

## Curriculum vitae - Dr. rer. nat. Aida Naghilou

### Personal Information

Name Aida Naghilou  
Position Postdoctoral researcher, Medical University of Vienna  
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### Education

2018 **Dr. rer. nat.**, Chemistry, University of Vienna, Austria (graduated with distinction)  
2014 **MSc**, Chemistry, University of Vienna, Austria (graduated with distinction)

### Positions Held

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

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

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

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

## Academic Service

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

## Peer Review Activities

<b>Grants</b>	German Research Foundation (DFG) Dutch Research Council (NWO)
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**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

2016-2026	<b>2<sup>nd</sup>- 7<sup>th</sup> Symposia of Erwin Schrödinger Society</b> , Austria
2023	<b>BIO-AFM Workshop</b> , Netherlands
2015-2025	<b>6<sup>th</sup>- 10<sup>th</sup> Conference on Applications of Lasers in Materials Science</b> , Austria

## Science Communication and Outreach

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

## **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 Öztürk, 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. 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  $\beta$ 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  
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