### WORK EXPERIENCE AND EDUCATION

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ar 2018 - now	Software development and simulation at MathConsult GmbH
	in close cooperation with the Institute of Applied Mathematics and Research Institute of Computational and Applied Mathematics at Johannes Kepler Universität (C++, Python)
July 2016 - June 2018	Master Degree in Technical Physics at Johannes Kepler Universität
	Awarded Academic Degree: Diplom Ingenieurin (DiplIng.)
	Prizes: Awarded the Wilhelm Macke Recognition Prize
	Final Marks: 'sehr gut' (1) - mit Auszeichnung bestanden ('excellent' (1) - passed with distinction); Assessment: outstanding performance - highest obtainable mark, see diploma supplement
	Master thesis: Adaptive Optics in TWo-Photon Microscopy and Two-Photon Lithography
	Research work conducted at Yale University
Oct 2012 - June 2016	Bachelor Degree in Technical Physics at Johannes Kepler Universität
	Awarded Academic Degree: Bachelor of Science (BSc)
	Bachelor thesis: Proteinfunctionalization of Nano
	Polymerstructures
	Supervisor: UnivProf. Dr. Thomas A. Klar

### TRAINEESHIPS

2017

May - Oct Research Assistant at Yale University (master thesis) Cell Biology and Biomedical Engineering Department in the Bewersdorf Lab

luly_cont	Focus: Adaptive Optics in Microscopy and Lithography. A performance simulation of the adaptive optics system and the novel proposed correction scheme was conducted in Matlab. The scheme was implemented on the system and in LabView and its realisation and performance was tested on the system. Preliminary biological and lithographical samples were realised.
July - Sept	Curden Institute in the St. Johnston Laboratony
2016	Focus: Adaptive Optics Module - developing an adaptive optics black box (AOBB). Zemax was utilised for the construction, simulation and optimisation of the optical beam path in the AOBB. The mechanical module design and construction was performed via SolidWorks.
	Research Assistant at Yale University
July - sept 2015	Cell Biology and Biomedical Engineering Department in the Bewersdorf Lab Focus: Optimization of STED Microscopy by addressing two fundamental limitations, namely overlapping fluorophore emission spectra and photo bleaching, of multi-color livecell STED. A Matlab simulation-based study was performed on test and measured data to assess the fluorescence lifetime-based linear unmixing approach. The second constrain, photo bleaching, was analysed experimentally on cultivated cells stained with flurophores.
	Internship at Alpine Metal Tech
July 2014	Department of Research and Development Assisting the development of novel test methods for wheel rims as well as programming electronic laser controls were covered in the internship.
	Internship at Lenzing AG
sept 2014	Laboratory for Pulp Testing Chemical and optical analysis of pulp for quality assurance throughout production series.
	Internship at Alpine Metal Tech
July 2013	Department of electrical engineering The intemship comprised wiring and testing electronic laser control boxes as well as assisting in wiring entire production machines for wheel rim testing and steel labelling.

# ACADEMIC QUALIFICATIONS

Awards

2018 Wilhelm Macke Anerkennungspreis (Wilhelm Macke Recognition Prize) - award for graduation with distinction within minimum duration

Publications

- 2019 Buchegger B., Vidal C., Neuwirth J., Buchroither B., Kamer A., Hochreiner A., Klar T. A., Jacak J. "Gold Nanoislands Grown on Multiphoton Polymerized Structures as Substrate for Enzymatic Reactions", ACS Materials Lett. Article ASAP, DOI: 10.1021/acsmaterialslett. 9500182
- 2016 Goryaynov A., Neuwirth J., Bewersdorf J., 2016, "Quantitative Determination of Phototoxicity in Live Cell Super-Resolution Microscopy", 60th Annual Meeting of the Biophysical Society, Los Angeles, Califomia, February 27 - March 2.

2016 In the course of the Marshall Plan Scholarship: Neuwirth J. (2016, October 09), "Improvement of the STED Microscopy Setup, Gated STED for live time measurements",

Requested 21.08.2019 <<u>https://staticl.squarespace.com/estatic/</u> <u>559921a3e4b02c1d7480f8f4/t/596df737414fb5e5a802e42e/1500378938705/</u> <u>Neuwirth 599.pdf</u>>

Scholarships

- 2017 Wilhelm Macke Mobilitätsstipendium (Wilhelm Macke Mobility Scholarship) The Wilhelm Macke Foundation supports gifted students and graduates to facilitate research stays, conference participation or training abroad. Amount: 4.000 €
- 2017 Auslandsstipendium der Johannes Kepler Universität international scholarship for students of the Johannes Kepler Universität. Amount: 480 €
- 2016 Erasmus+ Traineeship supports internships abroad for students currently enrolled in higher education institutions in Programme countries at Bachelor and Master level as well as for doctoral candidates. Amount: 1.096 €
- 2016 Internationalisierungsprogramm für Studierende (IPS) internationalisation program of the federal state Upper Austria - supports Upper Austrian students' and graduates' stays abroad in non German speaking countries. Amount: 361 €
- 2015 Marshall Plan Scholarship (MPL) The Austrian Marshall Plan Foundation's exchange program to finance academic exchange between Austria and the U.S. Amount: 3.000 €
- 2015 Internationalisierungsprogramm für Studierende (IPS) internationalisation program of the federal state Upper Austria - supports Upper Austrian students' and graduates' stays abroad in non German speaking countries. Amount: 300 €

Conferences / Talks	
2019	International Conference of Computational Finance, A Coruna, Spain
2019	Invited Talk: "Adaptive Optics in To <sup>t</sup> o-Photon Microscopy and To-Photon Lithography", 02.07.2019, La Sapienza Rome, Italy

2018 Invited Talk:	"Adaptive Optics in To-Photon Microscopy and To-Photon Lithography - an introduction", 28.08.2018, Research Institute of Computational and Applied Mathematics, Johannes Kepler Universität, Austria
2017	Adaptive Optics in Two-Photon Microscopy and Two-Photon Lithography - limitation and drawbacks, Yale University, USA
2016	Adaptive Optics in a black box, University of Cambridge, Great Britain
2015	Improvement of the STED Microscopy Setup, Gated STED for live time measurements, Yale University, USA

### ADDITIONAL QUALIFICATIONS

Language qualificatio	ns English: A-Levels - language level B2 (2012); Common European Framework of Reference for Languages - language level C2 (2016)
	Spanish: Foundation course - language level Al /Å2 (2014)
Software skills	Profound programming skills: C, C++, Java, Matlab, Mathematica;
Qualifications	Profound experience in optical bench work
	Profound experience in simulations using Matlab, SolidWorks
	Experience in lab work at biosafety level 2 and cell cultivation
	Member of the students council and habilitation committees in the physics faculty

## HOBBY

Music	Violin, Piano
	Active member in various orchestras Universitätsorchester der Johannes Kepler Universität
	Hausruck Kammerorchester.
Sports	Track and field, reading, skiing, climbing

Julia Neuwirth

Linz, 03.09.19