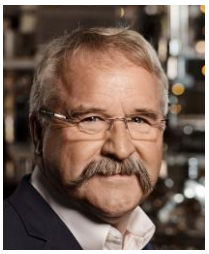
Curriculum Vitae IB CHORKENDORFF June 2026



Work address: Department of Physics, Building 312,
DK-2800 Kongens Lyngby, Denmark, Phone: +45 24233563.
E-mail: icho@dtu.dk, Homepage: https://www.staff.dtu.dk/icho
ResearcherID: C-7282-2008 and Ocid ID: 00000-0003-2738-0325

1982	B.Sc. in Chemistry and M.Sc. in Physics at Odense University
1985	Ph.D. degree in Physics at the Physics Institute, Odense University
1986-1987	Post-doc with Professor John T. Yates Jr., Dept. Chemistry, University of Pittsburgh, USA
1987-1999	Associate Professor at the Department of Physics, Technical University of Denmark
1999-	Professor in Heterogeneous Catalysis & Head of section "Surface Physics and Catalysis"
1999-2006	Director of the Interdisciplinary Research Center for Catalysis (ICAT)
2005-2016	Director of the Danish National Research Foundation "Center for Individual Nanoparticle Functionality" CINF at Department of Physics, DTU
2012-2014	Director of the DTU Initiative "Catalysis Initiative for Sustainable Energy" (CASE)
2012-2013	Guest Professor at SUNCAT, SLAC, Stanford University, Palo Alto, USA
2013-2019	Consulting Professor**,** SUNCAT, SLAC, Stanford University, Palo Alto, USA
2015-	Co-founder of HPNOW APS and RenCat APS
2015-	Member of SCIENCE MAGAZINE Board of Reviewing Editors
2016-	Director of V-Sustain I&II "The VILLUM Center for the Science of Sustainable Fuels and Chemicals"
2016-	Founder of Chorkendorff Holding APS and Co-founder of SpectroInlets APS
2017-2023	ERC-ADV Grantee

Awards:

2000	Awarded the Ulrik and Marie Brinch award 100.000 DKK
2001	Elected Fellow of The Academy for Technical Sciences (ATV)
2012	Chalmers Jubilee Distinguished Visiting Professor, Chalmers University of Technology, Sweden
2015	Elected Fellow of Royal Society of Chemistry (FRSC)
2007	Awarded the Ingeborg and Leo Dannin's Prize for Natural Sci. Research 250.000 DKK
2018	Awarded the Chinese Overseas High-level Talents Program, Chinese Academy
2018	Elected member of the Royal Danish Academy of Sciences and Letters
2019	Awarded the Julius Thomsen Gold Medal, Technical University of Denmark
2020	Awarded a Hans Fischer Senior Fellowship at Technical University of Munich, Germany
2021	Awarded the Villum Kann Rassmussen Award of 0.7 M€
2022	Awarded the Eni Award: Energy Frontiers Prize 100 k€

Scientific Impact:
Author and co-author of **470** scientific papers published in international refereed journals, one book, and 23 patents or patent applications. ISI C-7282-2008. Cited >**81.000** times, increasing >**8.000**/year**,** H-Index: **107.** Google Scholar Cited: >100.000 increasing >10.000/year H-Indes:122. Since 2017 listed as Highly Cited Researcher (ISI). Has been invited speaker in more than 200 international conferences of which many were Keynote and Plenary. Co-founder of three spin-out companies.

Member of Advisory Boards:
1999-2008 Member of the Board for the Federation of European Catalysis Societies, 2005-2017 Member of the Scientific Advisory Board of KCK at Chalmers University Sweden, 2008-2013 Member of the Strategic Advisory Committee for (NIMIC), University of Delft, The Netherlands, 2010-2013 Member of the Scientific Advisory Board for SUNCAT at SLAC/Stanford University USA, 2013-2019 Member of the Advisory Board of "Solar H_2 DFG SPP 1613", 2016-2023 Member of the Scientific Advisory Board of Chemical Building Blocks Consortium The Netherlands, 2019-Member of the Scientific Advisory Board of E-Conversion TUM, Germany, 2019- Member of the Scientific Advisory Board (Fachbeirat) of the FHI of the Max Plack Society in Berlin.

General description of activities:

Ib Chorkendorff was in 1987 employed at the Department of Physics, DTU, for establishing an experimental activity within the field of Surface Physics. Here the objective was to investigating fundamental aspects of surface reactions, especially with emphasis on fundamental understanding of the technologically important catalytic processes like Steam Reforming, Methanol Synthesis, and Ammonia Synthesis. The activities were then broadened to include energy technologies related to energy conversion i.e. Power-to-X like hydrogen production, energy storage in form of solar fuels, and energy conversions in fuel cells as well as catalysis for environmental protection. Two spin-out companies have been established in this field: HPNOW and RenCat.

Ib Chorkendorff has over the years build up the section SurfCat with extended laboratory facilities including a broad variety of the most modern surface sensitive methods (STM, HREELS, TPD, LEED, AES, XPS, High-pressure cells in conjunction with UHV and GC's, and Cluster Sources for *in situ* synthesis of and mass-selected nanoparticle materials). Laboratory facilities are also available for material synthesis in connection with heterogeneous catalysis, electro-, and photo-catalysis in general including Fuel Cell type reactor for up-scaling. Several methods for catalysts testing have been developed i.e. the sniffer chip which has been commercialized and led to a third spin-out company: Spectroinlets.

Courses on the master and PhD level has been developed and Ib Chorkendorff has been Supervisor for M.Sc. students (total 63) and Ph.D. students (total 82) and Post-docs (70) of which many were in collaboration with industry. Chorkendorff has served on many PhD committees and evaluation committees all over the world and have also organized several international meetings.

Major Contributions to the Early Careers of Excellent Researchers (15):

T.F. Jaramillo, PD now Professor at Stanford University, USA, **A.S. Bandarenko**, PD, now Professor at Tech. Univ. Munich, Germany,**Y. Hou**, PD, now professor Fuzhou University, China, **I.E.L. Stephens**, PD, now Professor at Imperial College UK. **B. Seger**, PD, now Professor at DTU Physics Denmark,**S. Dahl**, PhD student, Professor at DTU, now Haldor Topsøe A/S. **J.H. Nielsen**, PhD student, now Professor at DTU, Denmark, **P.C.K. Vesborg**, PhD student, now Professor at DTU Physics, DTU, Denmark, **María Escudero Escribano** PD, now Professor (ICN2), CSIC, Barcelona, Spain, **J. Kibsgaard**, PD, now Professor at DTU Physics, DTU, Denmark, **E. Clark,** PD, now Assistant Professor, Pennsylvania State University, USA, **S. Scott**, PhD Student, now Assistant Professor, Copenhagen Univ, Denmark, **Y.-R. Zheng**, PD, now Assistant Professor Hefei University of Tech, Hefei, China, **K. Zhang**, PD, now Assistant Professor ShanghaiTech University, Shanghai, China, **X. Fu**, PD, now Assistant Professor National University Singapore, Singapore, **S. Li**, PD, now Assistant Professor University of Science and Technology of China, Hefei, China.

Management Experience:

Ib Chorkendorff has taken part in and managed larger research programs typically involving several different groups coming from both academia and industry: Interdisciplinary Research Center for Catalysis (ICAT) at DTU 1999-2005, (3,0M€), Danish National Research Foundation Center for Individual Nanoparticle Functionality CINF 2005-2015,(11,0M€), Catalysis for Sustainable Energy (CASE) at DTU 2012-2015, (18,0M€), The VILLUM Center for the Science of Sustainable Fuels and Chemicals V-Sustain 2016-2023, (23 M€), ERC-ADV Grant, 2017-2023, (2.5 M€), E-Ammonia 2019-2022, (2.5 M€). Extension of V-Sustain 2023-2028, (3 M€).

Member of International Editorial Advisory Board of:

Board of Reviewing Editors SCIENCE MAGAZINE, Energy and Environmental Science, ACS Energy Letters**,** CHEMCATCHEM, CHEMELECTROCHEM, Energy and Environmental Catalysis.

Professional memberships:

- The Electrochemical Society
- The Royal Society of Chemistry
- The International Society of Electrochemistry
- The American Vacuum Society
- The American Chemical Society
- The American Physical Society
- The North American Catalysis Society
- The Material Research Society

List of Publications in International and Refereed Journals for IB CHORKENDORFF

475) Z. Cui, Z. Zhang, Z. Wang, Z. Jiang, J. Qiu, J. Zeng**I. Chorkendorff**, S. Li, " Low-graphitization carbon overlayers enable efficient gas diffusion electrodes for lithium-mediated ammonia synthesis", Submitted (2026).

474) M. P. Salinas-Quezada, P. Sebastián-Pascual, **I. Chorkendorff**, K. Biswas, J. Rossmeisl, M. Escudero-Escribano, "Dynamic Surface Composition in AgAuCuPdPt High-Entropy Alloys for Formic Acid Electrooxidation", Submitted (2026).

473) X. Fu, **I. Chorkendorff**, "Electrochemical Reactor Designs for Redox-Mediated Ammonia Synthesis", Submitted (2026)

472) P. Liu, Xiaomei H. Y. Wang, S. Zhai, R. Xu, J. Zeng, **I. Chorkendorff,** and S. Li*, "Organic-inorganic interphase architecture enables efficient lithium-mediated nitrogen reduction", Submitted (2026)

471) L. Shi, Z Zhang, S. Zhai1, Y. Wang, J. Zeng, **I. Chorkendorff**, S. Li," Ammonia electrosynthesis from nitrogen and hydrogen", Submitted (2026)

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470) O. Christensen, A. Cao, **I. Chorkendorff**, and J. K. Nørskov, "Spin-mediated promotion of magnetic metal catalysts" (2026) Faraday Discussions (2026). DOI: 10.1039/d6fd00046k.

469) C. F. Elkjær, S. P. F. Jespersen, S. B. Vendelbo, P. Kooyman, C. D. Damsgaard, **I. Chorkendorff,** S. Helveg, "Catalytic hot-spots in CO oxidation resolved by operando electron microscopy", Faraday Discussions, 2026, DOI: 10.1039/D6FD00011H (2026)

468) N. H. Deissler, J. B. V. Mygind, V. A. Niemann, J. B. Pedersen, V. Vinci, S. Li, X. Fu, T. F. Jaramillo, J. Kibsgaard, J. Drnec, **I. Chorkendorff**, "Unveiling the Mechanism of Lithium-Mediated Nitrogen Reduction via Operando X-ray Scattering in a Flow Cell with Hydrogen Oxidation", Energy & Environmental Science, 19 (2026) 849 - 859.

467) R. Engel, F. Romeggio, V. K. Ocampo-Restrepo. F. Schouenborg, E. R. Billeter, M. Soldemo, D. Degerman, F. Garcia-Martinez, J. Kibsgaard, **I. Chorkendorff**, J. K. Nørskov, C. D. Damsgaard A. Nilsson, P. Lömker, "Mechanistic Insights into Methanol Production on Ni_5Ga_3 Thin Films: An In Situ XPS and DFT Study", Applied catalysis B 38a (20256). DOI:10.1016/j.apcatb.2025.125798

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466) Q. Xu, B. Ó. Joensen, N. C. Kani, A. Sartori, J. Drnec, **I. Chorkendorff,** B. Seger, "In-operando two-dimensional X-ray imaging of CO2 electrolyzer", Carbon Future 2 (2025) 9200053 DOI: 10.26599/CF.2025.9200053 (2025).

465) E. Gioria, F. Romeggio, R, Villoro, I, Garnieri, P Benito, **I. Chorkendorff**, C. D. Damsgaard, Christian, "Colloidal Fe Nanocrystals for CH_4 Decomposition: Role of the Support" (2025). J. material Chem. doi.org/10.1039/D5TA03667D

464) Gunnarson A. Christensen A. Frisina, Miriam Varón1, E. R. Billeter, C. D. Damsgaard, C. Frandsen, J. K. Nørskov, **I. Chorkendorff**, "Ammonia Decomposition in the Presence of Water: A Resilient Barium Cobalt Catalyst", ACS Energy Letters 10 (2025) 3383−3387. DOI:10.1021/acsenergylett.5c01389

463) E. Gioria, V. K. Ocampo-Restrepo, A. S. Bjørnlund, V. K. Pedersen, S. Helveg, **I. Chorkendorff**, C.D. Damsgaard, "In-situ Investigations of CH4 Decomposition on Nickel Phyllosilicate: Switching

from Tip to Base Growth Mechanism of Carbon Nanotubes" Small 2500994 (2025) DOI:10.1002/smll.202500994.

462) Cao, K. Zhang, J. Vernieres, L. H. Wandall, R. E. Tankard, J. Kibsgaard, **I. Chorkendorff**, J. K. Nørskov, "The Co/NbN interphase as an effective ammonia synthesis catalyst", Chem (2025), DOI: 10.1016/j.chempr.2025.102618.

461) N. H. Deissler, V. Vinci, J. B. V. Mygind, X. Fu, S. Li, J. Kibsgaard, J. Drnec, **I. Chorkendorff**, "A Novel 3D-Printed Electrochemical Cell for Operando Synchrotron Experiments" Accepted Next Energy 8 (2025). DOI10.1016/j.nxener.2025.100279

460) Q. Xu, J. A. Z. Zeledón, B. Ó. Joensen, L. Trotochaud, A. Sartori, L. M. Kaas, A. B. Moss, M. Mirolo, L. Mairena, S. Huynh, S. Garg, S. Helveg, **I. Chorkendorff**, S. Zhao, B. Seger, J. Drnec, "Operando X-ray characterization platform to unravel catalyst degradation under accelerated stress testing in CO2 electrolysis", Nature Nanotechnology (2025) https://doi.org/10.1038/s41565-025-01916-1.

459) Q. Xu, B. Ó. Joensen, N. C Kani, A. Sartori, T, Wilson, J. R. Varcoe, L. Riillo, A. Ramunni, J. Drnec, **I. Chorkendorff**, B. Seger," Electrolyte effects in membrane-electrode-assembly CO electrolysis", Angewandte Chemie 22 (2025) e202501505. doi/abs/10.1002/anie.202501505

458) V.A. Niemann, M. Doucet, P. Benedek, N.H. Deissler, J.B.V. Mygind, S.W. Lee, **I. Chorkendorff**, A.C. Nielander, W.A. Tarpeh, and T.F. Jaramillo, "In situ neutron reflectometer reveals the interfacial microenvironment driving electrochemical ammonia synthesis" J. Am. Chem. Soc. (2025) 147, 12469–12480. doi/10.1021/jacs.4c16636

457) J. B. V. Mygind, N. H. Deissler, S. Li, X. Fu, J. Kibsgaard, and **I. Chorkendorff**, "Hydrogen Oxidation Beyond Water: In Search of Proton Mediation Pathways", ACS Electrochemistry 1 (2025) 987-996. DOI: 10.1021/acselectrochem.5c00009

456) F. C. Aletsee, M. Neumann, **I. Chorkendorff**, M. Tschurl, and U. M. Heiz, "Tertiary Alcohols as Mechanistic Probes for Photocatalysis: The Gas Phase Reaction of 2-Methyl-2-Pentanol on Titania P25 in a Micro-Photoreactor", ACS Catalysis 15 (2025) 2584-2594. https://doi-org.proxy.findit.cvt.dk/10.1021/acscatal.4c07001

455) A. Mangini, J. B. V. Mygind, S. G. Ballesteros, M. Armandi, **I. Chorkendorff**, F. Bella "Multivariate Approaches Boosting Lithium-Mediated Ammonia Electrosynthesis in Different Electrolytes", Angewandte Chemie 64 (2025) e202416027, doi-org.proxy.findit.cvt.dk/10.1002/anie.202416027.

454) B. Ó. Joensen, Q. Xu, K. Enemark-Rasmussen, V. Frankland, A.P. Periasamy, J. Varcoe, **I. Chorkendorff**, B. Seger, "Advancing the Synthesis for Perdeuterated Small Organic Chemicals via Electrochemical CO2 Reduction", ACS Catalysis 15 (2025) 1038–1045. https://doi-org.proxy.findit.cvt.dk/10.1021/acscatal.4c06353.

453) Y. Zhou, X. Fu, **I. Chorkendorff**, J. K. Nørskov, "Electrochemical Ammonia Synthesis – the Energy Efficiency Challenge", ACS Energy Letters 10 (2025) 128-132. DOI: 10.1021/acsenergylett.4c02954.

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452) F. Romeggio, R. Bischoff, C. B. Møller, V. L. Jensen, E. G. Gioria, R. E. Tankard, R. S. Nielsen, O. Hansen, **I. Chorkendorff**, J. Kibsgaard, C. D. Damsgaard, "Room-temperature deposition of δ-Ni5Ga3 thin-films and nanoparticles via magnetron sputtering", ACS Omega 9 (2024) 49759–49766, DOI: 10.1021/acsomega.4c08405

451) K. Naumann, T. Tichter, R. Nielsen, B. Seger, O. Hansen, **I. Chorkendorff** and P. C. K. Vesborg, "Protection Materials on 111-V Semiconductors for Photo-electrochemical CO-Reduction", J. Chem. Phys. C 128 (2024) 20549-20558, DOI: 10.1021/acs.jpcc.4c04782.

450) Gunnarson, A. Cao, O. F. Sloth, M. Varón, R. B. Villoro, T. Veile, C. D. Damsgaard, C. Frandsen, J. K. Nørskov and **I. Chorkendorff**, "Theory-Guided Development of a Barium-Doped Cobalt Catalyst for Ammonia Decomposition", Energy & Environmental Science 17 (2024) 9313 – 9322, DOI: 10.1039/d4ee02874k.

449) X. Fu, **I. Chorkendorff**, "Prospects and Challenges in Electrochemical Nitrogen Activation for Ammonia Synthesis" Science China 67 (2024) 3410-3514, DOI:10.1007/s11426-024-2129-6.

448) T. Yilmaz, **I. Chorkendorff**, and B. Seger, "Direct Electrocatalytic Propylene Epoxidation on PdOx and PtOx", J. Chem. Phys. 128 (2024) 17006-17012, DOI: 10.1021/acs.jpcc.4c05592

447) F. Romeggio, J. F. Schouenborg, P. C. K. Vesborg, O. Hansen, J. Kibsgaard, **I. Chorkendorff**, C. D. Damsgaard, "Magnetron Sputtering of Pure δ-Ni5Ga3 Thin-Films for CO2 Hydrogenation", ACS Catal. 14 (2024) 12592−12601, DOI:10.1021/acscatal.4c03345

446) S. Li, X. Fu, J. K. Nørskov, **I. Chorkendorff**, "Towards sustainable ammonia electrosynthesis" Nature Energy 9 (2024) 1344-1349, DOI: 10.1038/s41560-024-01622-7.

445) X. Fu, S. Li, N. H. Deissler, J. B.V. Mygind, J. Kibsgaard, **I. Chorkendorff**, "Effect of Lithium Salt on Lithium-mediated Ammonia Synthesis,", ACS Energy Letters, 9 (2024) 3790-3795, DOI 10.1021/acsenergylett.4c01655

444) E. S. Varo, R. Tankard, J.L. Needham, E. Gioria, F. Romeggio, **I. Chorkendorff,** C.D. Damsgaard, J. Kibsgaard, "An Experimental Perspective on Nanoparticle Electrochemistry" PCCP 26 (2024) 17456-17466, DOI:10.1039/d4cp00889h

443) R. Nielsen, M. Schleuning, O. Karalis, T. H. Hemmingsen, O. Hansen, **I Chorkendorff**, T. Unold, P. C. K. Vesborg, "Increasing the Collection Efficiency in Selenium Thin-Film Solar Cells Using a Closed-Space Annealing Strategy", ACS Applied Energy Materials 7 (2024) 5209-5215, DOI:10.1021/acsaem.4c00636

442) E. Plaza-Mayoral, V. Okatenko, K. N. Dalby, H. Falsig, **I. Chorkendorff,** P. Sebastián-Pascual, M. Escudero-Escribano, "Composition effects of electrodeposited CuAg nanostructured electrocatalysts for CO2 reduction", IScience 27 (2024) 109933, DOI:10.1016/j.isci.2024.109933

441) M. P. Salinas-Quezada, J. K. Pedersen, P. Sebastián-Pascual, **I. Chorkendorff,** K Biswas, J. Rossmeisl and M. Escudero-Escribano, "Toward Understanding CO Oxidation on High-Entropy Alloy Electrocatalysts" EES Catalysis 2 (2024) 941-952, DOI: 10.1039/D4EY00023D

440) N. H. Deissler, J. B. V. Mygind, K. Li, V. A. Niemann, P. Benedek, V. Vinci, S. Li, X. Fu, P. Vesborg, T. F. Jaramillo, J. Kibsgaard, J. Drnec, **I. Chorkendorff** " In operando Investigations of the Solid Electrolyte Interphase in the Lithium Mediated Ammonia Synthesis", Energy & Environmental Science, 17 (2024) 3482 - 3492, DOI: 10.1039/D3EE04235A

439) E. Plaza-Mayoral, K. Dalby, H. Falsig, **I. Chorkendorff,** P. Sebastián-Pascual, M. Escudero-Escribano, "Preparation of tunable Cu-Ag nanostructures by Electrodeposition in a deep eutectic solvent" ChemElectroChem 11 (2024) e202400094, DOI: 10.1002/celc.202400094

438) S. Li, Y. Zhou, X. Fu, J. B. Pedersen, M. Saccoccio, S. Z. Andersen, K. Enemark-Rasmussen, A. Xu, R. Sažinas, J. B. V. Mygind, N. H. Deissler, J. Kibsgaard, P. C. K. Vesborg, J. K. Nørskov, and **I. Chorkendorff**, "Long-term continuous ammonia electrosynthesis", Nature 629 (2024) 91-97, DOI:10.1038/s41586-024-07276-5

437) R. E. Tankard, F. Romeggio, S. K. Akazawa, A. Krabbe, O. F. Sloth1, N. M. Secher, S. Colding-Fagerholt, S. Helveg, R. Palmer, C. D. Damsgaard, J. Kibsgaard, **I. Chorkendorff**, "Stable mass-selected AuTiOx nanoparticles for CO oxidation", PCCP 26 (2023) 9253-9263, DOI: 10.1039/D4CP00211C.

336) T. Smitshuysen, M. Lützen, A. Zimina, T. L. Sheppard, H. H. Jakobsen; **I. Chorkendorff**; C. D. Damsgaard, "Using CoCu2Ga/SiO2 to identify stability-issues in ethanol-selective Co-Cu alloyed catalysts in carbon monoxide hydrogenation" Applied Catalysis A: General 675 (2024) 119636, DOI: 10.1016/j.apcata.2024.119636.

435) B. Ó. Joensen, J. A. Z. Zeledón, L. Trotochaud, A. Sartori, M. Mirolo, A. B. Moss, S.l Garg, **I. Chorkendorff**, J.Drnec, B. Seger, Q. Xu,"Unveiling Transport Mechanisms of Cesium and Water in Operando Zero-Gap CO2 Electrolyzers", Joule 8 (2024) 1754-1771 DOI: 10.1016/j.joule.2024.02.027.

434) X. Fu, A. Xu, J. B. Pedersen, S. Li, R. Sažinas, Y. Zhou, S. Z. Andersen, M. Saccoccio, N. H. Deissler, J. B. V. Mygind, J. Kibsgaard, P. C. K. Vesborg, J. K. Nørskov, **I. Chorkendorff**, "Phenol as Proton Shuttle and Buffer for Lithium-mediated Ammonia Electrosynthesis", Nature Communication 15 (2024) 2417, DOI: 10.1038/s41467-024-46803-w.

433) C.A.G. Rodriguez, A. B. Moss, S. Garg, W. Deng, J. R. Varcoe, **I Chorkendorff,** and Brian Seger, "Insights into zero-gap CO2 electrolysis at elevated temperatures ", Energy & Enivironnement Catalysis 2 (2024) 850-851, DOI: 10.1039/d3ey00224a.

432) R. Nielsen, A. Crovetto, A. Assar, O. Hansen, **I. Chorkendorff**, and P. C. K. Vesborg, "Monolithic Selenium/Silicon Tandem Solar Cells", PRX Energy 3 (2024) 013013, DOI: 10.1103/PRXEnergy.3.013013

431) Y. Qiao, D. Hochfilzer, **I. Chorkendorff**, B. Seger, "Real-Time Detection of Acetaldehyde in Electrochemical CO(2) Reduction on Cu Single Crystals", ACS Energy Lett. 9 (2024) 880-887, DOI: 10.1021/acsenergylett.3c02549.

430) K. Zhang, A. Cao, L.W. Wandall, J. Vernieres, J. Kibsgaard, J. K. Nørskov, **I. Chorkendorff,** "Spin-mediated promotion of Co catalysts for ammonia synthesis", SCIENCE 383 (2024) 1357-1363, DOI: 10.1126/science.adn0558.

429) E. S. Varo, R. E. Tankard, J. Kryger-Baggesen, J. Jinschek, S. Helveg, **I. Chorkendorff**, C. D. Damsgaard, J. Kibsgaard, "Gold nanoparticles for CO2 electroreduction: a hidden optimum defined by size and shape", J. A. Chem. Soc. 146 (2024) 2015-2023 DOI: 10.1021/jacs.3c10610.

428) W. Deng, Y. Qiao, G. Kastlunger, N. Govindarajan, A. Xu, P. Zhang, **I. Chorkendorff**, B. Seger, J. Gong, "Unraveling the rate-determine step of C2+ products during electrochemical CO reduction", Nature Comm. 15 (2024) 892. DOI: 10.1038/s41467-024-45230-1

427) P. M. Couce, T. Madsen, E. Plaza-Mayoral, H. Kristoffersen, **I. Chorkendorff**, K. Dalby, W.van der Stam, J. Rossmeisl, M. Escudero-Escribano and P. Sebastián-Pascual, "Tailoring the facet distribution on copper with chloride", Chemical Science 15 (2024) 1714-1725, DOI: 10.1039/D3SC05988J.

426) E. Clark D. Hochfilzer, B. Seger, **I. Chorkendorff**, "Preventing Alloy Electrocatalyst Segregation in Air using Sacrificial Passivating Overlayers" J. Phys. Chem. 28 (2024) 428-435, DOI: 10.1021/acs.jpcc.3c05493.

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425) K. Zhang, L. H. Wandall, J. Vernieres, J. Kibsgaard and **I. Chorkendorff**, "UHV compatible reactor for model catalyst study of ammonia synthesis at ambient pressure", Rev. Sci. Instrum. 94, (2023) 114102, DOI:10.1063/5.0160459.

424) C. Wei, Z. Wang, K. Otani, D. Hochfilzer, K. Zhan1, R. Nielsen, J. K. Nørskov, J. Kibsgaard, **I. Chorkendorff**, "Benchmarking the Stability of Electrocatalysts for Acidic Oxygen Evolution Reaction: Importance of Dissolved Ion Concentration", ACS Catal., 13, 21, (2023) 14058–14069, DOI: 10.1021/acscatal.3c03257.

423) E. L. Clark, R. Nielsen, J. E. Sørensen, J. L. Needham, B. Seger, **I. Chorkendorff**, "Independent and Systematic Tuning of Surface Reactivity and Electric Field Strength via Intermetallic Bonding: A Platform for the Development of Superior Electrocatalytic Materials", ACS Energy Lett. 8 (2023) 4414-4420, DOI: 10.1021/acsenergylett.3c01639.

422) D. Hochfilzer, C. Aletsee, K. Krempl, T. Pedersen, A. Krabbe, M. Tschur, O. Hansen, P.C.K. Viborg, J. Kibsgaard, U. Heiz, and **I. Chorkendorff,** "Enabling real-time detection of photocatalytic reactions by a re-useable µ-reactor", Measurement Science and Technology 35 (2024) 015903, DOI: 10.1021/jacs.3c10610

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Invited Talks at International Conferences and Named Lectures by IB CHORKENDORFF

1. Second Nordic Conference on Surface Science, Linköping, Sweden, June 15-17, 1987**,** "**Scanning kinetic spectroscopy for determination of major reaction pathways on single crystals**"

2. Reactions of Hydrocarbons with Metal Atoms, Clusters, and Solids, Oslo, Norway, April 24-25 1990, "**Dissociative Sticking of Methane on Ni(100)**"

3. Surface and Interface Chemistry, CERC-3 Workshop, Rolduc Abbey, Kerkrade, The Netherlands, April 17-21, 1993, "**Fundamental studies and microkinetic modelling of catalytic processes**"

4. Thirteenth North American Meeting of Catalysis Society, Pittsburg, USA, May 1993, "**Micro-Kinetic Modelling of the Methanol Synthesis Based on Cu Single Crystal Studies**"

5. Annual Meeting of the Danish Physical Society, Nyborg Strand, Denmark, 23-24 May, 1996, "**Design and reactivity of surface alloys**"

6. The 3rd European Conference on Gas-Surface Dynamics, Rolduc Abbey, Kerkrade, The Netherlands, 3-6 September 1996, "**Molecular beam investigations of methane dissociation on Au/Ni(111) surface alloys**"

7. Oji Seminar: Chemical Processes of Surfaces based on Atomic Scale Structure and Dynamics, Saitama, Japan, 27-31 October, 1996, "**Design and Reactivity of Alloys**"

8. The Fourth Nordic Conference on Surface Science, Ålesund, Norway, 29. May - 1. June 1997, "**Design and Reactivity of Surface Alloys**"

9. Gordon Research Conference on Dynamics at Surfaces, Proctor Academy, New Hampshire, USA. 10. – 14. August 1997, "**Molecular Beam Studies of Methane on Surface Alloys**"

10. Fourth European Summer School on Surface Science: "Surface Reactivity ", 16. – 22. August 1997, Humlebæk, Denmark, "**Design and Reactivity of Surface Alloys**"

11. Fourth European Summer School on Surface Science: "Surface Reactivity ", 16. – 22. August 1997, Humlebæk, Denmark, "**Microkinetic Modelling of Catalysts**"

12. Dynamics and Kinetics of Surface Reactions on Elemental and Bimetallic Surfaces in the European TMR Programme 24 - 27 August, 1997, Dublin, Ireland, "**Surface Reactivity of Epitaxial Metal Overlayers and Alloys: A Combined Experimental/Theoretical Approach**"

13. International Ph.D. Summer School in Solid Films and Surfaces, June 28 - July 5, 1998, Kolle Kolle Conference Center, Denmark, "**A Surface Science Approach to Heterogeneous Catalysis**"

14. Workshop on "Catalysis from first principles ", European Science Foundation, Magleås Conference Center, Høsterkøb, Denmark 17-19 May, 1999**,** "**Significance of steps on real catalytic reactions**"

15. Annual Meeting of the Danish Physical Society, Nyborg Strand, Denmark, 2.-3. June, 1999**,** "**Interdisciplinary Research in Catalysis**"

16. Fifth European Summer School on Surface Science: "Understanding Catalysis". Dronten, Holland, 28. August – 3. September 1999, "**Rates of reactions on single crystals**"

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18. 46th International Symposium of the American Vacuum Society, Seattle, USA, 25-29 October 1999, "**Linking surface science and catalysis**"

19. JRP Gas-surface Interaction, Aggsbach-Dorf, Austria, 22-25 October 2000, "**Surface Reaction on Pure, Defective and Alloyed Metal Surfaces**"

20. Gordon Research Conference on Chemical Reaction at Surfaces, Ventura, California, USA. 18 – 23 February 2001, "**Can Minority Sites Dominate the Overall Reactivity of Surfaces**"

21. American Chemical Society Meeting, San Diego, California, USA. 1-5 April 2001, "**Influence on strongly activated processes by clean, defect, and modified surfaces**"

22. Workshop on "Catalysis from first principles" Vienna, Austria, 21-23 February 2002, "**Reactivity of Pseudomorfic Metal Overlayers and Alloys**"

23. First Network Meeting "Predicting Catalysis" Haldor Topsøe A/S Lyngby, Denmark, 11-14 January 2003, "**Can Minority Sites dominate Catalysis?**"

24. American Chemical Society Meeting, New Orleans, Louisiana, USA, 23-27 March 2003, "**Controlling reactivity by blocking minority sites**"

25. Workshop on Theory and Surface Measurements of Fuel Cell Catalysis, Magleås Conference Center, Høsterkøb, Denmark June 16-18 2003, "**CO Exchange Rate on Pt Fuel Cell Catalysts**"

26. 9th International Fischer Symposium, Munich, Germany, 21-25 July 2003, "**Reactivity of CO and CH_4 on Nickel and Platinum**"

27. Workshop on "Our Future Light Source" Maxlab, Lund, Sweeden, 27-29 September 2004; "**Surface science and catalysis, outstanding problems**"

28. Frontiers in Electronic Structure Theory, Magleås Denmark, 5-6 October 2004, "**Reactivity in Relation to Hydrogen Production and Conversion**"

29. Workshop on Novel Layer Structures for Fuel Cells, German Research Foundation Schloss Pommersfelden 8-11 May 2005; "**From fundamental investigations of conventional fuel cells catalyst to new catalyst for hydrogen evolution**"

30. ECS 207 Quebec, Canada 16-20 May 2005, "**Conversion of Hydrogen on Alloys and inorganic Compounds**"

31. 52th International Symposium of the American Vacuum Society, Boston USA, 25-29 October 2005, "**Production and Conversion of Hydrogen"**

32. Danish Physical Society Annual Meeting, Nyborg Strand, Denmark, 1-2 June 2006, "**Why is structure so important in surface reactivity and how can CEN-DTU provide solutions here?**"

33. INANO Summerschool, Fuglsø, Denmark, 11-16 June, 2006, "**Basic Concepts of Catalysis**"

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36. ASEVA Workshops 2006, WS-19 Physical, Chemical and Mechanical Properties of Nanoclusters, Ávila, Spain. September 25-27, 2006 "**Reactivity of Nanostructures and Clusters**"

37. 1st SURMAT Workshop, Dusseldorf, Germany 6-8 December 2006, **"Correlation of Structure and Reactivity for Design of New Materials for Hydrogen Production"**

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39. CAMd Lundbæk Symposium, February 26-27, 2007, Kgs Lyngby, **"Structure sensitivity in surface processes"**

40. 233rd American Chemical Society Meeting, Chicago, USA, 22-30 March 2007 "**Role of Mono-atomic Steps in the Catalytic Reactions**"

41. 1st Symposium of the EU Network on Hydrogen, 16 and 17 April 2007 in Amsterdam, The Netherlands **"Correlation of Structure and Reactivity for New Electrode Materials"**

42. WS-21 ASEVA Workshop on Hydrogen as a future energy carrier 2-5 September 2007, Avila, Spain, "**Conventional Hydrogen production**"

43. EU High Level Conference on Nanotechnologies 20-21 November 2007, Braga, Portugal "**Electrocatalysts and the multidisciplinary approach combining theoretical design combinatorial methods and development of MEAs**"

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59. The 4th IDECAT Conference on Catalysis, Porquerolles, France 12-16 May 2010, "**Design of new catalysts based on molecular level insight**"

60. CASE-Helios workshop: Co-catalysts in photochemical fuel production" 17-18 May 2010, DTU, Denmark, "**Photochemical hydrogen evolution**

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70. GDCh (Society of German Chemists) Technical University of Munich, Germany 18th January 2011, **"Heterogeneous Catalysis: A Part of the Solution for Future Energy Production"**

71. 5th Hydrogen & Energy Symposium, Stoos, Switzerland 23-28 January 2011, **"New Catalyst for Hydrogen Evolution and Oxygen reduction"**

72. 2nd Workshop of the International Max Planck Research School Complex Surfaces in Material Sciences, Schloss Ringberg, Teegernsee, Germany, 21-25 February 2011, **"Heterogeneous Catalysis: A Part of the Solution for Future Energy Production"**

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74. Summer School: Energy and Materials from the Sun, Rolduc Abbey, The Netherlands, 20-23 June 2011**. "Heterogeneous Catalysis: A Part of the Solution for Future Energy Production"**

75. Gordon Research Conference on Clusters, Nanostructures & Nanocrystals, Mount Holyoke College, MA, USA, 24-29 July 2011. **"Mass selected nanoparticles used for modeling catalytic reactions"**

76. SPIE Photonics and Optic Conference San Diego, CA, USA, 21-25 August 2011**, "Bio-inspired co-catalysts bonded to a silicon photocathode for hydrogen evolution"**

77. Japan-EU Workshop "Substitution of Critical Raw materials", Tokyo Japan, 21-22 November 2011. **"Catalysis for sustainable energy: The challenge of harvesting and converting energy"**

78. MRS fall meeting, Boston, MA, USA, 27 November – 2 December 2011**, "New catalysts for Production of Solar Fuels"**

79. 243rd ACS Spring Meeting in San Diego 25-29 March 2012 **"Activity of mass-selected nanoparticles: Correlation of structure and reactivity"**

80. CIMTEC 2012 - 4th International Conference on Smart Materials, Structures and Systems, Montecatini Terme, Italy 10-14 June 2012 **"New catalysts for Production of Solar Fuels"**Keynote lecture at IPS-19 at Caltech , Pasadena, USA, 29 July-3 August, (2012), **"New catalysts for Production of Solar Fuels"**

82. Summer school on Reactivity of nanoparticles for more efficient and sustainable energy conversion -II at Kobæk Strand, Denmark, 5-10 August 2012, **"Energy - do we have a problem?"**

83. Symposium on "The Future of Catalysis" SLAC National Accelerator Laboratory, Stanford, USA, September 26-28, 2012**, "Catalysis for Sustainable Energy".**

84. The 17th International Conference on Semiconductor Photocatalysis and Solar Energy Conversion (SPASEC-17), Jacksonville, USA 11-15 November 2012, "**New catalyst for HER and CO2 Hydrogenation in relation to PEC and Solar Fuel Production**"

85. Elementary Reactive Processes at Surfaces, The Lorentz Center, Leiden, Holland, December 3-7, 2012, **"How doing both surface science and electrochemistry helps us forward?"**

86. Deutsche Physikalische Gesellschaft DPG-Frühjahrstagung, Regensburg, Germany , 10 -15 March 2013. **"The origin of the high oxygen reduction activity on PtX (X= Sc, Y, La, Sm, Gd and ..) alloys and their activation mechanism"**.

87. 245rd ACS Spring Meeting in New Orleans, USA 7-11 April 2013. **"Oxygen Reduction Catalysts and their Activation Mechanism -Understanding the New Class of Pt3X, and Pt5X (X= Sc, Y, La, Gd and ..)"**

88. Gordon Research Conference on Chemical Reaction at Surfaces, Les Diablerets, Schweiz. 28th April – 2 May 2013**, "Correlation of reactivity and activity for single crystals and mass selected nanoparticles"**

89. 223th ECS meeting Toronto, Canada, 12-16 May 2013 **"New catalyst for HER and CO_2 Hydrogenation in relation to PEC and Solar Fuel Production"**

90. Conference on Artificial Photosynthesis, Seoul, South Korea, May 26-28, 2013. "New catalyst for HER and CO_2 Hydrogenation in relation to Solar Fuel Production".

91. Summer School: Catalysis for Sustainability, Rolduc, The Netherlands, 23-26th June 2013. **"What is the nature of the reactive site for the steam reforming and the methanation reaction?**

92. Summer school: "Solar Fuel", Reykjavik, Iceland 25-28th June 2013. **A) "Electrochemical reduction of CO2; Catalysis at the anode and the Cathode" and B) "New catalyst for HER in relation to PEC and Solar Fuel Production"**

93. The SUNCAT Summer Institute, SLAC Stanford University, Menlo Park, CA USA, 25-30 August 2013**. "Electro-catalytic Oxygen Reduction"**

94. ISACS12: Challenges in Chemical Renewable Energy, Cambridge, UK, 3-6 September 2013. **"Understanding the New Class of Pt3X, and Pt5X Alloys for improving the Oxygen Reduction Catalysts in PEMFC"**

95. Swiss Chemical Society Fall Meeting, Lausanne, 6 September 2013, **"New electro-catalyst alloys for the Oxygen Reduction Reaction (ORR) and Hydrogenperoxide production"**

96. 2nd Annual SFB FOXSI Symposium, 18-20 September 2013, Conference Center Burg Schlaining, Stadtschlaining, Austria, **"Rational Design of Oxygen Reduction Reaction and Hydrogen Peroxide Catalysts: From Surface Science to Nanoparticles"**

97. NanoEnergy 2014, 19-21 February (2014) London, UK**. New catalyst for HER and CO_2 Hydrogenation in relation to Solar Fuel Production"**

98. ACS-247th Spring Meeting 16-20 March 2014, Dallas, USA **"New catalyst and protection layers for the tandem design for solar water splitting"**

99. "4th International Symposium of Intermetallic Compounds in Catalysis", Plenary, 5-9, April, 2014, Santa Margherita Ligure, Italy. **"Intermetallic Compounds and Mass-selected Nanoparticle Alloys for Methanol Synthesis and Oxygen Reduction Reactions"**

100. Discussion meeting NRSC-Catalysis "Solar Fuels", Eindhoven, The Netherlands, 16 April 2014, **"Issues with respect to electrochemistry and catalytic materials"**

101. MRS Spring Meeting San Francisco, USA 21-25 April 2014, **"Elements of Tandem Devices: New catalyst and protection layers for solar water splitting"**

102. Heraeus Seminar - From Sunlight to Fuels, Bad Honnef, Germany, 11-16 May 2014 **"Coupling of catalysts and protection layers to tandem design for solar water splitting"**

103. E-MRS Lille France, 24-30 May 2014, "**Designing and testing HER and OER catalyst for tandem designs for photo catalysis "**

104. CSI 2014: Cluster Surface Interaction, Lake Varese, Italy 1-4 June 2014 **"Mass-selected Nanoparticle for Heterogeneous and Electro-Catalysis"**

105. NanoGe: New Advances in Materials Research for Solar Fuels Production, Montreal, Canada 24-26 June 2014 **"The challenge of interfacing protection layers and catalysts to tandem design for solar water splitting"**

106. IPS-20, Berlin, Germany, 27 July-1. August 2014 **"Elements of a Tandem Design for Water Splitting: Combining Electrocatalysts with Semiconductors"**

107. LightChEC Program Summer School and Symposium, Les Diablerets, Schweiz. 9-12 September 2014, **"Harvesting solar light with a tandem design: The challenge of integration protection layers and catalyst for solar fuel production"**

108. International Symposium on Electrocatalysis 2014, Whistler, Canada, 26-29 October 2014, "**New Electrocatalysts Alloys for the Oxygen Reduction Reaction and Hydrogenperoxide Synthesis** "

109. 7th International Symposium on Surface Science (ISSS-7), Matsue, Japan, 2-6 November 2014 **"From surface science to nanoparticles: In search of new electrocatalysts"**

110. 3rd International Symposium on Chemistry for Energy Conversion and Storage, Berlin, Germany 18th to 21th of January 2015, **"The challenge of integrating catalysts to the tandem design for water splitting producing H2 or possibly CO2 hydrogenation"**

111. EPFL - EuroTech PhD winter school - Integrated Approaches to Energy Systems, EPFL, Lausanne, Switzerland, 2nd -6th February, 2015 **"Challenges of designing a Tandem Device for Water splitting I & II"**

112. 2nd Solar Fuels Workshop Dead Sea, Israel, 14th -19th February, 2015, **"The challenge of coupling of catalysts and protection layers to tandem design for solar water splitting"**

113. NANO GE 15, La Palma, Mallorca, Spain, 10th -13th March 2015. **"The Challenge of Interfacing Protections layers and Catalysts on a Tandem Device for Water Splitting"**

114. ASC 249th Meeting, Denver, USA, 22nd -26th March 2015, **"The Challenge of Interfacing the Tandem Design for Water Splitting"**

115. MRS 2015 Spring Meeting, San Francisco, USA, 6th - 10th April, 2015 **"Catalysts, Protection layers, and Semiconductors: The Challenge of Interfacing in the Tandem Design".**

116. Manufacturing of Green Fuels from Renewable Energy, April 14-16, 2015, Risoe Denmark, **"Overview of Electrochemical CO2 Hydrogenation"**

117. International FOXSI Workshop, May 11-13, 2015 Vienna, Austria, "**Mass-selected Nanoparticles for Investigating Fundamental Aspects of Catalysis"**

118. International Conference on Photocatalysis ICP2015, Jeju Island Korea, 28th June - 3rd July 2015, **"The Challenge of Protecting and Interfacing Catalysts to a Tandem Device for Solar Water Splitting"**

119. Solar Fuels: Moving from Materials to Devices London, UK 6th-8th of July, 2015 **"Catalysts, Protection layers, and Semiconductors: The Challenge of designing an efficient device for solar water splitting"**

120. ACS 250th Meeting Boston, USA 16th - 20th August 2015, **"Rational Design of Oxygen Reduction Reaction and Hydrogen Peroxide Catalysts: From Surface Science to Nanoparticles."**

121. SUNCAT Summer Institute (2015), Stanford University, USA, 24-28 August 2015**, "Catalysis of Model Systems"**

122. CATSENSE Summer School, Brugge, Belgium, 7-11 September, 2015, **"Catalysis for Solar Fuels"**

123. KCK- Chalmers Symposium Frontiers in Environmental Catalysis, 24 September, 2015, **"From Fundamental Surface Science to New Electro-Catalysts for Fuel Cells"**

124. 228th ECS Meeting Phoenix, USA, 11-15 October 2015, **"Catalysts, Protection layers, and Semiconductors: The Challenge of Interfacing"**

125. Manfred Eigen Nachwuchswissenschaftler Gespräche, Max Planck Muhlheim, Germany, 6 - 8 April 2016**, "Photo-electro-chemical water splitting and the making of new chemicals"**

126. Symposium on Fundamental X-ray Science and its Application to Catalysis and Water Research: Future Directions Stockholm University, May 12-14, 2016 , **"From Surface Science to Catalysts for Energy conversion"**

127. Summer School Solvation Science, Bochum, Germany, 17-20 May 2016, **"Electrocatalysis for Energy Conversion"**

128. CRC Graduate Academy, Burghausen , Germany, 5-8th June, 2016**, "Photo-electrochemical water splitting and the making of renewable chemicals"**

129. EuCheMS-6, Seville, Spain, 11th-15th September 2016, **"From Surface Science to Nanoparticles: A rational design of new ORR catalysts for Fuel Cells**"

130. DFG SPP 1613 Summer School, Berlin, September 25th – 28th 2016, **"Water splitting and the making of renewable chemicals"**

131. ECS Ptrime Honolulu, Hawaii 2nd -7th October 2016, **"Water splitting and the making of renewable chemicals"**

132. The Meloche lectures, University of Wisconsin-Madison, Madison, USA, 7-8th November 2016, **"Water splitting and the making of renewable chemicals" and "From Surface Science to Nanoparticles: A rational design of Heterogeneous and Electro-Catalysts"**

133. 63th AVS Nashville, USA, 6th -11th November 2016, **"From Surface Science to Nanoparticles: A rational design of Heterogeneous and Electro-Catalysts"**

134. MRS 2016 fall meeting Boston USA, 28th November 2nd December, **"Water splitting and the making of renewable chemicals"**

135. 2nd International Workshop on Graphene and C3N4-Based Photocatalysts, March 24-27, 2017, Wuhan, China, **"Photo-electro-chemical water splitting and the making of renewable chemicals"**

136. Gastekniske dage, 23-24 May 2017, Billund, Denmark."**The Villum Center for the Science of Sustainable Fuels and Chemicals"**

137. ElectroCatalysis at the Atomic Scale Summer school 23-26 June 2017, San Sebastian, Spain, **"Photo-electro-chemical water splitting and the making of renewable chemicals"**

138. 2nd Symposium of Advanced Lectures on Fundamentals for Solar Energy Conversion: Theory and Experiments. 25th-28th July 2017, Dalian, China, **"The design and use of tandem devices for capturing solar light for water splitting"**

139. SUNCAT Summer Institute 2017: Fundamentals and Applications of Heterogeneous Catalysis, 14-18 August, 2017, Stanford University, Palo Alto, USA; **"Challenging reactions towards sustainable fuels"**

140. 254th ACS Meeting, Washington, USA, 20-25th of August 2017; "**Water splitting and the making of renewable chemicals"**

141. NanoGe SolarFuel17 Barcelona Spain 4-7 September 2017; "**Water splitting and the making of renewable chemicals"**

142. Catsense Summer School Leuven, Belgium 11-14th September 2017, **"Mass selected cluster for oxygen reduction, oxygen evolution (water splitting) Hydrogen evolution and for CO2 hydrogenation"**

143. 6th De Nora R&D Symposium, 27-28th September 2017, Milan, Italy**, "The Catalysis for Sustainable Fuels and Chemicals"**

144. 64th AVS Meeting, Tampa, USA, 30th Oct. - 3rd Nov. 2017, **"A Surface Science Approach for New Heterogeneous Catalyst"**

145. KNAW-MCEC outreach symposium 14th of December 2017, Utrecht, The Netherlands, **"Catalysis and Sustainability" and "Mass-selected Nanoparticles for Conversion of Sustainable Energy"**

146. Gordon Conference on Renewable Energy: Solar Fuels; Ventura January 26th – February 2nd 2018 **"The Need for New Photo-Absorbers: Their Protection and Integration with Electro Catalysts for Solar Fuel Production"**

147. EPFL Winter school: Challenges and Opportunities in Energy Research. Crans-Montana, Switzerland 5th -9th March 2018 **"The making of renewable fuels and chemicals"**

148. The Davidson Lectures, Massachusetts Institute of Technology (MIT), Boston, USA 13-14th of March 2018, **"Water Splitting and the Making of Renewable Chemicals" and "A Surface Science Approach for the Making of New Heterogeneous Catalyst"**

149. International Conference on Catalysis and Surface Chemistry, Krakow Poland, 19-22nd March 2018**, "Mass-selected nanoparticles for conversion of sustainable energy"**

150. MRS Spring Meeting Phoenix, USA**,** 2-6 April 2018, **"Mass-selected Nanoparticles for Conversion of Sustainable Energy "**

151. 233th ECS, Seattle USA , 13-17 May 2018, **"Electrochemical Ammonia Synthesis - Facts or Dreams?"**

152. 8th Forum on New Materials, CIMTEC, Perugia, Italy June 10-14th, 2018, "**Strategies for stable water splitting via protected photoelectrodes"**

153. PSI Catalysis Symposium June 14, 2018 **"Catalysis for Conversion of Sustainable Energy "**

154. Cluster-Surface Interaction Workshop CSI Trondheim Norway 19-21st I 2018 **"Mass-selected Nanoparticles for Conversion of Sustainable Energy "**

155. Scandem 2018 Kongens Lyngby, Denmark 25-28th June 2018, **"Catalysis: A Key Materials for Converting Power into Chemicals and Fuels"**

156. Netherlands conference on Electrochemical Conversion & Materials (ECCM) , Keynote, Den Haag, the Netherlands June 29th 2018. **"Electrochemical energy conversion."**

157. Summer school Power to X: Fundametals and Applications of Modern Electrosynthesis, Villars sur Ollon, Switzerland 26-30 August 2018, **"A surface Science approach to electrocatalysis: extended surfaces and nanoparticles"**

158. RACIRI Summer school Island of Rugen Germany 25th August to 1st September 2018: From Basic Science and application to Technologies inspired by Nature **"Nature inspired solar fuel technology**

159. NIM: The Future of Nanoscience, Tutzing, Germany September 4 - 6, 2018, **"Mass-selected nanoparticles for conversion of sustainable energy"**

160. INL Workshop Solar Fuels production based on Nanostructured Photoelectrodes and Catalysts 29-30 November 2018, Braga, Portugal. **"Catalysis for Conversion of Sustainable Energy "**

161. 10th Singapore International Chemistry Conference SICC10, 16-19 December 2018, Singapore. **"Catalysis for Conversion of Sustainable Energy"**

162. The Royal Society of Science and Letters, 27 of April 2019, "**Heterogeneous Catalysis: The key for conversion of sustainable Energy"**

163. International Bunsen-Discussion-Meeting -1st April - 5th April 2019: Hotel Villa Diodoro, Taormina, Italy **"Catalysis for Conversion of Sustainable Energy"**

164. Creo Syndicate, Copenhagen 15th may, 2019**." The Next Frontier for Sustainable Fuels and Chemistry"**

165. MARC VIII, Cabourgh, France, 19th - 23rd May 2019, **"Sulfides for HDS and HER: Various aspects of a multipurpose catalysts."**

166. Gordon Conference on Cluster and Nanopartocles,Les Diablerets, Switzerland, 16th - 21th June 2019, 19th - 23rd May 2019**, "Improving Catalyst Performance Using Clusters and Nanoparticles"**

167. SUNCAT Summe Institute, Stanford Unversity 12-16 August 2019, Palo Alto, USA, **"Catalysis for Conversion of Sustainable Energy"**

168. EuropaCat XIIV Aachen, Germany, August 19-23th 2019, Plenary, **"Catalysis for Conversion of Sustainable Energy"**

169. ACS Fall Meeting 25-29 August, 2019 San Diego, USA, **"Catalytic materials for the making of renewable fuels and chemicals"**

170. E-Conversion Conference Venice Italy, 9-13 September 2019, "**Electrocatalysis for conversion of Sustainable Energy**"

171. E-MRS, Warszaw, Poland, 16th - 20th September 2019, "**Electrochemical Catalysis for Conversion of Sustainable Energy"**

172. E-MRS, Warszaw, Poland, 16th - 20th September 2019, **"In situ methods for analysis of the ORR, CORR and other energy conversion reactions"**

173. OIST Workshop, Okinawa, Japan, 18-24 October, 2019, **"Mass-selected Nanoparticles for Conversion of Sustainable Energy"**

174. Danish Electrochemistry Socety meeting, Comwell Klarskovgaard, Kosør, Denmark, 31 oct-1 Nov. 2019, **"Electrochemicl Conversion of Sustainable Energy"**

175. CHAINS National Chemistry Conference in Veldhoven, Netherlands**,** 9^{th}-11^{th} December 2019 **"Electrochemical Conversion of Sustainable Energy"**

176. 14th European Nitrogen Fixation Conference, Plenary August Århus Denmark August 2021 (Virtuel) **"New Ammonia Catalysts for a Sustainable Energy Scenario"**

177. SunCat Summer Institute 2021, 17-19 August 2021, (Virtuel) Stanford Univresity, USA **"Electrochemical Ammonia Synthesis"**

178. XXIV International Conference on Chemical Reactors ChemReactor-24 Milano (Virtuel) Plenary September 12-17, 2021, **"Conversion of Sustainable Energy: Electrified Reactors".**

179. Catchy kick-off training, Leuwen, Belgium (Virtuel) 15^{th} September 2021 **"Clusters for conversion of sustainable energy"**

180. Recent developments in Gas Phase Synthesis of Nanoparticles and applications Madrid Spain (Virtuel) 15 September 2021, **"Mass-Selected Nanoparticles for Water splitting".**

181. Dansk Kedel og kraftværksselskab, Copenhagen, Denmark, 2^{nd} December 2021, **"Hvad er udfordringerne i Power-to-X?"**

182. 758. Wilhelm and Else Heraeus- Seminar , 10-13 January 2022, Bad Honef, **"Experimental Aspects of Electrochemical Amminia Synthesis"**

183. ELCAT Winter School 7-11 February 2022, Antwerp Belgium, **"Electrochemical NH_3 Reduction"**

184. ACS Spring Meeting 2022, 20-25 March 2022, San Diego , USA, **"Mass-selected cluster for Conversion of Sustainable Energy "**

185. 3rd ComBioCat Symposium, Rostock, Germany, 8-9 June, 2022, Plenary **"Electrochemical Ammonia Synthesis"**

186. The SurfCat summer school, Kysthusene, Gilleleje, Denmark, 7-11 August, 2022, **"Electrochemical Ammonia Synthesis"**

187. E-MRS 2022, Warzaw, Poland 19-22 September 2022, Keynote **"Electrochemical Ammonia Synthesis"**

188. Electrochemistry 2022, Berlin, Germany, 27-30 September , 2022, Plenary **" Electrochemical activation of molecular nitrogen to ammonia"**

189. 3^{rd} KAIST Emergiung materials e-Symposium, December, Kaist Korea 2022, Plenary **"Challenges of Electrochemical Ammonia Production"**

190. DISTINGUISHED LECTURESHIP for NUS Centre for Hydrogen Innovations (CHI) March, 2023, Singapore **"Challenges of Nitrogen Activation"**

191. TUM-IAS General Assembly , 3-4 May 2023, Garchingen Germany, **"Electrifying Chemical Production: Electrochemical Ammonia Synthesis "**

192. Fuel Science: From Production to Propulsion 11th International Conference on Fuel Scienc May 23 - 25, 2023 Eurogress, Aachen, Germany , **"Ammonia in a Sustainable Energy Framework"**

193. 60-year Anniversary of the Journal of Catalysis Symposium, June 18, 2023 Omni Hotel, Providence RI, USA **"Re-Thinking our Chemical Production"**

194. North American Catalysis Society 21, NAM 21, June 19-23, 2023 Omni Hotel, Providence RI, USA Keynote, **"Electrochemical Activation of Molecular Nitrogen to Ammonia: Scaling up"**

195. The 21st National Conference on Catalysis of the Chinese Chemical Society, Kunming, China, July 21-25, 2023, Plenary **"Electrifying Chemical Production"**

196. SUNCAT Summer Institute, Stanford University, Palo Alto, USA, **7-11** August 2023, **"The Challenge of Activating Nitrogen"**

197. NanoG Matsus23, Malaga, Spain,18-21 Oct, 2023**, "Electrochemical activation of molecular nitrogen to ammonia"**

198. Forum on Green Catalysis Utilizing and Producing Renewable Energies Hefei China 21-23 Oct 2023, " **Electrifying Chemical Production: Electrochemical Ammonia Synthesis**"

199. FUNCAT Symposium, Mulheim, Germany 22-23 November 2023, **" New routes of ammonia synthesis"**

200. Deutches Physicaliche Gesellshaft GPG Conference in Berlin, Germany March 17th to 22nd 2024 **"A surface science approach to thermal and electrochemical ammonia synthesis"**

201. Cluster-surface Interactions for energy applications, Bernried, Germany 7-10 April 2024, **"Single crystals and mass-selected nanoparticles for ammonia synthesis"**

202. SurfCat summerschool 12th - 17th August 2024 Kobæk Strand, Denmark**, "Ammonia"**

203. Materials Challenges in Alternative and Renewable Energy (MCARE 2024), Jeju, South Korea, from August 19th to 23rd, 2024. Keynote **"Progress in thermal and electrochemical ammonia synthesis"**

204. 2nd International Workshop: Challenges in Renewablke Energy Conversion**,** at Castle Liblice, Czech Republic, 1st-4th September 2024, Keynote **"New Routes of Ammonia Synthesis and Decomposition"**

205. 3rd Symposium on Ammonia Energy, 24th-26th September 2024 Shanghai, China. Plenary. **"New Routes of Ammonia Synthesis and Decomposition"**

206. 7th International Symposium on Solar Fuels and Solar Cells, 24th-27th September 2024, Dalian. China. Plenary **"New Routes of Ammonia Synthesis"**

207. SUNCAT Summer Institute, Stanford University, Palo Alto, USA, **4th - 9th** August 2025, **" The Making and Decomposition of Ammonia"**

208. 3rd Nature Conference: Chemical processes towards net-zero emmissions, Tianjin, China,20th - 21st September 2025 ,**"Electrifying the Ammonia synthesis"**

Beyond these invited contributions, a similar number of talks were given at conferences, workshops, and seminars all over the world.