Job Description
Doctoral Position

DC10: Data-driven methods for the design optimization of resonant reconfigurable metasurfaces.

Doctoral position at JCMwave GmbH in Berlin, Germany, in collaboration with Friedrich-Schiller Universität Jena and the Danish Technical University.

Main supervisor: Dr. Sven Burger [JCM]

Co-supervisors/mentors: Prof. Isabelle Staude [JENA] and Prof. Rasmus E. Christiansen [DTU]

Objectives:

- Development of a robust numerical workflow for design optimization. The workflow will combine highly accurate finite-element methods, complex analysis methods (rational approximation), and statistical methods (Bayesian optimization).
- Application of the developed framework to design optimization of reconfigurable metasurfaces, considering also material and fabrication uncertainties.
- Comparison of the numerical performance of the optimization frameworks to AI methods based on Neural Network Ensembles.
- Close interaction with experimental partners within MetaTune consortium to translate numerical designs into functional devices suitable for fabrication and experimental validation.

This position is part of the MetaTune Doctoral Network "Reconfigurability using inversely designed metasurfaces", which has been funded under the Horizon Europe Marie Skłodowska-Curie Actions (MSCA) program.

Acquire knowledge: During the development of the thesis, the candidate will acquire deep knowledge on theoretical and computational approaches to numerical simulation and optimization of metasurfaces.

Design	Materials	Fabrication	Characterization
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→ Go to the project webpage for more information

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What METATUNE Offers:

- Gross salary starting at 3,700 EUR/month (44,400 EUR/year), with potential for additional funding depending on your family status.
- Work contract with JCMwave in Berlin for 36 months funded through the MSCA network, with the additional benefits for employees (public and universal health system, free schools, etc.).
- Three research stays at, one two-month stay at Danmarks Tekniske Universitet, and two three-month stays at Friedrich-Schiller-Universität Jena are foreseen in the research planning.
- Opportunity to pursue a PhD degree at a leading European university within a collaborative, international network. The project will be linked to a doctoral programme at Friedrich Schiller University, Jena, which also participates in the MetaTune consortium.
- Training program including research-specific and transferable skills courses.
- Active participation in workshops, conferences, and network-wide events to build professional and scientific connections.
- Stimulating, multidisciplinary, and international research environment within a prestigious European training network.

Starting date: September-November 2026.

Deadline for online application: May 31, 2026 (but candidates are encouraged to apply as soon as possible).

Mandatory Requirements:

- You must have a **master's degree** in either Mathematics, Physics, or Optics and Photonics, or a closely related topic.
- Background knowledge in electromagnetic theory and simulation and high affinity to & proven experience in scientific computing and programming is required.
- You should **not have a doctoral degree** at the time of recruitment.
- You must not have resided or carried out your main activity (work, studies, etc.) in Germany for more than **12 months in the 36 months** immediately before the recruitment (this is a requirement from the funding authority).
- Strong skills in the **English** language.

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