or R), particularly spectral and image analysis
- a careful, independent and well-structured way of working in the laboratory; experience in sample preparation and quality assurance in trace analysis is an advantage
- team spirit and enjoyment of interdisciplinary collaboration
- very good written and spoken English; knowledge of German is welcome

We offer:

- the opportunity to pursue a doctorate in a highly relevant research field at the interface of photonics, materials research and environmental analytics
- an interdisciplinary team with state-of-the-art laboratory equipment (femtosecond lasers, Raman/SERS microscopy, scanning electron microscopy) and close cooperation with Fraunhofer CSP and regional industry partners
- interesting and varied fields of activity with creative freedom at the largest employer in the region
- the opportunity to support the education of young people through your work and to contribute to gaining new insights and answering important scientific research questions
- public service employment with remuneration according to the *Tarifvertrag der Länder (TV-L)* ('Collective Agreement for the Public Service') including an annual special payment and a company pension
- a secure job with attractive working conditions (home office, flexible working hours, and variable part-time models)
- 30 days of annual vacation plus additional days off on December 24 and 31
- a family-friendly, diversity-oriented, and intercultural work environment at a certified family-oriented university, including holiday childcare
- comprehensive staff development throughout all career stages with diverse training and qualification opportunities, including educational leave
- a health management framework to promote and maintain good health, as well as a broad university sports program
- the opportunity to participate in diverse social communities (e.g. university sports teams, university choir or university orchestra)
- exciting events such as the *Lange Nacht der Wissenschaften* (Long Night of the Sciences), University Information Day, and the University Winter Ball
- reduced-price meals in the cafeterias of the Studentenwerk (Student Services) Halle

Applications from disabled persons, including those of equal status (as certified by the *Bundesagentur für Arbeit* / Federal Employment Agency), will be given preferential consideration if they are equally suitable and qualified. Women are strongly encouraged to apply. Applications from individuals of all nationalities are explicitly welcome. Applicants with a degree that was not obtained at a German university must submit a Statement of Comparability for Foreign Higher Education Qualifications from the Central Office for Foreign Education (ZAB) (https://www.kmk.org/zab/central-office-for-foreign-education) as proof of equivalence upon conclusion of the employment contract. You can find ways to apply for a financial grant for this under: https://www.anerkennung-in-deutschland.de/html/de/pro/anerkennungszuschuss.php#.

If you have any questions, please contact Dr. Paul-Tiberiu Miclea, Tel.: +49 345 55895413, Email: paul-tiberiu.miclea@physik.uni-halle.de.

Please send your application, including Reg. No.: 5-11538/26-D, with the required documents (cover letter, CV, certificates, and if available Master's thesis or list of publications and contact details of references) by 20.11.2026 to Martin Luther University Halle-Wittenberg, Faculty of Natural Sciences II, Institute of Physics, ZIK SiLi-nano, Dr. Paul-Tiberiu Miclea, 06099 Halle (Saale), Germany, or electronically (as a single PDF file) to paul-tiberiu.miclea@physik.uni-halle.de.

This job posting is subject to potential budgetary restrictions.

Application costs will not be reimbursed by Martin Luther University. Application documents will only be returned if a sufficiently stamped envelope is enclosed. Electronic applications are welcome.