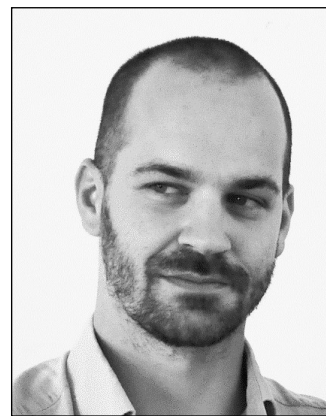


## CV OF THORSTEN VIKTOR FEICHTNER

Birth: February 4<sup>th</sup> 1981; Kötzing  
Position: Habilitation student; senior PostDoc  
Work address: Nano-Optics and Bio-Photonics group,  
Experimental Physics 5, University of Würzburg,  
Am Hubland, 97074 Würzburg, Germany  
Family status: married, 1 daughter (\*05.02.2014), 1 son (\*23.06.2022)  
Email: thorsten.feichtner@uni-wuerzburg.de  
Website: <https://www.physik.uni-wuerzburg.de/ep5/team/senior-scientists-postdocs/dr-thorsten-feichtner/>  
Identifier: OrcID: 0000-0002-0605-6481; ResearchID: J-4089-2012  
LinkedIn and Xing Profile available



### A. Working/Research experience

#### 01.03.2022 – today

Julius-Maximilians-Universität Würzburg: habilitation student focusing on linear and non-linear light-matter coupling

#### 01.09.2020 – 28.02.2022

MSCA Individual Fellowship “PoSHGOAT” - Potential-dependent Second-Harmonic Generation in Optical Antennas measured Time-resolved. Research project for 18 month at the “Politecnico di Milano”

#### 06.02.19 – 31.08.2020

Managing director (MD) of the German Cluster of Excellence “ct.qmat – Complexity and Topology in Quantum Matter”; In parallel research on the VW “Experiment” grant “PECo – Plasmo-Electric Converter”

As MD I had to build the administration of the Cluster from scratch, from e.g. establishing the internal granting scheme to the online representation ([www.ctqmat.de](http://www.ctqmat.de)).

#### 01.01.17 – 05.02.19

Julius-Maximilians-Universität Würzburg: PostDoc position at the nano optics und biophotonics group of Prof. Bert Hecht, Experimental Physics 5, Germany

Large research topic “Complex plasmonic devices for enhanced light matter interaction”: optimal focusing, coupling to chiral light, fundamentals of the plasmo-electric effect.

#### 01.01.15 – 31.12.16

Helmholtz-Zentrum Berlin für Energie und Materialien GmbH: PostDoc position at the ‘Institute of Nano-Architectures for Energy Conversion’ of Prof. Silke Christiansen, Germany.

Helping with setting up a new institute: designing a strategy for new institute “Nano-Architectures for energy conversion”, strategy for the “ZEISS lab@location” and HEMF (Helmholtz-Energy materials foundry).

Responsible for building up a commercial TERS setup, as well as for AFM, AFM-SEM and DekTak. Engaged in establishing an infrastructure for numerical modelling. Fabricating nano structures by means of He-/Ne-/Ga-Ion FIB. Coordination of the DFG SPP 1839 “Tailored Disorder”.

#### 01.06.13 – 31.12.14

Max-Planck-Institute for the Science of Light: PostDoc position at the TDSU “Photonic Nanostructures” of Prof. Silke Christiansen, Erlangen, Germany

Establishing a project on solar fuel generation. FIB structuring of metallic nano structures. Teaching numerical software. Working on detailed analysis of monocrystalline gold flakes. Writing and coordinating the DFG SPP 1839 “Tailored Disorder”.

01.09.08 – 30.04.13

Julius-Maximilians-Universität Würzburg: PhD position at the nano optics und biophotonics group of Prof. Bert Hecht, Experimental Physics 5, Germany

Research on the DFG project “Applications and capabilities of optical antennas”: theoretical description of the fundamentals in light-matter interaction, FDTD simulations for verification and fabrication with FIB. Measuring with SEM, AFM, (self-built) confocal microscopy and white-light scattering. Developing an evolutionary algorithm for numerical optimization of optical antennas.

24.10.06 – 06.06.08

Institut für Gravitationsforschung (IGF) of the „Göde Wissenschaftsstiftung“: research assistant during studies, private institute Waldschaff, Germany (additional for 6 month in 2013)

Several small projects on solar cells, magnet stability and gravitation theories (dismantling off-beat theories, writing a wiki). Helping to build an EMC cabin.

01.10.00 – 30.06.01

Military service: radar mechanics

## **B. Education**

01.10.08 – 23.11.16

PhD-Dissertation in Physics; Title: “Beyond the dipolar optical antenna” (magna cum laude = 1.0); Defense date 23.11.16 (magna cum laude = 1.0); Supervisor Prof. Dr. Bert Hecht, Experimentelle Physik 5, Julius-Maximilians-Universität Würzburg, Germany

01.09.09 – 12.02.12

Diploma study at correspondence course for specialist journalism; finished as “Fachjournalist(FJS)”

01.05.07 – 31.03.08

Diploma (equals to M.Sc., mark: 1.0) in Physics, “FDTD-simulations of optical antennas”, Julius-Maximilians-Universität Würzburg, Germany

01.10.2001 – 30.04.2007

Studies in Physics at the Julius-Maximilians-University Würzburg

10.09.1991 – 30.06.2000

Secondary school with focus on natural sciences finishing with Abitur (mark: 2.2)

15.09.1987 – 24.07.1991

Primary school

## **G. Additional qualification**

Courses in “Consulting in academic teaching”, “Management of personnel”, “The free speech”, “Effective teaching – self management”, Basics of Project Management @ HZB”

Fulbright-Cottrell Second Junior Faculty Professional Development Workshop

*Description from the website: The workshop offers training for junior group leaders in Germany on how to best implement evidence-based pedagogies, integrate research and teaching, use new strategies for communicating science to the public, and develop skills in time management, leadership, mentoring students, and networking.*

Computer graphics for scientific topics: (see: <https://de.pinterest.com/tfeichtner/scientific-visualization/>)

Nov. 2017- Oct. 2019: Vice-chairman of “Archipelkampagne e.V.”

April 2009 – April 2012: Youth trainer, youth leader and public relations responsible in the chess club “SK 1865 Würzburg e.V.”

Juni – Oktober 2009: Editor in Chief of the student’s council magazine of the physics faculty in JMU Würzburg.

October 2000 – July 2001: basic military service; duty as radar machinist

1998 – 2000: Pupils leader of the school’s astronomy workgroup and editor in Chief of the pupil’s magazine "Zenit" at the Walther-Rathenau-Gymnasium in Schweinfurt.

### C. Scientific Merits

- a) 13 publications in peer-reviewed journals + 1 arxiv (See section F for details)
- b) h-index = 11 (google scholar), 10 (researchgate), 8 (web of science)
- c) 21 talks at conferences, seminars (2 invited colloquiums presentation)
- d) 15 Posters at conferences and seminars
- e) 1<sup>st</sup> poster award 491. WEH-Seminar - Quantum and Nano Plasmonics
- f) 3<sup>rd</sup> poster award 546. WEH-Seminar - Light in disordered photonic media
- g) Third party funding:
  - a. VolkswagenStiftung “Plasmo-electric Converter (PECo; Az: 95869) since April 2019
  - b. MSCA IF “PoSHGOAT” (Project 837928) started Sept. 1<sup>st</sup> 2020
  - c. HEMF ([https://www.helmholtz-berlin.de/projects/hemf/index\\_en.html](https://www.helmholtz-berlin.de/projects/hemf/index_en.html) – organigram by me; final proposal contained 9 figures, all (c) Thorsten Feichtner))
- h) Part of the COST-action MP1302 NanoSpectroscopy (finished) and CA19140 fit4nano (ongoing)
- i) Guest contract with the Helmholtz-Zentrum Berlin from 2017-2019

### D. Committees and Reviewer Responsibilities

- Reviewer for Advanced Optical Materials, Optics Express, Journal of Microscopy and Applied Sciences, Annalen der Physik, Laser and Photonics Reviews, ...
- Coordination of the DFG SPP 1839 “Tailored Disorder” (2015 – 16): Setting up mailing lists and being the main contact person in all stages, organization of three scientific meetings, chairing an elevator pitch session.
- Sub-group-leader ‘Nano-Optics’ within the TDSU Photonic Nanostructures (2013 – 14)
- Scientific advisory council member of the “Institut für Gravitationsforschung” (IGF)

### E. Publication Record

#	Title	Citations (Google Scholar, 08.08.2023)
1	Amro Sweedan, Mariela J. Pavan, Enno Schatz, Henriette Maaß, Ashageru Tsega, Vered Tzin, Katja Höflich, Paul Mörk, Thorsten Feichtner and Muhammad Y. Bashouti (202X) Evolutionary Optimized, Monocrystalline Gold Double Wire Gratings as a SERS Sensing Platform  arXiv preprint arXiv:2308.01395	Shared corresponding author
2	L Zurak, C Wolff, J Meier, R Kullock, NA Mortensen, B Hecht, T Feichtner (202X) Direct electrical modulation of surface response in a single plasmonic nanoresonator  arXiv preprint arXiv:2307.01423	Under review at Nature Photonics
3	Jessica Meier, Luka Zurak, Andrea Locatelli, Thorsten Feichtner, René Kullock, Bert Hecht. (202X). Controlling field asymmetry in nanoscale gaps for second harmonic generation  arXiv preprint arXiv:2210.14105	Accepted in Advanced Optical Materials  1
4	A Di Francescantonio, A Locatelli, X Wu, A Zilli, T Feichtner, P Biagioni, Lamberto Duò, Davide Rocco, Costantino De Angelis, Michele Celebrano, Bert Hecht, Marco Finazzi. (2022). Coherent Control of the Nonlinear Emission of Single Plasmonic Nanoantennas by Dual-Beam Pumping, Advanced Optical Materials 10 (20), 2200757	6

5	X Wu, R Eehalt, G Razinskas, T Feichtner, J Qin, B Hecht. (2022). Light-driven microdrones. <i>Nature Nanotechnology</i>	22
6	Book section “Finite difference time domain (FDTD) simulations” in “Optical Nanospectroscopy, pt 2” published as result of the COST-Action 1302	To be published (since five years ...)
7	Stegmaier, Alexander, et al. (2021). Topological defect engineering and PT-symmetry in non-Hermitian electrical circuits. <i>Physical Review Letters</i> 126 (21), 215302.	86
8	Victor Deinhart, Lisa-Marie Kern, Jan N Kirchhof, Sabrina Juergensen, Joris Sturm, Enno Krauss, Thorsten Feichtner, Sviatoslav Kovalchuk, Michael Schneider, Dieter Engel, Bastian Pfau, Bert Hecht, Kirill I Bolotin, Stephanie Reich, Katja Höflich "The patterning toolbox FIB-o-mat: Exploiting the full potential of focused helium ions for nanofabrication." <i>Beilstein Journal of Nanotechnology</i> 12.1 (2021): 304-318.	12
9	K. Höflich, T. Feichtner, E. Hansjürgen, C. Haverkamp, H. Kollmann, C. Lienau, and M. Silies, "Resonant behavior of a single plasmonic helix," <i>Optica</i> 6, 1098-1105 (2019).	34
10	Feichtner, T., Christiansen, S., & Hecht, B. (2017). Mode Matching for Optical Antennas. <i>Physical Review Letters</i> , 119(21), 217401.	15
11	Feichtner, T., Selig, O., & Hecht, B. (2017). Plasmonic nanoantenna design and fabrication based on evolutionary optimization. <i>Optics Express</i> , 25(10), 10828.	26
12	Hoffmann, B., Feichtner, T., & Christiansen, S. (2016). Gold platelets for high-quality plasmonics. <i>Materials Today</i> , 19(4), 240–241.	1
13	Chen, K., Razinskas, G., Feichtner, T., Grossmann, S., Christiansen, S., & Hecht, B. (2016). Electromechanically Tunable Suspended Optical Nanoantenna. <i>Nano Letters</i> , 16(4), 2680–2685. <a href="https://doi.org/10.1021/acs.nanolett.6b00323">https://doi.org/10.1021/acs.nanolett.6b00323</a>	20
14	Tessarek, C., Fladischer, S., Dieker, C., Sarau, G., Hoffmann, B., Bashouti, M., Göbel, M., Heilmann, M., Latzel, M., Butzen, E., Figge, S., Gust, A., Höflich, K., Feichtner, T., Büchele, M., Schwarzburg, K., Spiecker, E. and Christiansen, S. (2016). Self-Catalyzed Growth of Vertically Aligned InN Nanorods by Metal-Organic Vapor Phase Epitaxy. <i>Nano Letters</i> , 16(6), 3415–3425.	17
15	Hoffmann, B., Bashouti, M. Y., Feichtner, T., Mačković, M., Dieker, C., Salaheldin, A. M., P. Richter, O. Gordan, D. Zahn, E. Spiecker and Christiansen, S. (2016). New insights into colloidal gold flakes: Structural investigation, micro-ellipsometry and thinning procedure towards ultrathin monocrystalline layers. <i>Nanoscale</i> , 8(8).	27
16	Then, P., Razinskas, G., Feichtner, T., Haas, P., Wild, A., Bellini, N., Osellame, R., Cerullo, G. and Hecht, B. (2014). Remote detection of single emitters via optical waveguides. <i>Physical Review A</i> , 89(5), 53801.	15
17	Feichtner, T., Selig, O., Kiunke, M., & Hecht, B. (2012). Evolutionary Optimization of Optical Antennas. <i>Physical Review Letters</i> , 109(12), 127701.	155
18	Huang, J.-S., Callegari, V., Geisler, P., Brüning, C., Kern, J., Prangsma, J. C., ... Hecht, B. (2010). Atomically flat single-crystalline gold nanostructures for plasmonic nanocircuitry. <i>Nature Communications</i> , 1(9), 150--.	464
19	Huang, J.-S., Feichtner, T., Biagioni, P., & Hecht, B. (2009). Impedance Matching and Emission Properties of Nanoantennas in an Optical Nanocircuit. <i>Nano Letters</i> , 9(5), 1897–1902.	296

## F. List of given Talks

Talks in blue are not purely academic.

1. *Impedance matching and emission properties of optical antennas in a nanophotonic circuit*; 20.03.2009; DPG Spring Meeting
2. *Nanoantennae on AFM-Tips for enhanced fluorescence detection*; 09.10.2010; WNCO-Workshop, Niederstetten
3. *Kleiner als das Licht erlaubt! – Wie man mit Nanoantennen genauer hinschaut*; 27.01.2011; Science Slam Würzburg
4. *Atomically flat single-crystalline gold nanostructures for plasmonic nanocircuitry*; 16.03.2011; DPG Spring Meeting
5. *Anderson localization – introduction*; 15.04.2011; EP 5 hiking seminar external guests, but no real conference
6. *An optical nanoantenna on an AFM-tip for scanning single emitter spectroscopy*; 14.07.2011; 488. WE Heraeus Seminar Single Molecule Spectroscopy: Current Status and Perspectives
7. *Evolutionary optimization of plasmonic nano antennas*; 27.03.2012; DPG Spring Meeting
8. *Entanglement & Quantum Imaging*; 07.05.2012; EP 5 hiking seminar
9. *Evolution, Reciprocity and coupling of single emitters to plasmonic nano antennas*; 11.03.2013; DPG Spring Meeting
10. *An integrated device for carbon reduction from ambient air*; 13.05.2014; 562 WE Heraeus-Seminar "From Sunlight to Fuels"
11. *Nanostructuring for advanced photonic applications*; 03.06.2014; invited talk at University of Chemnitz at group seminar
12. *New details about monocrystalline goldflakes for plasmonic applications*; 17.03.2015; DPG Spring Meeting
13. *Evolutionary optimization of plasmonic geometries - Heuristic solutions to complex nano-optical problems*; 03.03.2016; Matheon Workshop - 9th Annual Meeting "Photonic Devices"
14. *Double modematching for metal nanoantennas*; 20.03.2017; DPG Spring Meeting
15. *Multiple Mode Matching for Optical Antennas*; 08.02.2018; Matheon Workshop 11th annual meeting "Photonic Devices"
16. *Modematching for helical plasmonic resonators*; 13.03.2018; DPG Spring Meeting
17. *From evolution to mode-matching: novel tools to optimize plasmonic devices*; 13.06.2018; invited talk at the Physics department of the Politecnico di Milano
18. *Double Mode Matching for Plasmonic Resonators*; 04.07.2018; 6. Plasmonica Florenz
19. *Streuung durch Physik – Lebenswege vor und nach dem Studium*; 29.06.2019; Festvortrag Absolventenfeier Physik 2019
20. *An ambient condition nanoscale electrochemic device with direct optical antenna feedback*; 13.02.2020; TNTN 2020, Berlin
21. *Rot + Rot = Violett*; 06.11.2020; Science Slam "Röntgen Anniversary"
22. *Quanten-Politik; Klimaslam Würzburg 2022*
23. *Double resonant, monocrystalline plasmonic gratings evolutionary optimized for enhanced SERS sensing*; 2023 DPG Spring Meeting
24. *Fast Electrical Modulation of Single Plasmonic Nano-Rod Resonance*; CLEO and Plasmonics 2023

## G. Scientific education

### Courses:

1<sup>st</sup> semester course "Physics for human and dental medicine" 2022/23 and 2023/24 (to be held)

Head of the 3rd semester exercises to the course „Introduction into optics and quantum mechanics“ (German language, winter semester 2017-18 and 2018-19, Design of exercise sheets, solutions as well as exams)

Several lab-courses and exercise groups on the undergraduate level (Semester 1 - 4)

Exemplarily: Übungen Einführung in die Physik 2 SoSe 2010 und SoSe 2017, Blockpraktikum C1 Versuche 41, 42 und 45 im SoSe 2017, Blockpraktikum A im SoSe2018

Phd student:

Luka Zurak: Light harvesting via the plasmo-electric effect (ongoing since July 2018; official supervisor: Prof. Bert Hecht);

Diploma / Master (full responsibility for project and supervision):

Markus Kiunke: „Evolutionäre Optimierung plasmonischer Nanostrukturen“

Oleg Selig: „Evolutionäre Algorithmen für plasmonische Nanoantennen - Von der Implementierung zur Messung“

Paul Mörk: „Fundamentals and Application of doubly resonant SERS Gratings“

Jakob Syndicus: „Resistive heating of single plasmonic resonators“

Summer/Erasmus students/DAAD internships (full responsibility for project and supervision):

Rago Salvatore: “Investigation of Nanostructures using atomic force microscopy”

Luka Zurak: “Kelvin-Probe Force Measurements on illuminated optical antennas”

Pooja Sutheshnan: “Resistive heating of Au Raman gratings for T-measurement of 4-MBA SAM”

Akhil Kottayil: “Quasi-normal mode calculations with COMSOL”

Bachelor (full responsibility for project and supervision):

Martin Baußenwein: „Nahfeldverstärkung dipolarer metallischer Nanoantennen mit rechteckigem Querschnitt in Abhängigkeit vom Einfallswinkel der optischen Anregung“

Florian Bauer: „Split-ring-antennas for incoupling into plasmonic waveguides“ (never finished)

Franziska Keilbach: “1D mode-matching for plasmonic resonators” (ended)

Sophia von der Bey: “Herstellung von mikrofluidischen Kanälen aus PDMS für Raman-Messungen an plasmonischen Nanostrukturen”