

C2 – Metasurface design for EUV beam shaping applications

Join an international research team developing next-generation optical metasurfaces that can dynamically manipulate light. This PhD project combines nanophotonics in the extreme ultraviolet wavelength range, inverse design, and development of optical system concepts in this highly application-relevant wavelength range.

The position is hosted at the **Institute of Applied Physics, Friedrich Schiller University Jena (Germany)** and is part of the International Research Training Group **Meta-Active – Tailored Metasurfaces and Metasystems for Active Light Control**, funded by DFG.

Your Research Project

In this project, you will explore novel concepts for nanostructured metasurfaces for the extreme ultraviolet (EUV) wavelength range. You will study the foundations of diffractive optics to access a new application field of metasurfaces in the EUV, which has emerged just recently and has a high potential for scientific exploration and industrial applications.

Key research topics include:

- Design of dielectric metasurfaces for wavefront control in the EUV
- Development of compact EUV beam forming and imaging systems
- Development and application of inverse-design methods for nanophotonic systems
- Optical characterization using spectroscopy, interferometry, and advanced computational imaging techniques

What You Will Gain

During your PhD, you will develop expertise in:

- Nanophotonic design and simulation
- Inverse design and computational topology optimization
- Imaging optics for the extreme ultraviolet wavelength range
- Optical characterization and data analysis
- Scientific communication and international collaboration

Supervisory Team

Main Supervisor

Prof. Thomas Pertsch (Friedrich Schiller University Jena)

Co-Supervisors / Collaborators

Prof. Dragomir Neshev (Australian National University)

Prof. Falk Eilenberger (Friedrich Schiller University Jena)

Prof. Patrick Kluth (Australian National University)

Dr. Duk-Yong Choi (Australian National University)

What We Offer

- Fully funded 3-year PhD position
- Salary according to TV-L E13 (75%)
- Joint supervision by leading researchers in Germany and Australia
- Minimum 12-month research stay at the Australian National University (Canberra)
- Access to world-class nanofabrication and optical characterization facilities
- International training workshops and networking opportunities
- Participation in a highly interdisciplinary and collaborative research environment
- A jointly supervised international PhD experience

Who Should Apply?

We welcome applications from candidates with a Master's degree in Physics, Photonics, Electrical Engineering, Optical Engineering or related disciplines.

Experience in optics, nanophotonics, numerical simulations, or electromagnetic physics is advantageous but not required.

Diversity and Inclusion

Meta-Active and Friedrich Schiller University Jena are committed to equal opportunities and fostering an inclusive and family-friendly research environment. We particularly encourage applications from women and other underrepresented groups in science.

Application Information

Start Date: July 2026 or as soon as possible thereafter.

Application Deadline: 20 July 2026

For detailed information about the research project, eligibility requirements, and the application procedure, please visit:

<https://www.meta-active.uni-jena.de/apply>

Ready to Apply?

Join an international team at the forefront of active nanophotonics and help develop the next generation of optical devices in the EUV.