Curriculum Vitae

Personal Data

Title	Dr.-Ing.
First name	Nicolas J.
Last name	Peter
Current position	Postdoc (current end of contract term: 31.10.2029)
Current institution(s)/site(s), country	Forschungszentrum Jülich GmbH, Germany
Identifiers/ORCID	https://orcid.org/0000-0001-9826-3543

Qualifications and Career

Stages	**Periods and Details**
Degree programme	"Microtechnology & Nanostructures" B.Sc. and M.Sc. 2008 – 2015 Saarland University, Germany
Bachelor thesis	"Superhydrophilic to superhydrophobic wetting properties of poly(dimethylsiloxane) by different plasma combinations" Prof. Helmut Seidel, Prof. Zhang (Alice) Haixia 2011 Peking University, China
Master thesis	"Helium irradiation-induced effects on tensile properties of interface-containing bi-material nanostructures" Prof. Eduard Arzt, Prof. Julia R. Greer 2013-2014 California Institute of Technology, USA
Doctorate	"Structure, chemistry and nanomechanics of grain boundaries in Cu-Ag alloys" Prof. Gerhard Dehm & Prof. Eduard Arzt 2015 – 2021 Max-Planck-Institut für Eisenforschung GmbH & Ruhr Universität Bochum, Germany
Stages of academic/professional career	2023 – now **Junior research group leader** "Materials interfaces" Forschungszentrum Jülich GmbH, Germany 2021 – 2022 **Post-doc** Forschungszentrum Jülich GmbH, Germany 2017 **Research visit (3 months)** Lawrence Berkeley National Lab, USA

Supplementary Career Information

One child, born 28.01.2023
Parental leave from 28.01.2023 – 17.02.2023, 28.06.2023 – 27.07.2023, and 28.10.2023 – 27.11.2023

Activities in the Research System

Project acquisition:

- First project funding (Einzelantrag) granted by the German Research Association (DFG) and the Austrian Science Fund (FWF) in the Weave program (DFG lead) early 2025 – volume ~ 380 k€.

Conference organization:

- Head-Organizer of the 2024 InMa Symposium on "Characterization and properties of interface-dominated materials" in Aachen, Germany, 2024.
- Head-Organizer of the 6th INASCON (International Nanoscience Student Conference) in Saarbrücken, Germany, 2012.

Teaching experience:

Parts of the annual lecture "Surface and Interface Structures and Processes" at RWTH Aachen in SS23, SS24, SS25.

Memberships:

Advisory Board of FZ Jülich's Career Center & Alumni Management, since 2025
Nanomechanical Behaviour Committee, TMS, since 2025
German Society for Materials Science (DGM), since 2024
German Society for Electron Microscopy (DGE), since 2020

Supervision of Researchers in Early Career Phases

My junior research group currently consists of one Post-doc, two PhD students, two Master students, and one student assistant. My role is day-to-day supervisor. In addition, I co-advise another PhD-student on campus. A brief overview is provided below.

	Post-doc	PhD	Master	Bachelor
Finished	0	0	1	2
Ongoing	1	2 (+1 co-advised)	2	0

PhD students:

- Since January 2023, PhD student 1, "Structure and mechanical properties of Ni-Al and oxide-mediated Ni-Al nanometallic multilayers", close to graduation, next career step: post-doc
- Since July 2025, PhD student 2, "In situ investigation of deformation and failure behaviour of grain boundaries in ufg-W and W bicrystals", first year student

Graduated students:

- Master student, 2025
- Bachelor student, 2024
- Bachelor student, 2023

Mentoring / Supervision of visiting students:

- Christopher M. Laursen (University of Wyoming, 2012)
- Adie Alwen (University of Southern California, 2022)
- Kyle Russel (University of Southern California, 2022)
- Danielle White (University of Southern California, 2023)
- Theophil Oros (University of Southern California, 2023)
- Andre Bohn (University of Southern California, 2024)
- Ashley J. Maldonado Otero (University of Southern California, 2024)

Scientific Results

Category A – Articles in peer-reviewed journals, contributions to peer-reviewed conferences or to anthology volumes, and book publications

- 41 peer reviewed publications
- h-factor: 14, 935 citations (Scopus, 31.01.2026, Scopus profile)

The presented selection of publications is aimed on providing an overview of first authorship publications, journal choice and topic choice:

1. J. Wang, **N.J. Peter**, M. Heilmaier, and R. Schwaiger, “A micromechanical investigation of plasticity in ordered NbMoCrTiAl and disordered TaNbHfZrTi refractory compositionally complex alloys at room temperature”, *International Journal of Plasticity*, vol. 197, pp. 104593, 2026 https://doi.org/10.1016/j.ijplas.2025.104593
2. X. Li, **N.J. Peter**, M. Moreira de Lima, S. Matthes, P. Schaaf, and R. Schwaiger, “Strengthening mechanism of Al/Ni multilayers with negative enthalpy of mixing”, *Nano Letters*, vol. 25, no. 34, pp. 12914-12920, 2025 https://doi.org/10.1021/acs.nanolett.5c02939
3. **N.J. Peter**, D. Zander, X. Cao, C. Tian, S. Zhang, K. Du, C. Scheu, and G. Dehm, “Preferred corrosion pathways for oxygen in Al2Ca – twin boundaries and dislocations”, *Journal of Alloys and Compounds*, vol. 936, pp. 168296, 2023 https://doi.org/10.1016/j.jallcom.2022.168296
4. E. Gärtner, A. Witte, **N.J. Peter**, V. Devulapalli, N. Ellendt, G. Dehm, E.A. Jägle, V. Uhlenwinkel, and L. Mädler, “Melt pool signatures of TiN nanoparticle dry-coated Co25Cr25Fe25Ni25 metal powder in laser-powder-bed-fusion”, *Materials & Design*, vol. 226, pp. 111626, 2023 https://doi.org/10.1016/j.matdes.2023.111626
5. L. Han, F. Maccari, I.R. Souza Filho, **N.J. Peter**, Ye. Wei, B. Gault, O. Gutfleisch, Z. Li, and D. Raabe, “A mechanically strong and ductile soft magnet with ultralow coercivity”, *Nature*, vol. 608, pp. 310-316, 2022 https://doi.org/10.1038/s41586-022-04935-3
6. **N.J. Peter**, M.J. Duarte, C. Kirchlechner, C.H. Liebscher and G. Dehm, “Faceting diagram for Ag segregation induced nanofaceting at an asymmetric Cu tilt grain boundary”, *Acta Materialia*, vol. 214, pp. 116960, 2021 https://doi.org/10.1016/j.actamat.2021.116960
7. M.P. Haines, **N.J. Peter**, S.S. Babu, and E.A. Jägle, “In-situ synthesis of oxides by reactive process atmospheres during L-PBF of stainless steel”, *Additive Manufacturing*, vol. 33, pp. 101178, 2020 https://doi.org/10.1016/j.addma.2020.101178
8. **N.J. Peter**, M.J. Duarte, C.H. Liebscher, V. Uhlenwinkel, E.A. Jägle, and G. Dehm, “Early stage phase seperation of AlCoCr0.75Cu0.5FeNi high-entropy powder at the nanoscale”,

Journal of Alloys and Compounds, vol. 820, pp. 153149, 2020
https://doi.org/10.1016/j.jallcom.2019.153149
9. **N.J. Peter**, T. Frolov, J. Duarte, R. Hadian, C. Ophus, C.H. Liebscher, C. Kirchlechner, and G. Dehm, “Segregation induced nano-faceting of an asymmetric tilt grain boundary in copper”, *Physical Review Letters*, vol. 121, pp. 255502, 2018
https://doi.org/10.1103/PhysRevLett.121.255502
10. **N.J. Peter**, X. Zhang, S. Chu, F. Zhu, H. Seidel, and H. Zhang, “Tunable wetting behavior of nanostructured poly(dimethylsiloxane) by plasma combination treatments”, *Applied Physics Letters*, vol. 101, no. 22, pp. 221601, 2012
https://doi.org/10.1063/1.4768808

Category B – Any other form of published results

1. **Patent:** CN102583233 B (Registration number CN201210066386.7):
Translated title: “A method to create poly(dimethylsiloxane) surfaces with different wetting behaviors based on nanostructured substrates”
Submitted: March 14th 2012
Published: January 14th 2015
Applicant: Peking University (Beijing, China)
Inventors: Zhang H., Zhang X., **Peter N.**, Zhu F., Chu S.
2. **Data set:**
A. Alwen, M. Ziegner, **N.J. Peter**, R. Schwaiger, and A. Hodge, "Combinatorial CuNiAl As-Sputtered and Annealed XRD Data", Materials Data Facility (NIST), 2024
https://doi.org/10.18126/32wy-3a03

Academic Distinctions

2023 Young Excellent Scientist Program (YESP) member
2019 Selected participant at the 69th Lindau Nobel Laureate Meeting
2016 Research visit scholarship from the German Academic Exchange Service (DAAD)
2015 Best talk award - 3rd prize at INASCON 2015 conference
2012 Science Excellence scholarship awarded by MLP SE

Other Information

Impact of the COVID-19 pandemic on my international post-doc mobility:
Following my PhD, I had initiated advanced negotiations for a postdoctoral position at Lawrence Berkeley National Laboratory (LBNL), building on my previous research visit in 2017. However, the appointment could not be realized due to the severe travel restrictions during the pandemic and the suspension of non-immigrant work visas (Proclamation 10052) by the U.S. administration in early 2021. Consequently, I transitioned to Forschungszentrum Jülich GmbH to continue my research under the given circumstances continuing building a network in the U.S., e.g. with the group of Prof. Andrea Hodge (USC) with whom an annual student exchange was arranged.