

Curriculum Vitae

Prof. Dr. Martin Winter



Contact Details:

University of Münster (WWU)
MEET Battery Research Center
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&
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Current positions

- Full Professor, [Institute of Physical Chemistry](#) at University of Münster (WWU)
- [Honorary Chair Professor \(Prof. h.c.\) at National Taiwan University of Science and Technology](#)
- [Honorary Chair Professor \(Prof. h.c.\) at National Cheng-Kung University, Taiwan](#)
- Director of the [Helmholtz-Institute Münster](#) (HI MS) 'Ionics in Energy Storage'
- [Scientific Director of MEET Battery Research Center](#)
- Spokesperson: [German Battery Research](#)

University education and previous positions

Since 2016	W3 Full Professor: Chair of Materials Science, Energy and Electrochemistry
2013 – 2016	W3 Full Professor: Chair of Appl. Mat. Science for Electrochem. Energy Storage & Conversion
2008 – 2012	Endowed W3 Full Professor; Sponsors: Evonik Industries, Rockwood Lithium, Volkswagen AG
2007	Full Professor, Head, Inst. of Chem. Tech. of Inorg. Mat., Tech. University (TU) Graz, Austria
2000 – 2007	Univ.-Prof., Extraordinarius, TU Graz
	Since 2006: Vice-head of institute, responsible for projects and third party funding
1996 – 1999	University Assistant, TU Graz; 04/1999 Habilitation, <i>venia legendi</i> for Applied Inorganic Chemistry and Electrochemistry
1995 – 1996	Post-Doctoral Research Fellow at the Paul-Scherrer-Institute, Switzerland (Prof. Petr Novák)
1993 – 1995	Ph.D. Thesis at the Institute for Inorganic and Analytical Chemistry at WWU Münster (Prof. J. O. Besenhard)
1986 – 1992	Chemistry Studies at WWU Münster

Founding of spin-off institutions

- Founding Director Positions: MEET Battery Research Center & Helmholtz-Institute Münster (HI MS)
- Member of the Executive Board of the Fraunhofer Research Fabrication Facility in Münster (FFB)
- Founder: [E-lyte Innovations Company](#)

Scientific productivity (selected)

- >700 articles in journals, books and conference proceedings (>610 in peer-reviewed journals)
- 2022: Citation ranking: [Research.com](#)
#309 (World) and # 23 (Germany) in Materials Science,
#419 (World) and #35 (Germany) in Chemistry
- 2022: H-Index larger than 100: <https://www.webometrics.info/en/hlargerthan100>
- 2022: [AD Scientific Index in Natural Sciences/Chemical Sciences citation ranking](#):
#161 (Germany), #4,594 (world)
- 2016: Among the Top 150 most cited scholars in Energy Research ([Elsevier Scopus](#))
- 2016: 'Highly Cited Researcher' (Shanghai Ranking)
- 2014, 2015, 2016 and 2017: 'Highly Cited Researcher' (ISI, Thomson Reuters, Clarivate Analytics, Web of Science)
- 2008: Among the Top 25 'Highly Cited Authors' in Energy & Fuels (1998 – 2008, ISI, Thomson Reuters, Web of Science)
- H-Indices:
 - 109 (Google Scholar) >57,000 citations
 - 107 (AD Scientific Index) >56,000 citations
 - 102 Research.com) >57,000 citations
 - 92 (Web of Science) >42,000 citations
- >70 patents, patent families and published patent applications
- >350 invited, tutorial, keynote and plenary presentations
- Conference and symposia organizer/chairman on an (bi) annual basis:
 - Advanced Automotive Conference ([AABC](#)), Symposium Chair (3 times per year)
 - [Battery Day NRW](#), [Scientific Chairman](#) (with Prof. Sauer, RWTH Aachen)
 - [Advanced Battery Power](#), Scientific Chairman (with Prof. Sauer, RWTH Aachen University)
 - Batterieforum Deutschland, [Chairman of the Scientific Board](#)
 - Status Seminar: Batterie2020 Project Initiative of the Federal Ministry for Education and Research BMBF (spokesperson and chairman)
 - 12th European Conference on Solid State Chemistry ECSSC XII 2009 (Chairman)
 - Electrochemical Conference on Energy and the Environment (ECEE2019), Glasgow: Chairman
- Numerous additional conference and symposia organizations. Numerous scientific advisory board positions of conferences, often on a regular basis, e.g.: ABAA, ECS, EVS, IMLB, IBA, ISE, LiBD

Coordinator/Leadership activities in the past 10 years (selected)

Since 01/2008 > 250 research projects with > 350 partners from industry and academia,
Since 07/2020: Spokesperson of International Graduate School [BACCARA](#)
Since 03/2020 Member of the Executive Board of the FhG Research Fab (700 Mio. € grant)
Since 10/2019 Coordinator of German Excellent Battery Cluster (ExcellBattMat, BMBF)
Since 2019 Member of the Core Group of the Initiative Battery2030+ within the European Battery Alliance
Since 04/2019 Coordinator: Germany-USA Battery Cooperation (BMBF and DOE)
Since 01/2019 Member: National Platform Future of Mobility (NPM) of the German federal government
Since 09/2018 Co-Coordinator: Cluster FestBatt, Solid-state batteries (BMBF)
Since 06/2018 [President: International Meeting on Lithium Batteries \(IMLB\)](#)
Since 12/2017 Coordinator: [Nanobat](#) (BMBF)
Since 10/2017 Appointment: [Expert Council for Electro-Mobility of NRW state Governor](#)
Since 09/2017 Coordinator: [Germany-Taiwan Battery Cooperation \(BMBF and MoST, Taiwan\)](#)
Since 05/2017 Coordinator: [GrEEen Batteries \(State of NRW\)](#)
Since 03/2017 [Chairman: International Battery Association \(IBA\)](#)
Since 06/2016 Head: [Scientific Advisory Board of Battery Research](#) of the German Ministry of Education and Research (BMBF), representing German Battery Research nationally and internationally
Since 06/2016 [Vice-President: IMLB](#)

Since 01/2016 Coordinator: '[Benchbatt](#)' (BMBF)

Since 2016 Member of the German-Israel Battery School (GIBS)

Since 10/2015 Spokesman: Project Alliance '[Batterie2020](#)' (BMBF, GER)

Since 10/2014 Board member: [Battery Division of The Electrochemical Society](#)

Since 03/2014 Board member: [Competence Center of Lithium Batteries, KLIB](#)
(≈ 50 industrial and 10 academic members; represented by 12 board members)

Since 05/2013 Head: Scientific advisory board of '[Batterieforum Deutschland](#)'

2012 – 2017 Coordinator: '[Insider](#)' (BMBF)

2011 Initiator of the Israel-Germany Cooperation on Advanced Batteries

2011-2018 Co-Coordinator: Priority program '[WendeLIB](#): Materials with novel design for lithium ion batteries' of the German Research Foundation (DFG, SPP 1473)

Since 2010 Director, Competence Center Electro mobility, NRW:
<https://www.youtube.com/watch?v=7KNvvHu2jtQ>

Since 05/2010 Member: [National Platform E-Mobility](#) (NPE), informing the German chancellor and government on the battery technology progress in Germany

2009 - 2013 Spokesman: Innovation Alliance [LIB2015](#) of BMBF (GER); Coordinator of the Status Seminar

2009 – 2011 Spokesman: [Competence Alliance North](#) 'Electrochemistry' (BMBF)

Since 2008 Member: Board of IMLB

12/2008 Coordinator: Task Force 'Battery Technology' within the National development plan E-mobility, planning the German R&D strategy

2008 – 2013 Chair Elect, Chair and Immediate Past Chair: Division 3 'Electrochemical Energy Conversion and Storage' of the International Society of Electrochemistry (ISE)

2007 – 2011 Coordinator: [ILLIBATT \(EU\)](#)

2007 – 2010 Board member: German Chemical Society (GDCh); Division: Electrochemistry

2007 – 2010 [President: IBA](#)

2006 – 2014 Spokesperson and Coordinator: '[High Power Lithium Batteries](#)', German Research Foundation (PAK177, DFG)

Since 06/2006 [Member: Board of Directors of the IBA](#)

Honors, awards and recognitions (selected)

2022 [Henry B. Linford Award: The Electrochemical Society \(ECS\)](#)

2022 Elected Member of Academy of Science and Arts of State of NRW

2021 [Graduate School BACCARA awarded as "Place of the Future" by "Zeit" newspaper](#)

2021 [Unification Ambassador of Federal Assembly of Germany](#)

2021 [Best paper award, in Journal "Batteries"](#)

2021 [Corresponding Member](#): Slovenian Academy of Engineering

2020 [Alessandro Volta Medal](#): ECS

2020 [Person of the Year 2019](#), NRW, Welt am Sonntag newspaper

2019 [End-of-year-lecture of Research Center Jülich](#)

2019 [Münster \(Lead\), Aachen and Jülich awarded with Research Fab "Battery Cell" \(BMBF\)](#)

2019 [Arfvedson-Schlenk Award](#): German Chemical Society (GDCh)

2019 [Faraday Medal](#): The Royal Chemical Society, Electrochemistry Group

2018 [WWU Münster: University Research Prize](#)

2018 [German Federal Cross of Merit, First Class](#): Federal President of Germany

2018 [Honorary Chair Professor \(Prof. h.c.\), National Cheng-Kung University, Taiwan](#)

2018 [Chen Fan-Tsan Lectureship](#): National Taiwan University

2018 [Featured Scientist, Image Brochure, Helmholtz Association](#)

2017 [Pregl Lecture](#), National Institute of Chemistry, Ljubljana, Slovenia

2017 [Appointment to National Academy of Science and Engineering \(acatech\)](#)

2017 Appointment to the [Expert Council for Electro-Mobility of the NRW State Government](#)

2017 Highly Cited Researcher ([Clarivate Analytics](#), former ISI, Thomson Reuters)

2017 [Honorary Chair Professor \(Prof. h.c.\), National Taiwan University of Science and Technology](#)

2017 Founding [Academic Fellow of AABC](#)

2016 [Braunschweig Research Prize](#) for internationally outstanding interdisciplinary research in technical, life and cultural sciences

2016 [Plenary](#): 25th Anniversary Celebration Li Ion Battery, 216th ECS Meeting, Honolulu (HI, USA)

2016 Among the 150 most cited scientists in energy research ([Elsevier Scopus](#))

2016 MEET Battery Research Center awarded (renewal) as [Excellent Battery Center](#) (German Ministry of Education and Research, BMBF)

2016 Highly Cited Researcher ([Shanghai Ranking](#))

2016 Highly Cited Researcher ([Clarivate Analytics](#), former ISI, Thomson Reuters)

2015 Honorary Lifetime Membership of The Electrochemical Society (ECS)

2015 Recognized in "[The History of the ECS](#)"

2015 [ECS: Carl Wagner Memorial Award](#)

2015 Highly Cited Researcher (ISI); [World's most influential minds](#)

2015 [ECS: Battery Research Award](#)

2015 Fellow: [International Society of Electrochemistry](#) (ISE)

2015 Plenary lecture at 66th ISE Meeting

2015 '[Energiewendezeuge](#)' recognized by the World Wildlife Foundation (WWF)

2015 [Technology Award](#) of the International Battery Materials Association (IBA)

2014 Highly Cited Researcher (ISI); [World's most influential minds](#)

2014 [ECS Trading Card](#)

2013 MEET awarded by BMBF as [German Electrolyte Hub](#) via the Project '4E'

2013 [Fellow of the ECS](#)

2012 Lu Jiaxi Lectureship: Xiamen University, China

2012 MEET Battery Research Center awarded as [Excellent Battery Center](#) (BMBF)

2012 MEET recognized as 'Site of Progress' ('[Ort des Fortschritts](#)') by the State of NRW (MIWF)

2012 MEET recognized as 'Germany at its Best', by the State of NRW (MWEIMH)

2012 MEET awarded with two lighthouse projects ([Lithorec](#) and [Safebatt](#)) of the German National Platform E-Mobility (NPE)

2011 MEET awarded as [Competence Center 'Battery Technology'](#) of NRW State

2009: Hans L. Merkle Stipend of Bosch AG

2008 Among 25 'Highly Cited Researchers in Energy & Fuels, 1998-2008' (Web of Science)

2007 Gordon Lectureship: Tel Aviv University, Israel

2004 NATO-CARWC Lectureship: Argonne, Chicago (IL, USA)

2003 University Lectureship: Kyushu University, Japan

2003 [Kardinal Theodor Innitzer-Award](#) in Natural Sciences

2002 [ECS Battery Division Technology Award](#)

2002 [Josef-Krainer-Award for Chemical Technology](#)

2001 [Research Award of the IBA](#)

1999 University of Thessaloniki, Greece: Guest Professor

1997 [Division of Applied Electrochemistry of the German Chemical Society](#) (Gesellschaft Deutscher Chemiker): Award for the best Ph.D. thesis in the 3-year term 1995 – 1997

1995 WWU Münster: Merit Award for a doctoral exam with '*summa cum laude*' (with highest honors)

Reviewer, chair, advisory boards and committees in the past 10 years (selected)

- Active member of the scientific advisory boards of:
 - [Israel National Center of Electrochemical Propulsion \(INREP\)](#)
 - Distinguished member of Bar-Ilan-University center of Energy & Sustainability (Israel)
 - Joint Center for Energy Storage Research (JCESR), DOE, at Argonne (USA),
 - [Scientific Advisory Board](#) of Germany Battery Research of the BMBF, Germany

- Bundesanstalt für Materialforschung und Prüfung (BAM), German Federal Institute of Materials Research and Analysis
 - [Enova Science Board for Electro-Mobility, Germany](#)
 - [Hierarchical Green Energy Materials Center, HI-GEM, Taiwan](#)
 - Scientific Advisory Board, Sustainable Energy Research Chair (*ENSUS*), Mohammed VI Polytechnic University, Morocco
- Past member of the advisory boards of the
 - Fraunhofer Institute ISC in Würzburg (2008 – 2014),
 - The Swiss Competence Centers for Energy Research (SCCER, 2013- 2018)
 - Energieforschungszentrum Niedersachsen (EFZN), Energy Research Center Lower Saxony, Germany (2016 – 2020)
- Reviewer, examples:
 - Energy Frontiers of Research Center Program (EFRC), DOE, USA
 - German Research Foundation (DFG), incl. excellence initiative
 - Swiss Competence Centers of Energy Research (SCCER)
 - National Science Foundation, American Chem. Soc. Petroleum Research Fund (USA)
 - CERC, Canada
 - EPSRC, Set-Up of Faraday Challenge Institute, United Kingdom
 - Taiwanese National Excellence Initiative
 - EU-Research Programs
 - Department of Energy, USA (Review Panel); US National Labs (Chair of Review Panel)
- Frequently: Member and/or chair of (scientific) award committees of ISE, ECS, IBA, EES Europe, and AABC
- Member of [Cenide](#)
- Board Member of company Voltabox (2018-2019)
- Member of the ECS committees on ‘Free Dissemination of Research’, ‘Interdisciplinary Science and Technology’ and ‘Free the Science’ (2015-2018)
- Reviewer for scientist’s promotions, (inter-)national
- Reviewer for companies (awards, strategic decisions, due diligence, etc.);
- Referee for leading journals in Chemistry, Materials Science, Energy and Electrochemistry

Memberships

- American Chemical Society (ACS), International Society of Electrochemistry (ISE), The Electrochemical Society (ECS), Deutsche Bunsen-Gesellschaft für Physikalische Chemie (DBG), Materials Research Society (MRS), Gesellschaft Deutscher Chemiker (GDCh), Deutscher Hochschulverband (DHV), University Society Münster, North Rhine-Westphalian Academy of Sciences, Humanities and the Arts, Rotary Club (Münster Westfalen)

Editorial positions, editorial advisory board member

- 2012 – 2014: Senior Editor ‘Batteries and Energy Storage’, Journal of the Electrochemical Society / ECS Electrochemistry Letters; 2004 – 2011: Associate Editor: Journal of the Electrochemical Society
- Advisory Boards: Energy Materials (Founding Board Member), ACS Applied Energy Materials (Founding board member), Advanced Energy Materials (Founding board member), Trends in Chemistry (Founding board member), Journal of Power Sources, Ionics, Energy Storage Materials (Founding board member), Small Structures (Founding board member), Journal of the Electrochemical Society (2004 – 2014), ECS Electrochemistry Letters (2004 – 2014)

Distinguished lectures (selected)

2021	Lead-Off-Keynote: Swiss Battery Days in Honor of Petr Novák
2020	Keynote: StorageX International Symposium, online
2019	End-of-Year Plenary Lecture, Research Center Jülich, Düsseldorf, Germany
2019	Arfwedson-Schlenk Award Lecture (German Chemical Society), Aachen, Germany
2019	Faraday Medal Plenary Lecture (Royal Society of Chemistry), Glasgow, Scotland

2018 [Keynote](#): Nordrhein-Westfälische Akademie der Wissenschaften und der Künste

2018 [Plenary](#): Electrochemistry 2018, Ulm, Germany

2018 [Chen Fan-Tsan Lectureship](#), National Taiwan University (NTU)

2017 [Inaugural Chair Professor Lectureship, Taiwan Tech \(NTUST\)](#)

2017 Keynote: 150th Anniversary of German Chemical Society (GDCh)

2017 Plenary: 81st Meeting of the Germany Society of Physics, Münster, Germany

2017 Plenary: 38th Vienna Motor Symposium, Vienna, Austria

2016 Plenary: [25th Anniversary Lithium-Ion-Battery](#), 216. Meeting der ECS in Honolulu, HI, USA

2016 Keynote: Nordrhein-Westfälische Akademie der Wissenschaften und der Künste

2015 Award address: [ECS Battery Research Award](#) and [Carl Wagner Memorial Award](#) of the ECS, 214th ECS Meeting, Phoenix (AR, USA)

2015 Plenary: 66th ISE Meeting in Taipei, Taiwan

2015 Award address: IBA Technology Award, Big Island of Hawaii (HI, USA)

2014 [Plenary: Gordon Research Conference](#), Ventura, CA, USA

2013 Award address: Fellow of the ECS, San Francisco (CA, USA)

2012 Keynote: LANXESS China Mobility Day – Sustain. Technologies for China’s Future, Shanghai

2012 Keynote: Nordrhein-Westfälische Akademie der Wissenschaften und der Künste

2012 Plenary: European Energy Conference, Maastricht, The Netherlands

2012 Plenary: 9th Symposium: Hybrid and Electric Vehicles, Braunschweig, Germany

2012 Plenary: K+S-Group, Kassel, Germany

2011 Plenary: German Chemistry Teacher Conference, Klagenfurt, Austria

2011 Keynote: 150th Anniversary of Bosch AG, Stuttgart, Germany

2011 Plenary: WING.DE2011 – Werkstoffe gestalten Zukunft, Berlin, Germany

2011 Plenary: 33rd International Telecommunications Energy Conference (INTELEC) Amsterdam, The Netherlands

2010 Keynote: Evonik Meets Science, Marl, Germany

2009 Keynote: Batterie Kolloquium, Audi AG, Ingolstadt, Germany

2009 Plenary: Lithium Supply and Markets, Santiago de Chile, Chile

2007 Conference “Sun-Day”, Volkswagen, Auto-Uni, Wolfsburg, Germany

2007 Keynote: DOE Workshop, Chemical Storage: Batteries, Today and Tomorrow, Boston (USA)

2007 Plenary: GDCh-Wissenschaftsforum, Arvedson Schlenk-Symposium, Ulm, Germany

2007 Gordon Lectureship: Tel Aviv University, Israel

2004 NATO-CARWC Lectureship: Argonne, Chicago (IL, USA)

2004 Keynote, DOE Symposium on Advanced Anodes for Lithium Ion Batteries, Lawrence Berkeley National Laboratory, USA

2003 Plenary: Lithium battery discussion conference, Bordeaux, France

2003 Keynote: Taipei International Power Forum and Exhibition, Taipei, Taiwan

2002 Award address: ECS Battery Division Research Award, Salt Lake City (USA)

2001 Award address: IBA Research Award, Kwa-Maritane, South Africa

1999 Plenary: Annual Nagoya International Battery & Power Source Conference, Nagoya, Japan

1999 Guest Professor at the University of Thessaloniki, Greece

1997 Keynote: Joint International Meeting of ECS and ISE, Paris, France

1997 Award address: Ph.D. Thesis Award of the Division of Applied Electrochemistry of the German Chemical Society, Vienna, Austria

List of Achievements in Teaching

University teaching

- Before 2008: Full Professor at Graz University of Technology, Austria:
Lectures in Chemical Technology of Inorganic Materials, Fuel Cells, Supercapacitors, Battery Technology, and Carbon Materials.
Lecture materials of the battery course (in German) can be downloaded and are used as teaching

material at universities in Austria and Germany, e.g.

https://www.tugraz.at/fileadmin/user_upload/Institute/ICTM/education/downloads/Skript_Lithium-Ionen-Batterien.pdf and

<https://www.yumpu.com/de/document/view/2395756/primare-und-wiederaufladbare-lithium-batterien-group-of-prof-dr->

- Since 2008: Full Professor at University of Muenster, Germany:
Since then build up a master course on energy materials, including lectures, seminars and lab experimental work that attracts about 60 master students every year. By far, the most attended master course in the faculty.
- In addition: Basic lectures in Physical Chemistry (Quantum Chemistry, Kinetics, Electrochemistry and Thermodynamics) and Industrial Chemistry: Up to 300 students in the audience

Supervision (1st evaluator) of Bachelor, Master and Ph.D. theses

- 123 Accomplished Bachelor theses
- 95 Accomplished Master and Diploma theses
- 109 Accomplished Ph.D. theses
- 9 Running Bachelor thesis
- 14 Running Master theses
- 104 Running Ph.D. theses

In addition, supervision of numerous post-doctoral scholars as well as thesis mentorships (2nd evaluator).

Young investigator group mentorships (independent research groups in the rank of assistant professors)

- 4 Ongoing independent Young Investigator Groups at MEET and HI MS
- 6 Finalized independent Young Investigator Groups at MEET and HI MS
- 9 Former members of the Winter group have achieved professor positions at other universities:
4 Full Professors, 4 Associate Professors, 1 Senior Lecturer

Selected publications for teaching and educational purpose

- Cekic-Laskovic I, Wölke C, Xu K, Winter M
Electrolytes: From a Thorn Comes a Rose, and from a Rose, a Thorn
Isr. J. Chem., **2021**, 61, 85-93, DOI [10.1002/ijch.202000102](https://doi.org/10.1002/ijch.202000102)
- Cekic-Laskovic I, Roeschenthaler GV, Winter M
Fluorine and lithium: Ideal partners for high performance rechargeable batteries
Angew. Chem. Int. Ed., **2019**, 58, 15978–16000
- Noelle R, Beltrop K, Holtstiege F, Kasnatscheew J, Placke T, Winter M
A reality check and tutorial on electrochemical characterization of battery cell materials: How to choose the appropriate cell setup
Materials Today, **2019**, DOI: 10.1016/j.mattod.2019.07.002
- Betz J, Bieker G, Meister P, Placke T, Winter M, Schmuck R
Theoretical versus practical energy. A plea for more transparency in the energy calculation of different rechargeable battery system
Adv. Energy Mater., **2018**, DOI: [10.1002/aenm.201803170](https://doi.org/10.1002/aenm.201803170)
- Winter, M.; Barnett, B.; Xu, K.
Before Li-Ion Batteries
Chem. Rev., **2018**, 118, 11433 – 11456
- Placke T, Heckmann A, Schmuck R, Meister P, Beltrop K, Winter M
Perspective on performance, cost and technical challenges for practical dual-ion batteries
Joule, **2018**, 2, 2528-2550
- Smiatek J, Heuer A, Winter M
Properties of ion complexes and their impact on charge transport in organic solvent-based electrolyte solutions for lithium batteries: Insights from a theoretical perspective

Batteries, **2018**, 4, 62; DOI: [10.3390/batteries4040062](https://doi.org/10.3390/batteries4040062)

- Kasnatscheew, J.; Wagner, R.; Winter, M.; Cekic-Laskovic, I.
Interfaces and Materials in Lithium Ion Batteries: Challenges for Theoretical Electrochemistry
Top. Curr. Chem. (Z), **2018**, 376, 16 (29 pages) DOI: 10.1007/s41061-018-0196-1
- Schmich R, Wagner R, Hoerpel G, Placke T, Winter M
Performance and cost of materials for lithium-based rechargeable automotive batteries
Nat. Energy, **2018**, 4, 267–278
- Holtstiege F, Wilken A, Winter M, Placke T
Running out of lithium? A route to differentiate between capacity losses and active lithium losses in lithium-ion batteries
Phys. Chem. Chem. Phys., **2017**, 19, 25905-25918
- Winter, M. Placke, T., Rothermel, S. Meister, P., Bar, A., von Wedel, W.
Electromobility: What drives us now and in the future: battery, fuel cell and hybrid drive
(*“Elektromobilität Was uns jetzt und künftig antreibt: Batterie-, Brennstoffzellen- und Hybridantrieb”*)
Bine Informationsdienst, Themeninfo I/**2017**:
German: https://www.bine.info/fileadmin/content/Publikationen/Themen-Infos/I_2017/themen_0117_internetx.pdf;
English: <http://www.bine.info/nc/en/newsoverview/news/eine-millionen-e-autos-sind-bis-2025-machbar/>
- Kasnatscheew, J.; Evertz, M.; Kloepsch, R.; Streipert, B.; Wagner, R.; Cekic-Laskovic, I.; Winter, M.
Learning from electrochemical data: Evaluation and classification of LiMO₂ type based positive electrodes for Li ion batteries by using a novel electrochemical analysis methodology
Energy Technology, **2017**, DOI: 10.1002/ente.201700068
- Bieker, P.; Winter, M.
Lithium Ion Technology and what could follow
(*“Lithium-Ionen-Technologie und was danach kommen könnte, Hochenergieakkumulatoren”*)
Chem. Unserer Zeit, **2016**, 50, 172-186
- Bieker, P.; Winter, M.
What do you need for a Super-Battery?
(*“Was braucht man für eine Super-Batterie?”*)
Chem. Unserer Zeit, **2016**, 50, 26-33
- Kasnatscheew, J.; Rodehorst, U.; Streipert, B.; Wiemers-Meyer, S.; Jakelski, R.; Winter, M.
Learning from Overpotentials in Lithium Ion Batteries: A Case study on the LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂(NCM) Cathode
J. Electrochem. Soc., **2016**, 163, A2943-A2950
- Meister, P.; Jia, H.; Li, J.; Kloepsch, R.; Winter, M.; Placke, T.
Best Practice: Performance and Cost Evaluation of Lithium Ion Battery Active Materials with Special Emphasis on Energy Efficiency
Chem. Mater., **2016**, 28, 7203–7217
- Kasnatscheew, J.; Evertz, M.; Streipert, B.; Wagner, R.; Klöpsch, R.; Vortmann, B.; Hahn, H.; Nowak, S.; Amereller, M.; Gentschev, A-C.; Lamp, P.; Winter, M.
The Truth about 1st Cycle Coulombic Efficiency of LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ (NCM) Cathodes
Phys.Chem.Chem.Phys. **2016**, 18, 3956-3965
- Winter M.
United electrochemistry can revolutionize the world: Batteries, fuel cells and capacitors: complementary, not competitive to each other!;
Electrochemistry, **2015**, 83, 79.
- Krüger, S.; Klöpsch, R.; Li, J.; Nowak, S.; Passerini, S.; Winter, M.
How Do Reactions at the Anode/Electrolyte Interface Determine the Cathode Performance in Lithium-Ion Batteries?

J. Electrochem. Soc., **2013**, 160 (4), A542-548.

- Winter, M.; Brodd, R.
What are batteries, supercapacitors and fuel cells?
Chem. Rev., **2004**, 104, 4245-426
- Winter, M.; Besenhard, J. O.
Wiederaufladbare Batterien Teil I: Akkumulatoren mit wässriger Elektrolytlösung.
("Rechargeable batteries part I: Accumulators with aqueous electrolyte solution")
Chem. Unserer Zeit, **1999**, 33, 252-266
- Winter, M.; Besenhard, J. O.
Wiederaufladbare Batterien Teil II: Akkumulatoren mit nichtwässriger Elektrolytlösung.
("Rechargeable batteries part II: Accumulators with non-aqueous electrolyte solution")
Chem. Unserer Zeit, **1999**, 33, 320-332

Tutorials at scientific and technical conferences

- Tutorials at various academic and industry oriented conferences, for instance at the biannual Advanced Automotive Battery Conference (AABC) series (2006 – 2016) and at the ECS Fall Meeting 2006; and at the MRS Fall Meeting in 2018.
--Winter, M.; Meng, Y. S.
Lithium Ion Battery Materials, One Day Tutorial,
-in: 212th Meeting of the Electrochemical Society (ECS), Washington, USA, October 7-12, 2007
--Xu, K.; Winter, M.
The History of Lithium and Lithium Ion Batteries
-in: The 2018 MRS Fall Meeting, Boston, USA, November 25-30, 2018
- The teaching accomplishments for industry and governments at the AABC have been recognized by the announcement of Martin Winter as "Founding Academic Fellow":
<http://www.advancedautobat.com/>
- The AABC tutorials (updated in 2016) are available as Technical Reports on-line:
<http://totalbatteryconsulting.com/industry-reports/Li-Ion-and-beyond-report/overview.html>
- Numerous seminar talks at universities and research institutions, e.g., <https://vimeo.com/59450233>

Tutorials/Teaching at the industry

Numerous tutorials in electrochemistry and batteries given at/for the industry (chemical companies, Tier 1, OEMs), for instance biannual teaching units at the highly reputable "Auto-University" of VW group, which offer classes with university-equivalent degrees: <http://www.autouni.de/content/master/de/home.html>

MEET Academy/MEET Academy

Since 2012, MEET Battery Research Center offers biannual, non-profit seminars on battery related topics. Twice a year, speakers from the worlds of science and industry discuss a major topic, thereby facilitating a first-hand transfer of knowledge and technology. Representatives from the fields of technology, science and research are welcome, as, especially, are any businesspeople with an interest. The MEET Academy provides small and medium-size enterprises (SMEs) in particular with an opportunity to join in discussions between the worlds of industry and research.

Examples:

18th MEET Academy: Solid State Battery as a Future Prospect - on the Verge of Industrial Production?

17th MEET Academy: [Bottle Neck of Energy Transition? Potentials, Availabilities and Efficiency of Battery Raw Materials](#)

16th MEET Academy: [Circular Value Creation of Batteries: Key Factors for Companies](#)

15th MEET Academy: [Research Fab Battery Cells - Potential for Small and Medium-Sized Companies](#)

Tutorials/Lectures at chemistry teacher conferences, seminars and schools (selected)

- Winter M: On-line Lecture: Batteries: From the early beginnings to the future of energy storage, January 11, 2021. Biannual lectures to foreign students.

- Winter M.: *Batterien gestern, heute und Morgen -Immer wichtig, immer gut, aber nicht unumstritten*
-in: Marienschule, im Rahmen des Nachhaltigkeitsprojekts, Münster, Germany, February, 2, 2020
- Winter, M.: *Rute oder Geschenk – Was wir von Batterien Erwarten Können und Was Nicht - -aus der Sicht des Chemikers*
-in: University of Heidelberg, Young Chemists Forum, Germany, December 12, 2020
- Winter M.: *230 Jahre Batterieforschung: Von zuckenden Froschschenkeln zu leistungsstarker E-Mobilität und effizienten Energiespeichern*
-in: End-of-Year Plenary Lecture, Research Center Jülich, Düsseldorf, Germany, November 26, 2020
- Streipert, B.; Kraemer, E.; Terborg, L.; Kraft, V.; Menzel, J.; Gallus, D.; Cekic-Laskovic, I.; Nowak, S.; Placke, T.; Winter, M.
Vernachlässigt, vergessen oder unwichtig? - Inaktivmaterialien für Lithium-Ionen-Batterien
-in: 6. SEC-Jahrestreffen, Münster, Germany, May 18-20, 2016
- Winter M.: *Batterien für die Elektromobilität und stationäre Speicher: Chance und Herausforderung für den (Jung-)Chemiker*
-in: Young Chemists Forum, Münster, Germany, January 28, 2013
- Winter, M.:
Chemistry is the heart of electro-mobility ("Chemie ist das Herzstück der Elektromobilität")
-in: Didactics of Chemistry, University of Muenster (Germany) 20.01.2012
- Winter, M.: *Electro-mobility with lithium ion technology: Energy from chemistry ("Elektromobilität mit Lithium-Ionen-Technologie: Energie aus Chemie")*
-in: 11. European Chemistry Teacher Conference, Klagenfurt (Austria) 27.-30.04.2011.
- Winter, M.: *Materials as key to electro-mobility with lithium ion batteries ("Materialien als Schlüssel zur Elektromobilität mit Lithium-Ionen-Batterien")*
-in: Didactics of Chemistry, University of Muenster (Germany) 06.11.2011
- Winter, M.
Batteries, fuel cells, supercaps ("Batterien, Brennstoffzellen, Supercaps")
-in: Seminar für die Lehrer des Burgenlandes, Gymnasium Oberschützen (Austria): 06.10.2003
- Winter, M.
Batteries, fuel cells and supercaps – electrochemical energy storage and conversion devices (Batterien, Brennstoffzellen und Superkondensatoren - Elektrochemische Energiespeicher und –Wandler)
-in: 11. European Chemistry Teacher Conference, Linz (Austria): 23.- 27.04.2003
- Winter, M.
Electrochemical energy storage and conversion ("Elektrochem. Energiespeicherung und –Wandlung")
-in: Seminar Elektrochemie und Galvanotechnik, Bulme Graz (Austria): 05.11.2002
- Winter, M.
Rechargeable Batteries ("Wiederaufladbare Batterien")
-in: 6. European Chemistry Teacher Conference, Vienna (Austria): 18.-21.04.2001

Lab courses and seminars for pupils and kindergarten children (excerpt)

The Winter Group promotes contact between "young talents" from school and kindergarten with the natural sciences. Numerous science camps and advanced courses have been offered, that will continue:

- **Maus-Türöffner-Tag:** 2017-ongoing, for children
Example: [Kartoffeln machen Licht? – Sachgeschichten aus dem MEET live erleben](#) (German language)
- **NRW Junior Academy:** 2018, high school students
Example: [JuniorAkademie NRW zu Gast am MEET](#) (German language)
- **WWF 2° Grad Campus:** 2014-2021, high school students (Patronage: World Wide Fund For Nature: WWF)
Example: [Battery Research for Climate Protection](#)
Martin Winter received a WWF award for his commitment: Energiewendebeschleuniger

- **Girls' Day:** ongoing, female school students
Example: [Inspire Female School Students for Battery Research](#)
- **School Days:** 2011-ongoing, high school students
Example: [Schülertag: MEET überreicht Batterie-Experimentiersets](#) (German language)
- **Jugend forscht:** high school students
Example: [MEET unterstützt erfolgreiches „Jugend forscht“-Team](#) (German language)
- **MINT-EC Camp:** 2011 – 2014, high school students, especially from the fields of mathematics, technology and natural sciences
Example: [Oberstufenschüler bei „MINT-EC-CAMP“](#) (German language)
- **Q.Uni:** 2015, for children with their families, under the patronage of the University of Münster
Example: [Q.UNI: Batterieforschung mit Cola](#) (German language)
- **Kindergarten Laboratory Visits:** 2017
Construction of potato and gummy bear batteries, e.g. with the kindergarten "Die Glühwürmchen"