# *Curriculum vitae* – Priv. Doz. Dr. rer. nat. Aida Naghilou

## Personal Information


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| Name | Aida Naghilou |
| Position | Postdoctoral researcher, Medical University of Vienna |
| | Department of Plastic Reconstructive and Aesthetic Surgery |
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| ORCID | 0000-0002-4351-0620 |


## Education

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|---|---|
| 2026 | **Habilitation (Venia docendi)**, Biomedical Engineering, Medical University of Vienna |
| 2018 | **Dr. rer. nat.**, Chemistry, University of Vienna, Austria (graduated with distinction) |
| 2014 | **MSc,** Chemistry, University of Vienna, Austria (graduated with distinction) |

## Positions Held

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|---|---|
| 12/2024-Present | **Postdoctoral researcher**, Department of Plastic Reconstructive and Aesthetic Surgery, Medical University of Vienna, Austria |
| 06/2023-11/2024 | **Postdoctoral researcher**, Medical Systems Biophysics and Bioengineering, Leiden Academic Centre for Drug Research, Leiden University, Netherlands |
| 03/2019-05/2023 | **Postdoctoral researcher**, Department of Plastic Reconstructive and Aesthetic Surgery, Medical University of Vienna, Austria |
| 08/2018-02/2019 | **Senior lecturer**, Department of Physical Chemistry, University of Vienna, Austria |
| 04/2014-05/2018 | **PhD candidate**, Department of Physical Chemistry, University of Vienna, Austria |

## Funding

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|---|---|
| 2026-2027 | **Austria Wirtschaftsservice (aws)**, Principal Investigator |
| 2025-2027 | **Hochschuljubiläumsfonds of City of Vienna**, Principal Investigator |
| 2021-2023 | **Austrian Society for Plastic Reconstructive and Aesthetic Surgery**, Principal Investigator |

## Awards and Honors

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|---|---|
| 2023 | **Marion Gröger award**, Medical University of Vienna, Austria |
| 2022 | **Best oral presentation award**, Plastic Surgery Research Council, Canada |
| 2020 | **Best paper of the month award**, Plastic Surgery Research Council, Canada |
| 2016 | **Graduate student award**, European Materials Research Society, France |
| 2015 | **Master thesis award (Book Prize)**, German Bunsen Society for Physical Chemistry, Germany |

## Keynote and Invited Lectures

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| 2026 | **Invited speaker**, Green Chemistry Recent Trends |
| 2025 | **Invited speaker,** 10th International PaCE Symposium |
| 2022 | **Invited speaker**, BioCombs4NanoFibers Workshop |
| 2021 | **Keynote speaker**, FEMS Euromat - European Congress for Advanced Materials |
| 2021 | **Invited speaker,** Symposium on Advanced Materials |

## Academic Service

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|---|---|
| 2026 | **PhD thesis external examiner**, Aalto University, Finland |
| 2025 | **Session chair**, Women in Chemical Engineering event, University of Vienna |
| 2024 | **Poster juror**, LACDR Spring Symposium, Leiden University |
| 2021-present | **Vice president**, Erwin Schrödinger Society for Nanosciences |
| 2018-2022 | **Elected alumni representative**, PROSCIENTIA interdisciplinary scholarship and research network |

## Peer Review Activities

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| **Grants** | German Research Foundation (DFG)<br>Dutch Research Council (NWO) |
| **Journals (selected)** | Advanced Materials, Advanced Functional Materials, Advanced Healthcare Materials, Acta Biomaterialia, International Journal of Biological Macromolecules, Advanced NanoBiomed Research, Materials Today Bio, ACS Biomaterials Science & Engineering |

## Organization of Scientific Meetings

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|---|---|
| 2016-2026 | **2$^{nd}$- 7$^{th}$ Symposia of Erwin Schrödinger Society**, Austria |
| 2023 | **BIO-AFM Workshop**, Netherlands |
| 2015-2025 | **6$^{th}$- 10$^{th}$ Conference on Applications of Lasers in Materials Science**, Austria |

## Science Communication and Outreach

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|---|---|
| 2026 and 2022 | **Long Night of Research** |
| 2025 | **Austrian Ministry of Health** |
| 2025 | **KinderUni** |
| 2024 | **Soroptimist Austria** |
| 2022 | **Magazine of Vienna Museum of Science and Technology,** BioInspiration |
| 2021-2025 | **MINT Tank, Dr. Hans Riegel Foundation** (annual lectures) |
| 2021-present | **Young Science Ambassador,** Agency for Education and Internationalisation (OeAD) |
| 2021, 2022 | **Brain Awareness Week** |
| 2021 | **Pint of Science** |

## Selected Didactic and Personal Development Training

Change Management, Guiding of Teams, Medical Education Certificate (MLW), Program Female Mentoring, Program Stepwise, Science Communication, Thesis Supervision, Senior Mentoring

## Teaching in Higher Education

- Problem-Oriented Learning (POL) 2. Semester
- Science and Medicine (SSM 2) Elective Part
- The 3P Interactive Journal Club: Poster, Pitch, Peer review
- Advanced Imaging Methods in Cellular and Tissue Engineering
- Electron Microscopy of Biological Samples
- Introduction to Molecular and Cell Biological Work
- Thesis Seminar and Journal Club: Tissue Regeneration - From Bench to Bedside
- Recent Advances in Peripheral Nerve Tissue Engineering
- Journal Club and Progress Report
- 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

## 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 Öztü rk, 2026, 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,** 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

2. **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

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,** A. Mashaghi
   Scanning Probe Microscopy for Rheological Analysis of Biomolecular Condensates
   STAR Protocols, 6, 104170 (2025)
   DOI: 10.1016/j.xpro.2025.104170

5. K. Peter, S. Stadlmayr, **A. Naghilou**, L. Ploszczanski, M. Hofmann, C. Riekel, 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 ßNGF 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. Riekel, 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
    Materials 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