Curriculum Vitae

Hendrik Schlicke

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Professional Career

Seit 2023 **Research Group Leader** *Nanomaterial Device Integration*, Leibniz Institute of Polymer Research Dresden e.V., Dresden, Germany.

2017-2023 **Scientist / Project Leader**, Fraunhofer Center for Applied Nanotechnology CAN, (formerly Center for Applied Nanotechnology CAN GmbH), Hamburg, Germany.

2017 **Research Associate**, University of Hamburg, Institute for Physical Chemsitry, Group of Prof. Horst Weller.

Education

2014 - 2017 Dr. rer. nat., Chemistry (summa cum laude), **University of Hamburg**, Germany; Supervisors: *Prof. Dr. Horst Weller*, *Dr. Tobias Vossmeyer*; "Cross-Linked Gold Nanoparticle Membranes: Novel Materials for Electromechanical Sensors and Actuators"

2011 - 2013 Master of Science, Chemistry (with honors, GPA 1.0), **University of Hamburg, Germany**; Supervisors: *Prof. Dr. Horst Weller*, *Dr. Tobias Vossmeyer*; "Freestanding Membranes of Crosslinked Gold Nanoparticles: Mechanical Characterization and Charge Transport"

2010 - 2011 *Visiting scholar*, **University of California, Berkeley**; Host: *Prof. Dr. Paul Alivisatos*

2007 - 2010 Bachelor of Science, Chemistry (GPA 1.0), **University of Hamburg**, Germany; Supervisors: *Prof. Dr. Horst Weller, Dr. Tobias Vossmeyer*

Academic Distinctions

2018 Award for one of two best dissertations in chemistry, **Freundes- und Förderverein Chemie der Universität Hamburg e.V.**.

2017 Selected Young Scientist to attend the **67th Lindau Nobel Laureate Meeting**.

2014 Award for one of two best degrees (M. Sc. Chemistry), **Freundes- und Förderverein Chemie der Universität Hamburg e.V.**.

2014 - 2017 PhD scholarship, **Joachim Herz Foundation**.

2010 Award for the best degree (B. Sc. Chemistry), **Freundes- und Förderverein Chemie der Universität Hamburg e.V.**.

2010	Foreign Exchange scholarship, **Studienstiftung des deutschen Volkes (German Academic Scholarship Foundation)**.
2009 - 2013	Scholarship, **Studienstiftung des deutschen Volkes (German Academic Scholarship Foundation)**.

External Funding

3. **RTG2767 Supracolloidal Structures: Subproject B7: "Chromatographic Sensors Obtained by Vertical Integration of Nanoparticle Composites"**,
DFG, Research Training Group
Leibniz IPF / TU Dresden (since 2022, joined as PI: 08/2023). Role: Principal investigator.

2. **TUNARR - Tunable Emitter Arrays for Miniaturized NIR Spectrometry**,
Federal Ministry of Education and Research (Germany) BMBF, Wissenschaftliche Vorprojekte (WiVoPro): Photonik und Quantentechnologien. Funding volume: ca. 300 kEUR.
Fraunhofer CAN, 1 Mar 2021 – 28 Feb 2023. Role: Project coordinator.

1. **MISEL - Multispectral Intelligent Vision System with Embedded Low-Power Neural Computing**,
EU, H2020 FET Proactive. Funding volume: ca. 5 MEUR; Fraunhofer CAN: ca. 300 kEUR.
Fraunhofer CAN, 1 Jan 2021 – 31 Dec 2024 (left as sub-project leader in 07/2023). Joint project with partners from FI, DE, ES, PL, FR and SE; Coordinator: VTT Oy (FI). Role: Sub-project leader (Fraunhofer CAN).

Further Activities

- **Reviewer for Scientic Journals** *Advanced Materials*, *Nature Electronics*, *ACS Nano*, *Advanced Materials Technologies*, *ACS Applied Materials & Interfaces*, *ACS Applied Nano Materials*, *Journal of Physical Chemistry C*, *Sensors*, *Micro and Nano Engineering*.
- **Reviewer for Book Proposal** *Elsevier Nanotechnology*.

Peer Reviewed Publications (since 2014)

20. C.-Y. Liu, S. C. Bittinger, A. Bose, A. Meyer, H. Schlicke, T. Vossmeyer,* *"Tuning the Interfacial Chemistry of Nanoparticle Assemblies via Spin-Coating: From Single Sensors to Monolithic Sensor Arrays"*, *Adv. Mater. Interfaces* (accepted).

19. K. Schaefer, C.-Y. Liu, A. Meyer, H. Schlicke, T. Vossmeyer, C. Herrmann,* *"Cross-Linked Gold Nanoparticle Assemblies: What Can We Learn from Single Flat Interfaces?" J. Phys. Chem. C*, **2024**, *128*, 3994-4008.

18. S.-D. Wu, S.-h. Hsu,* B. Ketelsen, S. C. Bittinger, H. Schlicke, H. Weller, T. Vossmeyer,* *"Fabrication of Eco-friendly Wearable Strain Sensor Arrays via Facile Contact Printing for Healthcare Applications"*, *Small Methods* **2023**, *7*, 2300170. (cover art in issue 09/2023, doi: 10.1002/smtd.202370051)

17. B. Ketelsen, H. Schlicke*, V. R. Schulze, S. C. Bittinger, S.-D. Wu, S.-h. Hsu, T. Vossmeyer, *"Nanoparticle-based strain gauges: Anisotropic response characteristics, multidirectional strain sensing, and novel approaches to healthcare applications"*, *Adv. Funct. Mater* **2022**, 2210065.

16. H. Schlicke*, S. C. Bittinger, H. Noei, T. Vossmeyer, *"Gold Nanoparticle-Based Chemiresistors: Recognition of Volatile Organic Compounds Using Tunable Response Kinetics"*, *ACS Appl. Nano Mater.* **2021**, *4*, 10399-10408.

15. H. Hartmann, J.-N. Beyer, J. Hansen, S. C. Bittinger, M. Yesilmen, H. Schlicke, T. Vossmeyer,* *"Transfer Printing of Freestanding Nanoassemblies: A Route to Membrane Resonators with Adjustable Prestress"*, *ACS Appl. Mater. Interfaces* **2021**, *13*, 40932.

14. B. Ketelsen, P. P. Tjarks, H. Schlicke, Y.-C. Liao*, T. Vossmeyer*, *"Fully Printed Flexible Chemiresistors with Tunable Selectivity Based on Gold Nanoparticles"*, *Chemosensors* **2020**, *8*, 116.

13. H. Schlicke*, S. C. Bittinger, T. Vossmeyer, *"Lithographic Patterning and Selective Functionalization of Metal Nanoparticle Composite Films"*, *ACS. Appl. Electron. Mater.* **2020**, *2*, 3741-3748.

12. H. Schlicke*, S. Kunze, M, Rebber, N. Schulz, S. Riekeberg, H. K. Trieu, T. Vossmeyer*, *"Cross-Linked Gold Nanoparticle Composite Membranes as Highly Sensitive Pressure Sensors"*, *Adv. Funct. Mater.* **2020**, *30*, 2003381.
(cover art in issue 40/2020, doi: 10.1002/adfm.202070269)

11. A. Hensel, C. J. Schröter, H. Schlicke, N. Schulz, S. Riekeberg, H. K. Trieu, A. Stierle, H. Noei, H. Weller, T. Vossmeyer*, *"Elasticity of Cross-Linked Titania Nanocrystal Assemblies Probed by AFM-Bulge Tests"*, *Nanomaterials* **2019**, *9*, 1230.

10. H. Schlicke, S. Kunze, M. Finsel, E. W. Leib, C. J. Schröter, M. Blankenburg, H. Noei, T. Vossmeyer*, *"Tuning the Elasticity of Cross-Linked Gold Nanoparticle Assemblies"*, *J. Phys. Chem. C* **2019**, *123*, 19165-19174.

9. B. Ketelsen, M. Yesilmen, H. Schlicke, H. Noei, C.-H. Su, Y.-C. Liao, T. Vossmeyer*, *"Fabrication of Strain Gauges via Contact Printing: A Simple Route to Healthcare Sensors Based on Cross-Linked Gold Nanoparticles"*, *ACS Appl. Mater. Interfaces* **2018**, *10*, 37374-37385.

8. H. Schlicke, M. Behrens, C. J. Schröter, G. T. Dahl, H. Hartmann, T. Vossmeyer*, *"Cross-Linked Gold Nanoparticle Resonators as Microelectromechanical Vapor Sensors" ACS Sens.* **2017**, *2*, 540-546.

7. H. Schlicke, C. J. Schröter, T. Vossmeyer*, *"Electrostatically driven drumhead resonators based on freestanding membranes of cross-linked gold nanoparticles"*, *Nanoscale* **2016**, *8*, 15880-15887.
(cover art in issue 35/2016, doi: 10.1039/C6NR90190E)

6. H. Schlicke, M. Rebber, S. Kunze, T. Vossmeyer*, *"Resistive pressure sensors based on freestanding membranes of gold nanoparticles"*, *Nanoscale* **2016**, *8*, 183-186.

5. H. Schlicke, D. Battista, S. Kunze, C. J. Schröter, M. Eich, T. Vossmeyer*, *"Freestanding Membranes of Cross-Linked Gold Nanoparticles: Novel Functional Materials for Electrostatic Actuators"*, *ACS Appl. Mater. Interfaces* **2015**, *7*, 15123-15128.

4. H. Schlicke, C. Herrmann*, *"Controlling molecular conductance: switching off π sites through protonation"*, *ChemPhysChem* **2014**, *15*, 4011-4018.

3. H. Schlicke, E. W. Leib, A. Petrov, J. H. Schröder, T. Vossmeyer*, *"Elastic and viscoelastic properties of cross-linked gold nanoparticles probed by AFM bulge tests"*, *J. Phys. Chem. C* **2014**, *118*, 4386-4395.

Further Publications

8. O. Yakar, B. Uzlu, D. S. Schneider, A. Grundmann, S. Becker, J. S. Niehaus, H. Schlicke, M. Heuken, H. Kalisch, A. Vescan, Z. Wang, M. C. Lemme, *"MoS2/Quantum Dot Hybrid Photodetectors on Flexible Substrates"*, *2022 Device Research Conference (DRC)* **2022**,
doi: 10.1109/DRC55272.2022.9855791.

7. H. Schlicke, C. Schloen, T. Jochum, S. Becker, H. Weller, J. S. Niehaus, *"Polarized Emitting qLEDs based on Aligned Quantum Rods as Active Material"*, *Proceedings of the International Display Workshops Volume 26 (IDW '19)* **2019**, doi: 10.36463/idw.2019.0774.

6. A. Köck, M. Deluca, F. Sosada-Ludwikowska, G. Maier, R. W. Teubenbacher, M. Sagmeister, K. Rohracher, W. Wachmann, J. S. Niehaus, S. Becker, Ö. Tokmak, H. Schlicke, A. Blümel, K. Popovic, M. Tscherner, *"Heterogeneous Integration of Metal Oxides - Towards a CMOS Based Multi Gas Sensor Device"*, *Proceedings* **2019**, *14*, 5.

5. H. Schlicke, T. Jochum, S. C. Bittinger, T. Vossmeyer, J.-S. Niehaus, H. Weller, *"Nanoparticle Composites as Functional Materials for Novel Devices: Chemical Sensing and Optoelectronic Applications"*, *2018 IEEE 13th Nanotechnology Materials and Devices Conference* **2018**, 1-4.

4. H. Schlicke, H. Hartmann, S. C. Bittinger, M. Rebber, M. Behrens, T. Vossmeyer, *"Cross-Linked Nanoparticle Membranes for Microelectromechanical Chemical Sensors and Pressure Sensors"*, *Proceedings* **2018**, *2*, 821.

3. H. Schlicke, C. J. Schröter, G. T. Dahl, M. Rebber, M. Behrens, T. Vossmeyer, *"Membranes of Organically Cross-Linked Gold Nanoparticles: Novel Materials for MEMS/NEMS Sensors and Actuators"*, *2017 IEEE 12th Nanotechnology Materials and Devices Conference (NMDC)* **2017**, 109-110.

2. H. Schlicke, S. C. Bittinger, M. Behrens, M. Yesilmen, H. Hartmann, C. J. Schröter, G. T. Dahl, T. Vossmeyer, *"Electrostatically Actuated Membranes of Cross-Linked Gold Nanoparticles: Novel Concepts for Electromechanical Gas Sensors"*, *Proceedings* **2017**, *1*, 301.

1. H. Schlicke, C. J. Schröter, M. Rebber, D. Battista, S. Kunze, T. Vossmeyer, *"Freestanding Membranes of Cross-Linked Gold-Nanoparticles: Novel Functional Materials for MEMS/NEMS Applications"*, *TechConnect Briefs 2016: Advanced Manufacturing, Electronics and Microsystems* **2016**, 83-86.

Patent Activities

3. H. Schlicke, J. S. Niehaus, *"Spektrometer"*, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., DE102020216283A1, EP4264209A1, WO2022128259A1, US20240035959A1. Patent application filed 12/2020.

2. H. Schlicke, J. S. Niehaus, C. Reich, *"Verfahren zur Herstellung einer polarisiert emittierenden Leuchtdiode"*, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., WO2021083477A1, EP4052310A1, US20220407024A1, KR20220082024A, JP7416929B2. JP patent granted 12/2023.

1. H. Schlicke, T. Vossmeyer, M. Behrens, S. C. Bittinger, *"Method for detecting an analyte based on the detection of a change of the mechanical properties of a freestanding nanoparticle composite material"*, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., US11293900B2, GB2560767A, WO2018172450A1, JP2020514760A, EP3602027A1. US patent granted 04/2022.

March 21, 2024.