

Alexander Schlaich

Curriculum Vitae

Independent Junior Research group leader
Stuttgart Center for Simulation Science (SC SimTech),
Cluster of Excellence EXC 2075 „Data-Integrated
Simulation Science“ (SimTech) & Institute for
Computational Physics, University of Stuttgart, Germany
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*28 April 1986, Germany; married, 2 children (4 & 7 yrs.)
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Academic Positions

- since 2021 **Independent Junior Research Group Leader**, *Stuttgart Center for Simulation Science (SC SimTech), Cluster of Excellence EXC 2075 „Data-Integrated Simulation Science“ (SimTech)*, University of Stuttgart, Germany
Associated researcher to the Institute for Computational Physics, University of Stuttgart
- July 2020 – Dec. 2020 **Senior Postdoctoral researcher**, *Institute for Computational Physics*, University of Stuttgart, Germany, funded by DFG CRC 1313
- 2017 – 2020 **Postdoctoral researcher**, *Laboratoire Interdisciplinaire de Physique*, Grenoble, France
Multiscale modeling of adsorption, phase transitions and transport in porous media within the ANR project TAMTAM via molecular simulation and systematic upscaling using rigorous statistical mechanics approaches. Combined experimental/theoretical work on transport of water in soft confinement within the ANR project TWIST.
- 2012 – 2017 **Ph.D. student**, *Freie Universität Berlin*, Germany
Thesis: Water effects on the interaction and friction between polar surfaces — Investigation of hydration, dielectric, electrostatic and frictional interactions between polar surfaces across nano-confined water using theory and molecular simulation.
- 2011 – 2012 **Research associate**, *Institute for Computational Physics, University of Stuttgart*, Germany
Development of a Poisson–Boltzmann solver for regions with dielectric mismatch and charge regulating surfaces and implementation of a Poisson–Nernst–Planck solver in the DUNE numerical environment. Involvement into the institutes teaching duties and contributions to the in-house molecular dynamics package ESPResSo.

Academic Distinctions

- 2024 **Academy Prize**, *Heidelberg Academy of Science*
- 2016 **Poster prize**, *Protein Electrostatics*, Berlin
- 2012 **Scholarship**, HPC-Europa2 programme

Education

- 2017 **Ph.D. thesis**, *Freie Universität Berlin*, Germany, Title: Water effects on the interaction and friction between polar surfaces
Supervisor: Professor Dr. Roland Netz
- 2011 **Diploma thesis**, *University of Stuttgart*, Germany, Title: An iterative Poisson Boltzmann solver for regions with dielectric mismatch
Supervisor: Professor Dr. Christian Holm
- 2005 – 2011 **Studies of Physics (Diploma degree)**, *University of Stuttgart*, Germany

Engagement in the Research System

Organization of conferences and workshops

- 2024 **CECAM Flagship School “Simulating soft matter across scales”**, *Stuttgart/Germany*
- 2023 **CECAM Flagship School “Simulating energy materials with ESPResSo and waL-Berla”**, *Stuttgart/Germany*
- 2023 **Scientific Board and minisymposium “Data-driven progress in modeling multi-scale and multi-physics problem” at the International Conference on Data-Integrated Simulation Science (SimTech2023)**, *Stuttgart/Germany*

Service to the scientific community

- since 2023 **Chair of the working group “young Leaders in Physics (AGyouLeaP)”**, *German Physical Society (DPG)*
- since 2021 **Participating Researcher in the Cluster of Excellence “Data-Integrated Simulation Science (SimTech)”**
- since 2020 **Organizer of the colloquium of the Institute for Computational Physics (ICP)**, *Stuttgart*

Refereeing activity, Reviewer for *Physica A* (since 2018), *Physical Chemistry Chemical Physics* (since 2019), *The Journal of Physical Chemistry* (since 2020), *Nano Letters* (since 2020), *ACS Nano* (since 2021), *AIP Advances* (since 2021), *Physics of Fluids* (since 2022), *The European Physical Journal E* (since 2022), *Europhysics Letters* (since 2022), *The Journal of Physical Chemistry Letters* (since 2023)

Non-scientific leadership experience

- 2010 – 2012 **Civil protection, Volunteering activity**
Head of the German Red Cross community in Stuttgart-Feuerbach with about 120 active members. Platoon leader in the civil protection responsible for the emergency patient treatment space.
- 2002 – 2013 **German Red Cross (DRK), Volunteering activity**
Active member of the German Red Cross, among others development of student emergency services at high schools and responsible for internal qualification and education.

Teaching

- 2024 **The physics of biological and soft matter II**, for M.Sc. Physics, (6 ECTS)
Jointly with Christian Holm, Rudolf Weeber
- 2023 **The physics of biological and soft matter I**, for M.Sc. Physics, (6 ECTS)
Jointly with Thomas Speck
- 2023 **Hauptseminar, Principles of self-organization**, for M.Sc. Physics, (6 ECTS)
Organized jointly with Thomas Speck
- 2022/23 **Physics of Fluids I, Independent lecture**, for module “Physics of Fluids”, (6 ECTS)
Delivered course contents:
 - The concept of fluids
 - Foundations of Statistical Mechanics and Thermodynamics
 - Structure of fluids (Scattering theory, density fluctuations and correlations)
 - Phase behavior (vdW fluid, lattice gas, Landau theory)
 - Criticality and scaling theory (correlation length, Ginzburg-Landau theory and dimensionality, scale invariance, finite size scaling)
 - Interfaces and films (Interface excess, wetting, film stability, disjoining pressure, Laplace pressure and capillary condensation)
 - Curvature effects and fluctuations at interfaces: membranes

- since 2022 **Data-Integrated Simulation Science B**, *Particle based simulation methods*, Lecture part on multiscale dynamics, 7 × 90 minutes lectures + written exam, M.Sc. Simulation Technology
 Delivered course contents:
- Quantum mechanical simulations: fundamentals of quantum mechanics, solution of the Schrödinger equation, Hartree, Hartree-Fock and Post-Hartree Fock methods, density functional theory.
 - Ab initio molecular dynamics (Ehrenfest, Born-Oppenheimer, Car-Parinello) and QM/MM schemes
 - Monte Carlo Method and Metropolis sampling
 - Mesoscopic simulation approaches: idea of coarse-graining, Brownian Dynamics, hydrodynamics and the lattice Boltzmann method
- since 2022 **Advanced Simulation Methods**, *Molecular modeling of electrode/electrolyte interfaces*, Lecture with block lab course, (3 ECTS)
 Organized jointly with Maria Fyta and Christian Holm
- 2021 **Hauptseminar**, *The Physics of Porous media: confinement, transport, reactions*, for M.Sc. Physics, (6 ECTS)
- 2017 **Classical Electrodynamics**, *Tutoring; Lecturer: Stefanie Russ*, Freie Universität Berlin
- 2012 – 2016 **Computational Physics**, *Tutoring; Lecturer: Roland Netz*, Freie Universität Berlin
 Development of new teaching and exercise concept, based on Python and Jupyter. Replacement for presenting the lecture.
- 2011 – 2012 **Introduction to Computational Methods**, *Tutoring; Lecturer: Axel Arnold*, Universität Stuttgart
- 2010 – 2012 **Simulation methods in physics**, *Tutoring; Lecturer: Christian Holm*, Universität Stuttgart
- 2008 – 2010 **Physics Lab Course**, *Tutoring*, Universität Stuttgart

Publications

Total of **32** published publications in peer-reviewed journals - **9** as first or equally contributing author, **3** as corresponding or last author. **3** contributions have been made to book chapters.
 According to Google scholar > **1180 citations**, **h-index 16** (dated April 2024).

Submitted for review

- 2024 **A. Schlaich**, M. Vandamme, M. Plazanet, and B. Coasne. Bridging Microscopic Dynamics and Hydraulic Permeability in Mechanically-Deformed Nanoporous Materials, March 2024.
 M. Kanduč, J. Reed, **A. Schlaich**, and E. Schneck. Molecular dynamics simulations as support for experimental studies on surfactant interfacial layers, 2024.

Publications in peer-reviewed journals

- 2024 **A. Schlaich**, J. O. Daldrop, B. Kowalik, M. Kanduč, E. Schneck, and R. R. Netz. Water Structuring Induces Nonuniversal Hydration Repulsion between Polar Surfaces: Quantitative Comparison between Molecular Simulations, Theory, and Experiments. *Langmuir*, April 2024. DOI: 10.1021/acs.langmuir.3c03656.
- I. Tischler, **A. Schlaich**, and C. Holm. Disentanglement of Surface and Confinement Effects for Diene Metathesis in Mesoporous Confinement. *ACS Omega*, 9(1):598–606, January 2024. DOI: 10.1021/acsomega.3c06195.
- B. Bursik, R. Stierle, **A. Schlaich**, P. Rehner, and J. Gross. Viscosities of inhomogeneous systems from generalized entropy scaling. *Physics of Fluids*, 36(4), 2024.

- 2023 S. Bolik, **A. Schlaich**, T. Mukhina, A. Amato, O. Bastien, E. Schneck, B. Demé, and J. Jouhet. Lipid bilayer properties potentially contributed to the evolutionary disappearance of betaine lipids in seed plants. *BMC Biol*, 21(1):275, November 2023. DOI: 10.1186/s12915-023-01775-z.
- A. Schlaich**, S. Tyagi, S. Kesselheim, M. Sega, and C. Holm. Renormalized charge and dielectric effects in colloidal interactions: A numerical solution of the nonlinear Poisson–Boltzmann equation for unknown boundary conditions. *Eur. Phys. J. E*, 46(9):80, September 2023. DOI: 10.1140/epje/s10189-023-00334-2.
- J. Yang, S. Kondrat, C. Lian, H. Liu, **A. Schlaich**, and C. Holm. Solvent Effects on Structure and Screening in Confined Electrolytes. *Phys. Rev. Lett.*, 131(11):118201, September 2023. DOI: 10.1103/PhysRevLett.131.118201.
- H. Jäger, **A. Schlaich**, J. Yang, C. Lian, S. Kondrat, and C. Holm. A screening of results on the decay length in concentrated electrolytes. *Faraday Discuss.*, August 2023. DOI: 10.1039/D3FD00043E.
- S. Gravelle, D. Beyer, M. Brito, **A. Schlaich**, and C. Holm. Assessing the Validity of NMR Relaxation Rates Obtained from Coarse-Grained Simulations of PEG–Water Mixtures. *J. Phys. Chem. B*, 127(25):5601–5608, June 2023. DOI: 10.1021/acs.jpcc.3c01646.
- S. Gravelle, S. Haber-Pohlmeier, C. Mattea, S. Stapf, C. Holm, and **A. Schlaich**. NMR Investigation of Water in Salt Crusts: Insights from Experiments and Molecular Simulations. *Langmuir*, 39(22):7548–7556, June 2023. DOI: 10.1021/acs.langmuir.3c00036.
- V. Artemov, L. Frank, R. Doronin, P. Stärk, **A. Schlaich**, A. Andreev, T. Leisner, A. Radenovic, and A. Kiselev. The Three-Phase Contact Potential Difference Modulates the Water Surface Charge. *J. Phys. Chem. Lett.*, 14(20):4796–4802, May 2023. DOI: 10.1021/acs.jpcclett.3c00479.
- 2022 S. Gravelle, C. Holm, and **A. Schlaich**. Transport of thin water films: From thermally activated random walks to hydrodynamics. *J. Chem. Phys.*, 157(10):104702, September 2022. DOI: 10.1063/5.0099646.
- S. Liese, **A. Schlaich**, and R. R. Netz. Dielectric constant of aqueous solutions of proteins and organic polymers from molecular dynamics simulations. *J. Chem. Phys.*, 156(22):224902, June 2022. DOI: 10.1063/5.0089397.
- A. Schlaich**, D. Jin, L. Bocquet, and B. Coasne. Electronic screening using a virtual Thomas–Fermi fluid for predicting wetting and phase transitions of ionic liquids at metal surfaces. *Nat. Mater.*, pages 237–245, 2022. DOI: 10.1038/s41563-021-01121-0.
- 2021 G. Gonella, E. H. G. Backus, Y. Nagata, D. J. Bonthuis, P. Loche, **A. Schlaich**, R. R. Netz, A. Kühnle, I. T. McCrum, M. T. M. Koper, M. Wolf, B. Winter, G. Meijer, R. K. Campen, and M. Bonn. Water at charged interfaces. *Nat Rev Chem*, pages 1–20, June 2021. DOI: 10.1038/s41570-021-00293-2.
- I. Tischler, **A. Schlaich**, and C. Holm. The Presence of a Wall Enhances the Probability for Ring-Closing Metathesis: Insights from Classical Polymer Theory and Atomistic Simulations. *Macromolecular Theory and Simulations*, 30(2):2000076, 2021. DOI: 10.1002/mats.202000076.
- 2020 J. C. F. Schulz, **A. Schlaich**, M. Heyden, R. R. Netz, and J. Kappler. Molecular interpretation of the non-Newtonian viscoelastic behavior of liquid water at high frequencies. *Phys. Rev. Fluids*, 5(10):103301, October 2020. DOI: 10.1103/PhysRevFluids.5.103301.

- P. Loche, C. Ayaz, A. Wolde-Kidan, **A. Schlaich**, and R. R. Netz. Universal and Nonuniversal Aspects of Electrostatics in Aqueous Nanoconfinement. *J. Phys. Chem. B*, 124(21):4365–4371, May 2020. DOI: 10.1021/acs.jpccb.0c01967.
- 2019 P. Loche, C. Ayaz, **A. Schlaich**, Y. Uematsu, and R. R. Netz. Giant Axial Dielectric Response in Water-Filled Nanotubes and Effective Electrostatic Ion–Ion Interactions from a Tensorial Dielectric Model. *J. Phys. Chem. B*, 123(50):10850–10857, December 2019. DOI: 10.1021/acs.jpccb.9b09269.
- A. Wolde-Kidan, Q. D. Pham, **A. Schlaich**, P. Loche, E. Sparr, R. R. Netz, and E. Schneck. Influence of polar co-solutes and salt on the hydration of lipid membranes. *Phys. Chem. Chem. Phys.*, 21(31):16989–17000, August 2019. DOI: 10.1039/C9CP01953G.
- B. Kowalik, J. O. Daldrop, J. Kappler, J. C. F. Schulz, **A. Schlaich**, and R. R. Netz. Memory-kernel extraction for different molecular solutes in solvents of varying viscosity in confinement. *Phys. Rev. E*, 100(1):012126, July 2019. DOI: 10.1103/PhysRevE.100.012126.
- P. Loche, A. Wolde-Kidan, **A. Schlaich**, D. J. Bonthuis, and R. R. Netz. Comment on 'Hydrophobic Surface Enhances Electrostatic Interaction in Water'. *Phys. Rev. Lett.*, 123(4):049601, July 2019. DOI: 10.1103/PhysRevLett.123.049601.
- A. Schlaich** and B. Coasne. Dispersion truncation affects the phase behavior of bulk and confined fluids: Coexistence, adsorption, and criticality. *J. Chem. Phys.*, 150(15):154104, April 2019. DOI: 10.1063/1.5085431.
- A. Schlaich**, A. P. dos Santos, and R. R. Netz. Simulations of Nanoseparated Charged Surfaces Reveal Charge-Induced Water Reorientation and Nonadditivity of Hydration and Mean-Field Electrostatic Repulsion. *Langmuir*, 35(2):551–560, January 2019. DOI: 10.1021/acs.langmuir.8b03474.
- 2018 P. Loche, C. Ayaz, **A. Schlaich**, D. J. Bonthuis, and R. R. Netz. Breakdown of Linear Dielectric Theory for the Interaction between Hydrated Ions and Graphene. *J. Phys. Chem. Lett.*, 9(22):6463–6468, November 2018. DOI: 10.1021/acs.jpcclett.8b02473.
- Q. D. Pham, A. Wolde-Kidan, A. Gupta, **A. Schlaich**, E. Schneck, R. R. Netz, and E. Sparr. Effects of Urea and TMAO on Lipid Self-Assembly under Osmotic Stress Conditions. *J. Phys. Chem. B*, 122(25):6471–6482, June 2018. DOI: 10.1021/acs.jpccb.8b02159.
- 2017 **A. Schlaich**, J. Kappler, and R. R. Netz. Hydration Friction in Nanoconfinement: From Bulk via Interfacial to Dry Friction. *Nano Lett.*, 17(10):5969–5976, October 2017. DOI: 10.1021/acs.nanolett.7b02000.
- B. Kowalik, **A. Schlaich**, M. Kanduč, E. Schneck, and R. R. Netz. Hydration Repulsion Difference between Ordered and Disordered Membranes Due to Cancellation of Membrane–Membrane and Water-Mediated Interactions. *J. Phys. Chem. Lett.*, pages 2869–2874, June 2017. DOI: 10.1021/acs.jpcclett.7b00977.
- M. Kanduč, **A. Schlaich**, A. H. de Vries, J. Jouhet, E. Maréchal, B. Demé, R. R. Netz, and E. Schneck. Tight cohesion between glycolipid membranes results from balanced water–headgroup interactions. *Nat. Commun.*, 8:14899, April 2017. DOI: 10.1038/ncomms14899.
- 2016 M. Kanduč, **A. Schlaich**, E. Schneck, and R. R. Netz. Water-Mediated Interactions between Hydrophilic and Hydrophobic Surfaces. *Langmuir*, 32(35):8767–8782, September 2016. DOI: 10.1021/acs.langmuir.6b01727.
- A. Schlaich**, E. W. Knapp, and R. R. Netz. Water Dielectric Effects in Planar Confinement. *Phys. Rev. Lett.*, 117(4):048001, July 2016. DOI: 10.1103/PhysRevLett.117.048001.

2015 **A. Schlaich**, B. Kowalik, M. Kanduč, E. Schneck, and R. R. Netz. Physical mechanisms of the interaction between lipid membranes in the aqueous environment. *Physica A*, 418:105–125, January 2015. DOI: 10.1016/j.physa.2014.06.088.

2014 M. Kanduč, **A. Schlaich**, E. Schneck, and R. R. Netz. Hydration repulsion between membranes and polar surfaces: Simulation approaches versus continuum theories. *Adv. Colloid Interface Sci.*, 208:142–152, June 2014. DOI: 10.1016/j.cis.2014.02.001.

Book-chapters

2019 M. Kanduc, **A. Schlaich**, B. Kowalik, A. Wolde-Kidan, R. R. Netz, and E. Schneck. Simulation Approaches to Short-Range Interactions Between Lipid Membranes. In *Biomembrane Simulations: Computational Studies of Biological Membranes*. CRC Press, Portland, USA, April 2019.

2015 **A. Schlaich**, B. Kowalik, M. Kanduč, E. Schneck, and R. R. Netz. Simulation Techniques for Solvation-Induced Surface-Interactions at Prescribed Water Chemical Potential. In G. Sutmann, J. Grotendorst, G. Gompper, and D. Marx, editors, *Computational Trends in Solvation and Transport in Liquids*, volume 28 of *IAS Series*, pages 155–185. Forschungszentrum Jülich GmbH, Jülich, March 2015.

2012 Kanduč, Matej, **A. Schlaich**, E. Schneck, and R. R. Netz. Interactions between biological membranes: Theoretical concepts. In Lydéric Bocquet, David Quéré, Thomas A. Witten, and Leticia F. Cugliandolo, editors, *Soft Interfaces*, number 98 in Lecture Notes of the Les Houches Summer School. Oxford University Press, Oxford, July 2012.

Scientific communication

Invited international conference talks

Jun. 2024 **TBA**, CECAM Flagship Workshop: "Electrochemical Interfaces in Energy Storage: Advances in Simulations, Methods and Models"

Feb. 2024 **Molecular insights by combining NMR relax-ometry and simulations**, KIAS International Workshop on Bio-Soft Matter Theory, Seoul/South Korea

Sep. 2022 **Effective Thomas-Fermi screening approach and wetting transition at charge/metal interfaces**, *A. Schlaich*, 1st Workshop on Mixed Ionic-Electronic Transport: From Fundamentals to Applications, Stuttgart/Germany

Jun. 2022 **Liquids (water) in nanoporous materials: Adsorption and transport**, *A. Schlaich*, CECAM Flagship Workshop "Modeling adsorption in microporous carbons: Bridging methods and crossing boundaries between applications", Bordeaux, France

Sep. 2017 **The transition from hydrodynamic via interfacial to dry friction for sheared surfaces in water**, *A. Schlaich*, *J. Kappler*, and *R. R. Netz*, BBSRC Workshop on nanofluidics in biological systems, Durham, Great Britain

Oral presentation at international conferences

Sep. 2022 **Effective Thomas-Fermi screening approach and wetting transition at charge/metal interfaces**, Annual Meeting of the German Physical Society, Berlin. Germany

Sep. 2022 **Water transport in soft nanoporous materials: Impact of mechanical deformation on collective dynamics, interfacial slippage and permeance**, Annual Meeting of the German Physical Society, Berlin. Germany

Jun. 2021 **Water transport in soft nanoporous materials: Impact of mechanical deformation on collective dynamics, interfacial slippage and permeance**, *A. Schlaich*, *M. Vandamme*, *M. Plazanet*, *B. Coasne*, Interpore Annual Meeting 2021, Virtual

- Jan. 2021 **Wetting transition and freezing of ionic liquids in nano-confining conducting porous media: an effective Thomas-Fermi screening approach**, [A. Schlaich](#), [D. Jin](#), [L. Bocquet](#), [B. Coasne](#), Interpore German Chapter Meeting 2021, Stuttgart Germany
- Mai 2019 **Coupling of Adsorption and Transport in Hierarchical Porous Materials**, [A. Schlaich](#) and [B. Coasne](#), Interpore 2019: Fluids in Nanoporous Media, Valencia, Spain
- Oct. 2018 **Modeling Adsorption and Transport in Multiscale Porous Media**, [A. Schlaich](#) and [B. Coasne](#), Liquids@Interfaces, Bordeaux, France
- Mar. 2018 **Counterions in aqueous planar nano-confinement: Atomistic simulations and continuum modeling**, [A. Schlaich](#) and [R. R. Netz](#), Annual Meeting of the German Physical Society, Berlin, Germany
- Mar. 2018 **From hydrodynamic via interfacial to dry friction for sheared surfaces in water**, [A. Schlaich](#), [J. Kappler](#), and [R. R. Netz](#), Annual Meeting of the German Physical Society, Berlin, Germany
- Jul. 2016 **Water dielectric effects in planar confinement**, [A. Schlaich](#) and [R. R. Netz](#), Protein Electrostatics 2016, Berlin, Germany
- Jun. 2016 **From wet to dry friction**, [A. Schlaich](#), [J. Kappler](#), and [R. R. Netz](#), SOMATAI conference, Crete, Greece
- Mar. 2016 **The dielectric response of aqueous water slabs in nanoconfinement**, [A. Schlaich](#) and [R. R. Netz](#), Annual Meeting of the German Physical Society, Regensburg, Germany
- Mar. 2015 **Hydration Interaction of Charged Polar Surfaces**, [A. Schlaich](#) and [R. R. Netz](#), Minischool on Biophysics of Protein Interactions, ICTP SAIFR Sao Paolo, Brazil
- Oct. 2014 **Hydration Interaction of Polar Surfaces**, [A. Schlaich](#) and [R. R. Netz](#), Exploring Solvation Science, 572. WE Haereus Seminar, Bad Honnef, Germany
- Mar. 2012 **A Poisson-Boltzmann solution of the two-colloids problem**, [A. Schlaich](#), [S. Kesselheim](#), [M. Sega](#), and [C. Holm](#), Annual Meeting of the German Physical Society, Berlin, Germany
- [Invited seminar presentations and Colloquia](#)
- Apr. 2024 **Humidity-dependent water structure and dynamics in compliant porous materials**, Materials Science Colloquium of the SFB 986, Hamburg, Germany
- Nov. 2023 **Wetting and phase transitions at (porous) electrodes**, Interdisziplinäres Zentrum fuer Molekulare Materialien (ICMM) und Computer-Chemie-Centrum (CCC), Erlangen, Germany
- Apr. 2022 **From interfaces to confinement – water’s peculiar behavior on the nanoscale**, Centre for Molecular Water Science (CMWS) seminar, online
- Jan. 2021 **Some physics of porous media: Bridging the multi-scale from underlying mechanisms**, [A. Schlaich](#), Institute of Thermodynamics and Thermal Process Engineering, University of Stuttgart
- Sep 2019 **Water effects on the interaction and friction between polar surfaces**, [A. Schlaich](#), Institute Charles Sadron Strasbourg, France
- May 2019 **Coupling of Adsorption and Transport in Hierarchical Porous Materials**, [A. Schlaich](#) and [B. Coasne](#), Joint Institute for Computational Physics and SFB 1313 Colloquium Stuttgart, Germany
- Oct. 2018 **The transition from hydrodynamic via interfacial to dry friction for sheared surfaces in water**, [A. Schlaich](#) and [R. R. Netz](#), Institut de Chimie Séparative de Marcoule, France

- Jun. 2018 **Modeling Adsorption and Transport in Multiscale Porous Media**, *A. Schlaich*, Freie Universität Berlin, Germany
- Nov. 2015 **Interaction of [Charged] [Polar] [Soft] Surfaces**, *A. Schlaich*, Humboldt Universität Berlin, Germany

Third party funded projects

Approved/running projects

- 2023-2027 **GRK 2948**, "*Mixed Ionic-Electronic Transport: From Fundamentals to Applications*", Project leader
A Multi-Scale Coupling Approach for Mixed Ionic/Electronic Transport, **518.700 €**
- 2022-2025 **DFG, SFB 1333** "*Molecular Heterogeneous Catalysis in Confined Geometries*", Principal Investigator, Project A03
Electrocatalytic CO₂ reduction with COFs, **195.100 €**
- 2022-2025 **DFG, SFB 1313** "*Interface-Driven Multi-Field Processes in Porous Media – Flow, Transport and Deformation*", Principal Investigator, Project C1
A multi-scale investigation of two-phase electrolyte flow in porous structures with morphology alterations and tunable interfacial wetting behaviour, **318.300 €**
- 2021-2024 **DFG, EXC2075** "*SimTech*", Project leader, PN3-15
Bottom-up modeling of hierarchical porous electrode materials via molecular simulation, **297.600 €**

Projects with active involvement

- 2018-2020 **ANR/DFG**, *German/French research project*, (Coordinators J. Jouhet & E. Schneck)
Betaine Lipide in euKaryoten (BLink)
- 2018-2019 **EUROKIN**, *Research contract*, (Coordinator B. Coasne)
Understanding Material Transport in Catalysts through Molecular Simulation