

External Job Advertisement Reg. Nr. 5-8181/26-D

The Faculty of Natural Science II, Institute of Physics, at Martin Luther University Halle-Wittenberg is seeking a part-time (75%)

Research Assistant (Phd-student) (m-f-d)

as soon as possible. The position is initially limited until 30.09.2028. An extension for another year is planned.

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 Nonlinear Nanophotonics Group at the Department of Physics and the SiLi-nano Centre for Innovation Competence (ZIK) at Martin Luther University Halle-Wittenberg is investigating nanostructured materials for silicon-compatible active integrated photonics. As part of a research project, nonlinear optical frequency conversion processes such as second harmonic generation, difference frequency generation and spontaneous downconversion in silicon-rich nitride and oxide waveguides will be investigated. The aim is to generate and modulate the second-order nonlinear susceptibility in these materials by applying an electrical voltage. Quasi-phase matching can then be achieved using suitable contact geometries. In addition, the enhancement of the voltage generated nonlinear effects in nanostructured Mie resonators, ring resonators and other resonant nanostructures will be studied.

Job Responsibilities:

- Design and fabrication of photonic nanostructures
- Operating and evaluating experiments to investigate nonlinear optical frequency conversion processes such as second harmonic generation, difference frequency generation and parametric downconversion in silicon-based and hybrid nanostructures.
- Simulation of light propagation and frequency conversion using established finite-element or FDTD-software
- Drafting reports and publications
- Taking on limited teaching duties (e.g. supervising practicals)
- Presenting results at seminars, workshops and conferences

This position offers the opportunity for academic and personal qualification (e.g. pursuing a PhD).

Requirements:

- Completed scientific university degree with a Master's in Physics or a related subject at the time of employment
- Experience and expertise with Nanofabrication processes (e.g. layer deposition, lithography, plasma etching etc.) or in the field of experimental optics.
- Experience with numerical simulation of light propagation and field distribution in waveguides and nanostructures is an advantage.
- High degree of independence, strong initiative and enthusiasm for the field of nanostructured optics
- Strong motivation and good communication skills

- Good command of English (equivalent B2)

We offer:

- a family-friendly, diversity-oriented, and intercultural work environment at a certified family-oriented university, including holiday childcare
- a health management framework to promote and maintain good health, as well as a broad university sports program

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/anererkennungszuschuss.php#>.

If you have any questions, please contact Prof. Jörg Schilling, Tel.: 0345 55-28663, Email: joerg.schilling@physik.uni-halle.de.

Please send your application, including Reg. No.: 5-8181/26-D with the required documents to Martin Luther University Halle-Wittenberg, Institute of Physics, Prof. Jörg Schilling, 06099 Halle (Saale) until 21/08/2026.

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 to joerg.schilling@physik.uni-halle.de are welcome.