Curriculum Vitae

Personal Data

Title	Prof. Dr.
First name	Olav
Name	Schiemann
Current position	Full Professor (W3)
Current institution(s)/site(s), country	Clausius-Institute of Physical and Theoretical Chemistry, Rheinische Friedrich-Wilhelms-University Bonn, Germany
Identifiers/ORCID	orcid.org/0000-0001-6346-9779

Qualifications and Career

Stages	Periods and Details	
Degree programme	Diploma in Chemistry,1989 – 1995, University of Marburg, Germany	
Doctorate	1995 – 1998	Mentor: C. Elschenbroich, Ph.D. in Chemistry, University of Marburg, Germany
Stages of academic/professional career	Since 2011	Full Professor (W3), Clausius-Institute of Physical and Theoretical Chemistry, University of Bonn, Germany
	2011 – 2014	Professor (20%), Biophysical Chemistry, School of Biology, University of St Andrews, UK
	2008 – 2011	Reader, Biophysical Chemistry, School of Biology, University of St Andrews, UK
	2007 – 2008	Lecturer, Biophysical Chemistry, School of Biology, University of St Andrews, UK
	2005 – 2006	Acting Professor, Physical Chemistry, Technical University of Munich, Germany
	2003 – 2007	Privatdozent, IPTC, University of Frankfurt, Germany
	2000 – 2003	Habilitand (Mentor: T.F. Prisner), IPTC, University of Frankfurt, Germany
	1998 – 2000	Postdoctoral fellow (Mentor: J.K. Barton), California Institute of Technology, USA

Activities in the Research System

Committee involvement & activities in the field of academic self-governance:

Since 2024	Representative of Germany in the EFEPR Board
Since 2023	Recruitment Commissioner, University of Bonn
Since 2021	Chair “AK EPR”, GDCh-Fachgruppe “Magnetische Resonanz”
Since 2019	Editorial Board member of the Journals *Molecules* and *Analysis & Sensing*
Since 2016	Board member, BIGs “Chemistry”, University of Bonn
2018 – 2022	Board member, TRA Matter, Excellence Initiative University of Bonn
2018 – 2021	International Representative RSC ESR Spectroscopy Group, UK
2018 – 2021	Independent Steering Committee, EPSRC National EPR Facility, UK
2014 – 2018	Managing Director, Clausius-Institute of Physical and Theoretical Chemistry, University of Bonn
2011	Director, Centre of Magnetic Resonance, University of St Andrews, UK

2009 – 2011	Chair Elect, Chair and Past Chair, Molecular Biophysics Subgroup, Biophysical Society (USA)

Organization of academic events: Scientific Committee "Euromar" (2025); International Advisory Board "1st International Conference on EMR Applications" (2024); International Advisory Board "9th International Conference on Nitroxide Radicals" (2023); Scientific Advisory Board "Annual Discussion Meeting" of the FGMR (since 2020); FGMR Prize Committees (since 2019): Ernst-, Overhauser-, Otto-Stern-Award; Chair "46th Annual Discussion Meeting" of the FGMR (2025); Co-organizer "43rd Annual Discussion Meeting" of the FGMR (2022); Co-organizer "EF-EPR Summer School" (2008); Co-organizer "EF-EPR summer school" (2005).

Teaching, mentoring and supervision activities: Supervision of more than 80 Ph.D., Master and Bachelor students since 2007. Former members of the group on faculty positions: Gregor Hagelüken (University of Bonn, Germany), Alexandra Lisovskaya (University of Notre Dame, USA), Dinar Abdullin (University of Bonn, Germany), Hideto Matzuoka (Hokkaido University, Japan), Bela E. Bode (University of St. Andrews, UK).

Academic Distinctions: Weston Visiting Professorship, Weizmann Institute, Israel (2022); One of the Most Outstanding Referees for *Angew. Chem. Int. Ed.* (2021, 2022); RCUK Fellowship (2007 – 2011); Hermann-Willkomm-Award of the University of Frankfurt (2004); DFG Habilitation Fellowship (2001 – 2003); DFG Research Fellowship (1999 – 2000); DFG Postdoc Fellowship (1998 – 1999).

Scientific Results

Category A

* corresponding author

Publications (citations: 7050, h-index: 47, i10-index: 104; Google Scholar 19.02.2024)

1. J. Borggräfe, J. Victor, H. Rosenbach, A. Viegas, C.G.W. Gertzen, C. Wuebben, H. Kovacs, D. Riesner, G. Steger, **O. Schiemann**, H. Gohlke, I. Span, M. Etzkorn* "Time-resolved structural analysis of an RNA-cleaving DNA catalyst" *Nature* **2022**, 601, 144–149. DOI: 10.1038/s41586-021-04225-4. *OS had the idea to quantify the manganese(II) binding sites and their K_d via EPR, designed these experiments, and analyzed the data together with CW. The data underpinned the NMR analysis.*

2. **O. Schiemann***, C.A. Heubach, D. Abdullin, K. Ackermann, M. Azarkh, E. Bagryanskaya, M. Drescher, B. Endeward, J. H. Freed, L. Galazzo, D. Goldfarb, T. Hett, L. E. Hofer, L. F. Ibáñez, E. J. Hustedt, S. Kucher, I. Kuprov, J.E. Lovett, A. Meyer, S. Ruthstein, S. Saxena, S. Stoll, C. Timmel, M. Di Valentin, H.S. Mchaourab*, T.F. Prisner*, B.E. Bode*, E. Bordignon*, M. Bennati*, G. Jeschke* "Benchmark test and guidelines for DEER/PELDOR experiments on nitroxide-labeled biomolecules" *J. Am. Chem. Soc.* **2021**, 143, 17875–17890. DOI: 10.1021/jacs.1c07371. *This paper provides the basis for PELDOR data being added to data banks. TFP and OS had the idea for the paper and OS headed the initiative. OS had the idea for and designed the benchmark test. OS and GJ wrote main parts of the paper.*

3. D. Nguyen, D. Abdullin, C.A. Heubach, T. Pfaffeneder, A. Nguyen, A. Heine, K. Reuter, F. Diederich, **O. Schiemann***, G. Klebe* "Unraveling a ligand-induced twist of a homodimeric enzyme by pulsed electron–electron double resonance" *Angew. Chem. Int. Ed.* **2021**, 60, 23419–23426. DOI: 10.1002/anie.202108179. *OS had the idea to use PELDOR for studying the conformational change in solution, designed the EPR experiments, and oversaw the work.*

4. T. Hett, T. Zbik, S. Mukherjee, H. Matsuoka, W. Bönigk, D. Klose, C. Rouillon, N. Brenner, S. Peuker, R. Klement, H.-J. Steinhoff, H. Grubmüller, R. Seifert, **O. Schiemann***, U.B. Kaupp* "Spatio-Temporal Resolution of Conformational Changes in Biomolecules by Combining Pulsed Electron-Electron Double Resonance Spectroscopy with Microsecond Freeze-Hyperquenching" *J. Am. Chem. Soc.* **2021**, 143, 6981–6989. DOI:

10.1021/jacs.1c01081. *Being performed in the frozen state, PELDOR does not provide access to the time scale of conformational changes. However, combining PELDOR with Microsecond Freeze Hyper Quench does enable reintroducing this time scale. OS and UBK had the idea, designed the experiments, and oversaw the work.*

5. C. Wuebben, M.F. Vicino, M. Mueller, **O. Schiemann*** "Do the P1 and P2 hairpins of the Guanidine-II Riboswitch interact?" *Nucleic Acids Research* **2020**, 48, 10518–10526. DOI: 10.1093/nar/gkaa703. *This paper clarified that the P1 and P2 domains in this riboswitch interact, while previous crystal structures only revealed homodimerization of P1 and P2. OS had the idea to use site-directed spin labeling and PELDOR for this, designed the experiments, and wrote the paper.*

6. N. Fleck, C.A. Heubach, T. Hett, F.R. Haege, P.P. Bawol, H. Baltruschat, **O. Schiemann*** "SLIM: A short-linked, highly redox-stable trityl label for high sensitivity in cell EPR distance measurements" *Angew. Chem. Int. Ed.* **2020**, 59, 9767–9772. DOI: 10.1002/anie.202004452. *The first generation of trityl labels (see 8) were very long and still reduced within cells. Here, the linker connecting the trityl core with the protein is dramatically reduced and the label's in cell stability is massively increased. OS had the idea for the study and oversaw the work.*

7. C. Domnik, F. Eggert, C. Wuebben, L. Bornewasser, G. Hagelueken, **O. Schiemann***, S. Kath-Schorr* "EPR Distance measurements on long non-coding RNAs empowered by genetic alphabet expansion transcription" *Angew. Chem. Int. Ed.* **2020**, 59, 7891–7896. DOI: 10.1002/anie.201916447. *Being able to perform PDS measurements on RNAs longer than 50 nucleotides was a major challenge. SKS together with OS had the idea to use genetic alphabet expansion transcription to overcome this. In this work, an RNA as long as 400 nucleotides could be labelled and measured by PELDOR. OS designed the PELDOR experiments and oversaw together with SKS the work.*

8. J.J. Jassoy, A. Berndhäuser, F. Duthie, S.P. Kühn, G. Hagelueken, **O. Schiemann*** "Versatile Trityl Spin Labels for Nanometer Distance Measurements on Biomolecules in vitro and within cells" *Angew. Chem. Int. Ed.* **2017**, 56, 177–181. DOI: 10.1002/anie.201609085. *Nitroxide spin labels are the workhorse for PDS measurements in vitro, they are, however, quickly reduced under in cell conditions. Here, a new type of trityl labels is introduced and shown to have an increased stability within cells. OS had the idea for the work, designed the EPR experiments, oversaw the work, and wrote the paper.*

9. D. Abdullin, N. Florin, G. Hagelueken, **O. Schiemann*** "EPR-Based Approach for the Localization of Paramagnetic Metal Ions in Biomolecules" *Angew. Chem. Int. Ed.* **2015**, 54, 1827–1831. DOI: 10.1002/anie.201410396. *This proof-of-principle study shows that paramagnetic metal ions can be localized within biomolecules by means of trilateration using a combination of site-directed spin labeling and PDS measurements. OS had the idea for the work, designed the EPR experiments, and oversaw the work.*

10. G.W. Reginsson, S. Shelke, C. Rouillon, M.F. White, S.T. Sigurdsson, **O. Schiemann*** "Protein-Induced Changes in DNA Structure and Dynamics Observed with Non-Covalent Site-Directed Spin-Labelling and PELDOR" *Nucleic Acids Res.* **2013**, 41, e11. DOI: 10.1093/nar/gks817. *Site-directed spin labeling of oligonucleotides was at that time only achieved via covalently binding a label. OS together with STS had the idea to use noncovalent labeling employing intercalation of a label into an abasic side. OS designed the experiments, oversaw the work, and wrote the paper.*

Category B

Publications

1. **O. Schiemann*** "Studying Ribozymes with Electron Paramagnetic Resonance Spectroscopy" in *Ribozymes: Principles, Methods, Applications* (Eds.: S. Müller, B. Masquida, W. Winkler) **2021**, chapter 32, 817–859. DOI: 10.1002/9783527814527.ch32.

2. **O. Schiemann*** "Trendbericht: Elektronen Paramagnetische Resonanz Spektroskopie" *Nachrichten aus der Chemie* **2021**, 69, 54–62. DOI: 10.1002/nadc.20214106853.

3. G. Hagelueken, **O. Schiemann*** “EPR Spektroskopie an biologischen Systemen” in *Bioanalytik* (Eds.: J. Kurrek, J. W. Engels, F. Lottspeich) Springer, 4. Auflage, **2021**, chapter 22, 525–550. DOI: 10.1007/978-3-662-61707-6_22.

4. D. Abdullin*, **O. Schiemann*** “Pulsed Dipolar EPR Spectroscopy and Metal Ions: Methodology and Biological Applications” *ChemPlusChem* **2020**, 85, 353–372. DOI: 10.1002/cplu.201900705.

5. H. Matsuoka, **O. Schiemann*** “Molecular Spins in Biological Systems” in *Biological Magnetic Resonance (Editors Berliner, Takui)* **2016**, 31, 51–77. DOI: 10.1007/978-1-4939-3658-8_3.

6. R. Ward, O. Schiemann “EPR-based distance measurements in Oligonucleotides” *Struct. Bond.* **2014**, 152, 249–282. DOI: 10.1007/430_2012_76.

7. G.W. Reginsson, **O. Schiemann*** “Pulsed Electron-Electron Double Resonance on Biomacromolecules: Beyond Nanometer Distance Measurements” *Biochem. J.* **2011**, 434, 353–363. DOI: 10.1042/BJ2101871.

8. G.W. Reginsson, **O. Schiemann*** “Studying Biomolecular Complexes with Pulsed Electron-Electron Double Resonance Spectroscopy” *Biochem. Soc. Trans.* **2011**, 39, 128–139. DOI: 10.1042/BST0390128.

9. **O. Schiemann*** “Mapping Global Folds of Oligonucleotides by Pulsed Electron-Electron Double Resonance” *Method. Enzym.* **2009**, 469, 329-351. DOI: 10.1016/S0076-6879(09)69016-9.

10. **O. Schiemann***, T.F. Prisner* “Long-range distance determinations in biomacromolecules by EPR spectroscopy” *Quat. Rev. Biophys.* **2007**, 40, 1–53. DOI: 10.1017/S003358350700460X.

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[x] **I expressly consent to the processing of the voluntary (optional) information, including “special categories of personal data”[1] in connection with the DFG’s review and decision-making process regarding my proposal.** This also includes forwarding my data to the external reviewers, committee members and, where applicable, foreign partner organisations who are involved in the decision-making process. To the extent that these recipients are located in a third country (outside the European Economic Area), I additionally consent to them being granted access to my data for the above-mentioned purposes, even though a level of data protection comparable to EU law may not be guaranteed. For this reason, compliance with the data protection principles of EU law is not guaranteed in such cases. In this respect, there may be a violation of my fundamental rights and freedoms and resulting damages. This may make it more difficult for me to assert my rights under the General Data Protection Regulation (e.g. information, rectification, erasure, compensation) and, if necessary, to enforce these rights with the help of authorities or in court.

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