

Curriculum vitae - Dr.rer.nat. Aida Naghilou

Personal Information

Name: Naghilou, Aida
Position: Post-doctoral researcher
Medical University of Vienna
Department of Plastic, Reconstructive and Aesthetic Surgery
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Education

2018 **Dr.rer.nat**, Chemistry, University of Vienna, Austria
2014 **MSc**, Chemistry, University of Vienna, Austria

Positions Held

12/2024-Present **Postdoctoral researcher**, Medical University of Vienna, Vienna, Austria
06/2023-11/2024 **Postdoctoral researcher**, Leiden University, Leiden, The Netherlands
03/2019-05/2023 **Postdoctoral researcher**, Medical University of Vienna, Vienna, Austria
08/2018-02/2019 **Senior lecturer**, University of Vienna, Vienna, Austria
04/2014-05/2018 **University assistant (PhD student)**, University of Vienna, Vienna, Austria

Funding

2026-2027 **Austria Wirtschaftsservice (aws)**, Principal investigator
2025-2027 **Hochschuljubiläum Funds of City of Vienna**, Principal investigator
2022-2024 **Austrian Society for Plastic, Reconstructive, and Aesthetic Surgery**, Principal investigator

Awards and Esteem Factors

2026 **PhD thesis examiner**, Aalto University, Finland
2025 **Session chair** of Women in Chemical Engineering event, University of Vienna
2023 **Marion Gröger Award**, Medical University of Vienna, Austria
2022 **Best presentation award**, Plastic Surgery Research Council, Canada
Since 2021 **Vice president** of the Erwin Schrödinger Society for Nanosciences
2020 **Best paper award**, Plastic Surgery Research Council, Canada
2016 **Graduate student award**, European Materials Research Society, France
2015 **Bunsen book award**, German Bunsen Society for Physical Chemistry, Germany

Peer Review Services

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|--------------------------|---|
| Grants | German Research Foundation (DFG) Dutch Research Council (NWO) |
| Selected Journals | Advanced Materials, Advanced Functional Materials, Advanced Healthcare Materials, Acta Biomaterialia, Advanced NanoBiomed Research, Materials Today Bio, ACS Biomaterials Science & Engineering |

Organization of Scientific Meetings

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|-----------|---|
| 2016-2026 | 2nd, 3rd, 4th, 5th and 6th Erwin Schrödinger Symposium , Austria |
| 2023 | BIO-AFM Workshop , Leiden, The Netherlands |
| 2015-2025 | 6th, 7th, 8th, 9th and 10th Conference on Applications of Lasers in Materials Science , Austria |

Communication and Outreach

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|---------------|--|
| 2025 | Austrian Ministry of Health |
| 2025 | KinderUni |
| 2024 | Soroptimist Austria |
| 2022 | Online magazine of Vienna Technical Museum, BioInspiration |
| 2022 and 2026 | Long night of research |
| 2021-2025 | MINT Tank, Dr. Hans Riegel foundation (yearly presentations) |
| 2021-present | Young science ambassador of the Agency for Education and Internationalisation |
| 2021, 2022 | Brain Awareness Week |
| 2021 | Pint of science |

Selected Teaching and Development Training

Medical education certificate (MLW)

Program stepwise

Program mentoring

Thesis supervision training

Science communication

Teaching in Higher Education

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|------|------|------|------|------|------|------|------|------|------|------|------|
| Research Example in Modern Methods of Materials Chemistry | | | | | | | | | | | | |
| Physical-Chemical Laboratory Practical Course | | | | | | | | | | | | |
| Research Example Nanotechnology at Interfaces | | | | | | | | | | | | |
| Research Example Femto- and Nano-Technology at Interfaces | | | | | | | | | | | | |
| Research Project on Surfaces and Interfaces | | | | | | | | | | | | |
| Thesis Seminar: Tissue Regeneration: From Bench to Bedside | | | | | | | | | | | | |
| Journal Club: Tissue Regeneration – From Bench to Bedside | | | | | | | | | | | | |
| Recent Advances in Peripheral Nerve Tissue Engineering | | | | | | | | | | | | |
| Research Project Laser Spectroscopy and Molecular Symmetry | | | | | | | | | | | | |
| Electron Microscopy of Biological Samples | | | | | | | | | | | | |
| Introduction to Molecular and Cell Biological Work | | | | | | | | | | | | |
| The 3P Interactive Journal Club: Poster, Pitch, Peer review | | | | | | | | | | | | |
| Imaging Methods in Biomedical Engineering and Tissue Regeneration | | | | | | | | | | | | |

(CO-)Supervision of Students

PhD student

- Sarah Stadlmayr, 2021-2024, Medical University of Vienna

MSc & Medical Diploma students

- Niklas Ebel, 2026 (ongoing), Medical University of Vienna
- Dilan Öztürk, 2025 (ongoing), Medical University of Vienna
- Manuel Hofmann, 2023, University of Vienna
- Lena Pöttschacher, 2021, University of Vienna
- Sebastian Milla, 2019, University of Natural Resources and Life Sciences
- Ana Subotic, 2018, University of Vienna

BSc students

- Mila Bölger, 2024, Leiden University
- Jing Feng, 2024, Leiden University
- Aia Laschein, 2020, University of Vienna

Publication List

*: Corresponding author

1. **A. Naghilou**, Tom M.J. Evers, O. Armbruster, V. Satarifard, A. Mashaghi
Synthesis and Characterization of Phase-Separated Extracellular Condensates in Interactions with Cells
Chemical Engineering Journal, 518, 16455 (2025)
DOI: 10.1016/j.cej.2025.164551
2. **A. Naghilou**, A. Mashaghi
Scanning Probe Microscopy for Rheological Analysis of Biomolecular Condensates
STAR Protocols, 6, 104170 (2025)
DOI: 10.1016/j.xpro.2025.104170
3. F. Millesi, S. Mero, S. Rihl, S. Steinwenter, S. Stadlmayr, A. Borger, P. Supper, M. Haertinger, L. Ploszczanski, G. Sinn, **A. Naghilou**, L. Semmler, C. Radtke
Impact of Conduit-Filling Interactions on the Efficacy of Fibre and Hydrogel Fillers in Nerve Conduits
iScience, 28, 113150 (2025)
DOI: 10.1016/j.isci.2025.113150
4. **A. Naghilou**, O. Armbruster, A. Mashaghi
Scanning Probe Microscopy Elucidates Gelation and Rejuvenation of Biomolecular Condensates
Cell Reports Physical Science, 6, 102430, (2025)
DOI: 10.1016/j.xcrp.2025.102430
5. K. Peter, S. Stadlmayr, **A. Naghilou**, L. Ploszczanski, M. Hofmann, C. Riekkel, J. Liu, M. Burghammer, C. Gusenbauer, J. Konnerth, H. C. Schniepp, H. Rennhofer, G. Sinn, C. Radtke, H. C. Lichtenegger
Exploring the Unique Properties and Superior Schwann Cell Guiding Abilities of Spider Egg Sac Silk
ACS Applied Bio Materials, 8, 1307 (2025)
DOI: 10.1021/acsabm.4c01587
6. S. Stadlmayr, A. Mautner, M. Bacher, K. Peter, A. Mentler, S. Schulz, H. Lichtenegger, L. Brecker, A. Bismarck, **A. Naghilou***, C. Radtke
Holistic Analysis of Material Properties in Phylogenetically Diverse Spider Silks and Their Influence on Cell Adhesion
Advanced Functional Materials, 2145945 (2024)
DOI: 10.1002/adfm.202415945
7. A. Rad, L. Weigl, B. Steinecker-Frohnwieser, S. Stadlmayr, F. Millesi, M. Haertinger, A. Borger, P. Supper, L. Semmler, S. Wolf, **A. Naghilou**, T. Weiss, HG. Kress, C. Radtke
Nuclear Magnetic Resonance Treatment Induces β NGF Release from Schwann Cells and Enhances the Neurite Growth of Dorsal Root Ganglion Neurons In Vitro
Cells, 13, 1544, (2024)
DOI: 10.3390/cells13181544

8. M.P. Jones, Q. Jiang, A. Mautner, **A. Naghilou**, A. Prado-Roller, M. Wolff, T. Koch, V. Archodoulaki, A. Bismarck
Fungal Carbon: A Cost-Effective Tunable Network Template for Creating Supercapacitors
Global Challenges, 2300315 (2024)
DOI: 10.1002/gch2.202300315
9. S. Stadlmayr, K. Peter, F. Millesi, A. Rad, S. Wolf, S. Mero, M. Zehl, A. Mentler, C. Gusenbauer, J. Konnerth, H. C. Schniepp, H. Lichtenegger, **A. Naghilou***, C. Radtke
Comparative Analysis of Various Spider Silks in Regard to Nerve Regeneration: Material Properties and Schwann Cell Response
Advanced Healthcare Materials, 2302968 (2023)
DOI: 10.1002/adhm.202302968
10. **A. Naghilou***, K. Peter, F. Millesi, S. Stadlmayr, A. Rad, L. Semmler, P. Supper, L. Ploszczanski, J. Liu, M. Burghammer, C. Riekkel, A. Bismarck, E. H. G. Backus, H. Lichtenegger, C. Radtke
Insights into the mechanical properties of dragline spider silk affecting Schwann cell migration
International Journal of Biological Macromolecules, 244, 125398 (2023)
DOI: 10.1016/j.ijbiomac.2023.125398
11. F. Millesi*, S. Mero, L. Semmler, A. Mann, S. Stadlmayr, A. Borger, P. Supper, M. Haertinger, L. Ploszczanski, U. Windberger, T. Weiss, **A. Naghilou***, C. Radtke
A synergy of laminin and strain-stiffening in hydrogels promotes directed migration of neural cells
ACS Applied Materials & Interfaces, 15, 12678 (2023)
DOI: 10.1021/acsami.2c20040
12. L. Semmler, **A. Naghilou**, F. Millesi, S. Wolf, A. Mann, S. Stadlmayr, S. Mero, L. Ploszczanski, L. Greutter, A. Woehrer, E. Gyori, F. Vollrath, T. Weiss, C. Radtke
Silk-in-silk nerve guidance conduits enhance regeneration in a rat sciatic nerve injury model
Advanced Healthcare Materials, 12, 2203237 (2023)
DOI: 10.1002/adhm.202203237
13. F. Bergmann, S. Stadlmayr, F. Millesi, M. Zeitlinger, **A. Naghilou***, C. Radtke
The properties of native Trichonephila dragline silk and its biomedical applications
Biomaterials Advances, 140, 213089, (2022)
DOI: 10.1016/j.bioadv.2022.213089
14. A. Mann, B. Steinecker-Frohnwieser, **A. Naghilou**, F. Millesi, P. Supper, L. Semmler, S. Wolf, L. Marinova, L. Weigl, T. Weiss, C. Radtke
Nuclear Magnetic Resonance Treatment Accelerates the Regeneration of Dorsal Root Ganglion Neurons in vitro
Frontiers in cellular neuroscience, 16, 859545 (2022)
DOI: 10.3389/fncel.2022.859545

15. **A. Naghilou***, O. Bomati-Miguel*, A. Subotic, R. Lahoz, M. Kitzler-Zeiler, C. Radtke, M. A. Rodríguez, W. Kautek
Femtosecond laser generation of bimetallic oxide nanoparticles with potential X-ray absorbing and magnetic functionalities for medical imaging applications
Ceramics International, 47, 29363 (2021)
DOI: 10.1016/j.ceramint.2021.07.103
16. F. Millesi, T. Weiss, A. Mann, M. Haertinger, L. Semmler, P. Supper, D. Pils, **A. Naghilou**, C. Radtke
Defining the regenerative effects of native spider silk fibers on primary Schwann cells, sensory neurons, and nerve-associated fibroblasts
The FASEB journal, 35, 21196, (2021)
DOI: 10.1096/fj.202001447R
17. **A. Naghilou***, L. Pöttschacher, F. Millesi, A. Mann, P. Supper, L. Semmler, T. Weiss, E. H. G. Backus, C. Radtke
Correlating the secondary protein structure of natural spider silk with its guiding properties for Schwann cells
Material science and engineering C, 116, 111219, (2020)
DOI: 10.1016/j.msec.2020.111219
18. R. Lahoz, **A. Naghilou**, W. Kautek, O. Bomati-Miguel
Study of the surface physicochemical alterations and incubation phenomena induced on iron targets by nanosecond pulsed laser ablation in liquids: Effect on productivity and characteristics of the synthesized Nanoscale zero-Valent iron (nZVI) particles
Applied Surface Science, 511, 145438, (2020)
DOI: 10.1016/j.apsusc.2020.145438
19. **A. Naghilou***, M. He, J.S. Schubert, L.V. Zhigilei, W. Kautek
Femtosecond laser generation of microbumps and nanojets on single and bilayer Cu/Ag thin films
Physical Chemistry Chemical Physics, 21, 11846 (2019)
DOI: 10.1039/C9CP02174D
20. M. Pfaffeneder-Kmen, I. Falcon Casas, **A. Naghilou**, G. Trettenhahn, W. Kautek
A Multivariate Curve Resolution evaluation of an in-situ ATR-FTIR spectroscopy investigation of the electrochemical reduction of graphene oxide
Electrochimica Acta, 255, 160 (2017)
DOI: 10.1016/j.electacta.2017.09.124
21. **A. Naghilou**, O. Armbruster, W. Kautek
Femto- and nanosecond pulse laser ablation dependence on irradiation area: the role of defects in metals and semiconductors
Applied Surface Science 418, 487–490 (2017)
DOI: 10.1016/j.apsusc.2016.12.141

22. O. Armbruster, **A. Naghilou**, M. Kitzler, W. Kautek
Spot size and pulse number dependence of femtosecond laser ablation thresholds of silicon and stainless steel
Applied Surface Science 396, 1736–1740 (2017)
DOI: 10.1016/j.apsusc.2016.11.229
23. M.V. Shugaev, C. Wu, O. Armbruster, **A. Naghilou**, N. Brouwer, D.S. Ivanov, T.J.- Y. Derrien, N.M. Bulgakova, W. Kautek, B. Rethfeld, L.V. Zhigilei
Fundamentals of ultrafast laser-material interaction
MRS Bulletin 41, 960-968 (2016)
DOI: 10.1557/mrs.2016.274
24. O. Armbruster, **A. Naghilou**, H. Pöhl, W. Kautek
In-situ and non-destructive focus determination device for high-precision laser applications
Journal of Optics 18, 095401 (2016)
DOI: 10.1088/2040-8978/18/9/095401
25. **A. Naghilou**, O. Armbruster, M. Kitzler, W. Kautek
Merging spot size and pulse number dependence of femtosecond laser ablation thresholds: Modelling and demonstration with high impact polystyrene
Journal of Physical Chemistry C 119, 22992-22998 (2015)
DOI: 10.1021/acs.jpcc.5b07109