

Dr. Martina Kiechle

Applied Scientist & Engineer | Nanoscale Material Characterization & Device Development

Experimental researcher with a PhD in Electrical Engineering and expertise in nanotechnology. Proven track record in precision measurements, optical/electrical characterization, workflow optimization, and large-scale data analysis. Interested in applying problem-solving skills and metrology expertise to develop reliable, manufacturable, and innovative technologies.

EXPERIENCE

National Institute of Standards and Technology (NIST), Boulder, United States — *Postdoctoral Researcher*

Oct 2023 - Jun 2025

Nanoscale material characterization for Spintronic applications and nanomagnetic device development. Laser alignment, leading the design and execution of optical experiments. Performed advanced scientific data analysis techniques using Python. Proven ability to secure scientific funding through proposal writing.

Technical University of Munich, Germany - *Doctoral Researcher*

Nov 2018 - Aug 2023

Conducted experimental research on novel magnetic nanodevices within clean room and characterization laboratory environments. Led metrology lab courses and lecture discussions. Significantly contributed to successful research proposals, securing funding for multiple PhD positions within the research group.

Rohde & Schwarz GmbH, Munich, Germany — *Research intern*

Oct 2016 - Dec 2016

Learned basics around the design flow of mixed-signal HF circuits (design, simulation, and layout). Designed an oscillator circuit to test wafer/chip manufacturing quality.

Technical University of Munich, Germany - *Research Assistant*

Oct 2015 - Dec 2016

Helped to commission a newly built sputtering tool, fabricated magnetic thin films, and conducted magnetic property measurements (hysteresis, anisotropy, MOKE)

Siemens AG, Munich, Germany — *Working student*

Sep 2014 - Mar 2015

Internal process and workflow optimizations. Helped design and test SharePoint single-page applications using CSS, HTML, and JavaScript.

Munich, Germany

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SKILLS

SOFTWARE

AutoCAD, Klayout, CST Microwave Studio, Cadence, Keysight ADS

PROGRAMMING

Matlab, Python, LabView, LaTeX, C, JavaScript

NANOFABRICATION

Clean rooms & Semiconductor fabrication/ processing tools, e.g., thin-film deposition (PVD), lithography, Ion etching, Focused ion beam

NANOCHARACTERIZATION

Surface and structural analysis (AFM), material properties (magnetic resonance), time-resolved optical microscopy (Kerr rotation), laser-based spectroscopy (Brillouin light scattering)

ELECTRICAL CHARACTERIZATION

Device testing (wire bonding, chip probing, SMUs, I-V curves) High-frequency properties, e.g., Vector Network Analyzers, Spectrum Analyzers, Oscilloscopes

RESEARCH

Data analysis, data fitting, Scientific proposal writing

EDUCATION

Technical University of Munich, Germany — *Doctor of Engineering*

Nov 2018 - Aug 2023

Optically inspired design and fabrication of magnetic devices. Manipulation and characterization of propagating magnetic oscillations at high frequencies and micrometer length scales.

Technical University of Munich, Germany — *Master of Science*

Oct 2015 - Oct 2018. Electrical and Computer Engineering. Major: Microwave engineering

University of Notre Dame, United States — *Visiting Scholar*

Feb 2018 - May 2018. Joint master's thesis. Built a ferromagnetic resonance setup

Nanyang Technological University, Singapore — *Semester abroad*

Jan 2017 - May 2017. Microwave engineering classes and a Chinese intensive course.

Technical University of Munich, Germany — *Bachelor of Science*

Oct 2012 - Sep 2015. Electrical and Computer Engineering. Major: Nanotechnology

Staatliche Berufshochschule Kempten, Germany — *high school diploma*

Sep 2009 - Jul 2012. Second-chance education to obtain University admittance.

VOLUNTARY SERVICES AT THE FACULTY OF ELECTRICAL ENGINEERING, TUM

Student Council member - Sep 2014 - Oct 2018

Faculty Council board member - *student representative* - Sep 2015 - Oct 2018

Faculty Search Committee member - *student representative*

Participated in the full selection process of new faculty professors

EXTRA-CURRICULAR ACTIVITIES

Fitness Instructor — leading group fitness classes

Jan 2023 - Sept 2023. LesMills BodyBalance, BodyPump, Yoga

Blood platelet donor — *biweekly thrombocyte donation*

Feb 2013 - Aug 2023. Klinikum Grosshadern, Munich

Undergraduate tutor — *Circuit Theory 2*

Apr 2017 - May 2017. Exam preparation tutorial, Singapore Institute of Technology (TUM Asia)

SCHOLARSHIPS & AWARDS

DFG Postdoc fellowship (NIST)

Granted in May 2024, turned down due to a better internal funding opportunity.

DAAD postdoc fellowship (NIST)

Oct 2023 - Mar 2024 Short-term research fellowship

DAAD PROMOS Scholarship

Feb 2018 - May 2018 Student research project in the US

Lothar & Sigrid Rohde Foundation

Jan 2017 - May 2017 Student research project in the US

Muehlfenzl Foundation

Jan 2017 - May 2017 Scholarship for the term abroad in Singapore

Deutschlandstipendium

Jan 2015 - May 2018
Public-private principle scholarship for high-achieving students

LANGUAGES

German - C2

English - C2

French - B1

Chinese (Mandarin) - A1.2