

Curriculum Vitae of Prof. Dr. Javier Pérez-Ramírez | jpr



Date of birth 28 October 1974
Place of birth Benidorm, Spain
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Mission

jpr pioneers atom-to-planet design of circular technologies by integrating catalysis engineering with sustainability metrics

Main Keywords

Catalysis | Nanoscale engineering | Circular carbon | Green chemistry | Sustainability

Education

2022 – 2023 Chief Sustainability Officer Certificate, Massachusetts Institute of Technology, USA
1998 – 2002 Ph.D. Catalysis Engineering (cum laude), Delft University of Technology, Netherlands.
Catalyzed N₂O Activation: Promising (New) Catalysts for Abatement and Utilization. Advisors: Profs. F. Kapteijn and J.A. Moulijn
1993 – 1997 M.Sc. Chemical Engineering with highest distinction, University of Alicante, Spain

Career Summary

2024 – 2026 ExxonMobil Chair Visiting Chair Professor, National University of Singapore
2020 – to date Founder and Director of the NCCR Catalysis, www.nccr-catalysis.ch
2019 – 2023 Isaac Manasseh Meyer Visiting Chair Professor, National University of Singapore
2019 – 2022 Director of the NUS Flagship Green Energy Program, greenenergy.nus.edu.sg
2010 – to date Full Professor of Catalysis Engineering, ETH Zurich, Switzerland
2005 – 2009 ICREA Professor and Group Leader, ICIQ, Tarragona, Spain
2005 – 2008 Associate Professor, Chemical Engineering, Universitat Rovira i Virgili, Tarragona, Spain
2003 – 2005 Senior scientist, Yara International, Porsgrunn, Norway
2002 – 2003 Scientist, Norsk Hydro, Porsgrunn, Norway

Institutional Service

2024 – to date Member of the Research Commission, ETH Zurich
2018 – 2022 Director of Study, BSc and MSc in Chemical and Bioengineering, ETH Zurich
2012 – 2014 Chairman of the Institute for Chemical and Bioengineering, ETH Zurich

Management of Programs at Large

jpr spearheaded the establishment of the NCCR Catalysis, a National Competence Center of Research in Switzerland launched in 2020 to develop carbon-neutral chemicals across the entire value chain. As director, he plays a vital role in managing and coordinating the activities of ca. 50 diverse research groups from 13 institutions (totaling 250+ members), many of which had no prior history of collaboration. Under his leadership, the program has set ambitious goals in research, education, knowledge and technology transfer, data management, diversity, and communication.

Publications Summary

Hirsch index: 136 (Google Scholar) | 600+ peer-reviewed publications | >73'000 citations, with an average of >100 citations per paper | In the last 5 years, 200+ publications and >30'000 citations | Inventor of 25 patents/patent applications (4 exploited) | Above data gathered on April 26, 2026

Recent Research Highlights by Topic

CO₂ conversion to green methanol

Single atoms of indium on hafnia enable superior CO₂-based methanol synthesis, Y.-T. Chiang, J. Pérez Ramírez*, *Nat. Nanotechnol.* **2026**, 21, 588 (doi:10.1038/s41565-026-02135-y)

Atomic-scale engineering of indium oxide promotion by palladium for methanol production via CO₂ hydrogenation, M.S. Frei, J. Pérez-Ramírez*, et al. *Nat. Commun.* **2019**, 10, 3377 (doi:10.1038/s41467-019-11349-9)

Plant-to-planet analysis of CO₂-based methanol processes, A. González-Garay, J. Pérez-Ramírez*, et al. *Energy Environ. Sci.* **2019**, 12, 3425 (doi:10.1039/C9EE01673B)

Electrocatalyst design for energy applications

Long-chain hydrocarbons via CO₂ electroreduction enabled by polarized nickel catalysts, Y. Zhou, J. Pérez-Ramírez*, et al., *Nat. Catal.* **2022**, 5, 545 (doi:10.1038/s41929-022-00803-5)

Key role of chemistry versus bias in electrocatalytic oxygen evolution, H.N. Nong, J. Pérez-Ramírez, et al., *Nature* **2020**, 587, 408 (doi:10.1038/s41586-020-2908-2)

Electrocatalytic reduction of nitrogen: from Haber-Bosch to ammonia artificial leaf, A.J. Martín, J. Pérez-Ramírez*, et al., *Chem* **2019**, 5, 263 (doi:10.1016/j.chempr.2018.10.010)

Chemical plastic recycling

Interfacial W-O-Zr ensembles in tungstated zirconia catalysts enable efficient hydrogen-free recycling of polypropylene waste, S. Zou, J. Pérez Ramírez*, *Nat. Commun.* **2026**, in press (doi not yet available)

Polyethylene hydrogenolysis to liquid products over bimetallic catalysts with favorable environmental footprint and economics, I. Noguerol-Langa, J. Pérez-Ramírez*, et al., *Nat. Commun.* **2025**, 16, 9791 (doi:10.1038/s41467-025-65260-7)

Assessment of transport phenomena in catalyst effectiveness for chemical polyolefin recycling, S.D. Jaydev, J. Pérez-Ramírez*, et al. *Nat. Chem. Eng.* **2024**, 1, 565 (doi:10.1038/s44286-024-00108-3)

Single atom catalysis

Coordination environments of Pt single-atom catalysts from NMR signatures, J. Koppe, J. Pérez-Ramírez*, et al., *Nature* **2025**, 642, 613 (doi:10.1038/s41586-025-09068-x)

Geminal atom catalysis for cross-coupling, X. Hai, J. Pérez-Ramírez*, et al., *Nature* **2023**, 622, 754 (doi:10.1038/s41586-023-06529-z)

A heterogeneous single-atom palladium catalyst surpassing homogeneous systems for Suzuki coupling, Z. Chen, J. Pérez-Ramírez*, et al. *Nat. Nanotechnol.* **2018**, 13, 702 (doi:10.1038/s41565-018-0167-2)

Scalable two-step annealing method for preparing ultra-high-density single-atom catalyst libraries, X. Hai, J. Pérez-Ramírez*, et al., *Nat. Nanotechnol.* **2022**, 17, 174-181 (doi:10.1038/s41565-021-01022-y)

Data approaches to catalysis research

Embracing data science in catalysis research, M. Suvama, J. Pérez-Ramírez*, *Nat. Catal.* **2024**, 7, 624 (doi:10.1038/s41929-024-01150-3)

Active learning streamlines development of high performance catalysts for higher alcohol synthesis, M. Suvama, J. Pérez-Ramírez*, et al. *Nat. Commun.* **2024**, 15, 5844 (doi:10.1038/s41467-024-50215-1)

Automated image analysis for single-atom detection in catalytic materials by transmission electron microscopy, S. Mitchell, J. Pérez-Ramírez*, et al., *J. Am. Chem. Soc.* **2022**, 144, 8018-8029 (doi:10.1021/jacs.1c12466)

Catalysis and sustainability across scales

The future of chemical sciences is sustainable, S. Mitchell, J. Pérez-Ramírez*, et al., *Angew. Chem. Int. Ed.* **2024**, 63, e202318676 (doi:10.1002/anie.202318676)

Transcending scales in catalysis for sustainable development, S. Mitchell, J. Pérez-Ramírez*, et al. *Nat. Chem. Eng.* **2024**, 1, 13-15 (doi:10.1038/s44286-023-00005-1)

Planetary metrics for the absolute environmental sustainability assessment of chemicals, V. Tulus, J. Pérez-Ramírez*, et al., *Green Chem.* **2021**, 23, 9881 (doi:10.1039/D1GC02623B)

Awards and Honors

2027 Frontiers in Chemical Energy Science of the MPI for Chemical Energy Conversion, Germany
2027 Honorary Doctorate, University of Alicante, Spain
2026 Environment, Sustainability and Energy open prize: Environment Prize, Royal Spanish Society of Chemistry
2025 Highly Cited Researcher in the field of chemistry, Clarivate™
2025 IUPAC-Zhejiang NHU International Award for Advancements in Green Chemistry
2025 Alumni Ilustre Embajador, Universidad de Alicante, Spain
2024 GEQV Medal for Advancements in Green Chemistry, Royal Spanish Society of Chemistry
2024 Highly Cited Researcher in the field of chemistry, Clarivate™
2024 Member of the Academy of Europe, the Pan-European Academy of Science, Humanities and Letters
2024 Award for Excellence in Natural Gas Conversion, Natural Gas Conversion Board
2023 Highly Cited Researcher in the field of chemistry, Clarivate™
2023 Sustainability Award, Zhejiang NHU Co. Ltd., Xinchang, Zhejiang, China
2023 Distinción Europa, Ayuntamiento de Benidorm, Spain
2022 Highly Cited Researcher in the field of chemistry, Clarivate™
2022 Corresponding Member of the Royal Academy of Exact, Physical and Natural Sciences of Spain
2022 Award for outstanding contributions in oxidation catalysis, 9th World Conference on Oxidation Catalysis, UK
2022 Horizon Prize John Jeyes Award, Royal Society of Chemistry, UK
2021 EFCATS Robert K. Grasselli Award for Catalysis, European Federation of Catalysis Societies
2021 Frontiers in Catalysis Lecturer, Pacific Northwest National Laboratory, US
2020 College of Engineering Distinguished Lecturer, Nanyang Technological University, Singapore
2019 Paul H. Emmett Award in Fundamental Catalysis, North American Catalysis Society, US
2019 Distinguished Lecturer, Beijing Institute of Technology, China
2018 Syngenta Chemistry Lecture, Stein, Switzerland
2018 DICP Zhang Dayu Young Investigator Lectureship, Dalian, China
2018 Xing Da Lectureship, Peking University, China
2017 Sustainable Energy Award, Royal Society of Chemistry, UK
2014 Beilby Medal and Prize, Society of Chemical Industry and Royal Society of Chemistry, UK
2013 EFCATS Young Researcher Award, European Federation of Catalysis Societies
2013 Fellow of the Royal Society of Chemistry, UK
2013 Andrew Main Lectureship, University of Alberta, Canada
2012 Otto-Roelen Medal, Dechema, Germany
2012 UOP-Honeywell Invitational Lectureship, US
2009 Journal Grant for International Authors, Royal Society of Chemistry, UK
2007 Journal Grant for International Authors, Royal Society of Chemistry, UK
2003 KNCV Prijs voor Katalyse, Dutch Catalysis Society, the Netherlands
2002 Dow Energy Dissertation Award, The Dow Chemical Company, the Netherlands
1999 Presentation prize, AIChE Meeting, Scheiveningen, the Netherlands

Lectures

>80 plenary and keynote lectures in international conferences, symposia, and meetings | >250 invited lectures at universities and companies.

Selected Visiting Periods

2009 Laboratoire Catalyse et Spectrochimie, ENSICAEN, Caen, France
2007 Department of Chemical Engineering, UC Berkeley, United States
2003 Institut de Recherches sur la Catalyse, CNRS, Villeurbanne, France

Research Funding

Participation in >100 projects funded by governmental programs and industry | Principal investigator in >80 projects | >20 M€ research funds for own professorship in the period 2006-2024 | As Director of NCCR Catalysis, responsible for a budget of 28 M€ in 2020-2024 and 30 M€ in 2024-2028.

Past or Present Collaborations and Partnerships with Industry (alphabetical order)

BASF, Bayer, Clariant, Covestro, DSM, Givaudan, GTC Technology, Idorsia, Johnson Matthey, Micromeritics, Novartis, Roche, Sulzer, ThyssenKrupp, TotalEnergies, Yara International, Zeochem, Zhejiang NHU.

Supervision of Research Work

Advised >100 graduate students, >40 PhD students, and >40 postdocs | Current advisor of 5 PhD students, 4 postdoctoral researchers, 1 senior scientist, and 2 lecturers | 35 doctoral theses finalized under his supervision.

Current Teaching Responsibilities

2023 – to date Concepts and Tools for Sustainable Chemicals Manufacture, ETH Zurich, Switzerland
2011 – to date Heterogeneous Reaction Engineering, BSc Chemical Engineering, ETH Zurich, Switzerland
2010 – to date Catalysis Engineering, MSc Chemical and Bioengineering, ETH Zurich, Switzerland

Board Positions in Scientific Journals

2023 – to date Chair of the Editorial Board of Green Chemistry, RSC Publishing
2025 – to date Advisory board of Chem Circularity, Cell Press
2025 – to date Advisory board of Advanced Synthesis & Catalysis, Wiley
2023 – to date Advisory board of Catalysis Science & Technology, RSC Publishing
2020 – to date Advisory board of Chem Catalysis, Cell Press
2019 – 2022 Editor in Chief of Catalysis Science & Technology, RSC Publishing
2018 – to date Advisory board of Energy Technology, Wiley
2017 – 2024 Advisory board of ChemCatChem, Wiley
2012 – 2018 Advisory board of Advanced Functional Materials, Wiley
2012 – 2018 Advisory board of Applied Catalysis B Environmental, Elsevier
2011 – 2018 Associate Editor of Catalysis Science & Technology, RSC Publishing
2010 – 2012 Advisory board of ACS Catalysis, American Chemical Society
2008 – 2021 Advisory board of Catalysis Communications, Elsevier

Participation in National and International Boards

2026 – to date Advisory Board of the IUPAC Committee on Green Chemistry for Sustainable Development
2025 – to date Senior advisor of A*Star the Agency for Science, Technology and Research, Singapore
2025 – 2026 Scientific Advisory Board of the CREATE Thematic Programme in Decarbonisation, Singapore
2017 – 2021 Founder and President of SwissCat, the Swiss Catalysis section
2017 – 2020 Core member of Energy-X (now Sun-Ergy)
2016 – 2022 Scientific Advisory Board of the National Institute of Chemistry, Ljubljana, Slovenia
2016 – to date Scientific Advisory Board of the Max-Planck Institut für Kohlenforschung, Mulheim, Germany
2012 – 2017 Evaluation Committee member of ICREA, Barcelona, Spain
2012 – 2022 Executive Committee member of the Division of Chemical Research, Swiss Chemical Society
2010 – to date Board member of the European Federation of Catalysis Societies, EFCATS

Chairman of Scientific Meetings

2027 International Symposium on Single-Atom Catalysis, Zurich
2024 Green Chemistry 25th Anniversary Symposium, Zurich
2011 – 2013 Seminar series on Chemical and Biochemical Engineering, ETH Zurich
2012 Catalysis Science and Engineering session, Swiss Chemical Society meeting, ETH Zurich
2012 International workshop on Advanced Porous Materials, Zurich

Memberships

Royal Society of Chemistry | American Chemical Society | Swiss Chemical Society | Dechema | American Institute of Chemical Engineers

Languages

Spanish (native) | English, Catalan (fluent) | German (conversational) | Norwegian, Dutch (notions)

Hobbies

Tennis | Motorbikes | Anthropology | Art

List of Publications and Patents

Peer-Reviewed Publications in Scientific Journals

Co₁/Ru single-atom alloy catalyst for sustainable polypropylene hydrogenolysis to long-chain liquid products, Y. Ge, Y. Jin, A. Krestnikova, S. Zou, A.J. Martín, G. Guillén-Gosálbez, J. Pérez-Ramírez, *Adv. Mater.* **2026**, in press (doi not yet available)

Interfacial W-O-Zr ensembles in tungstated zirconia catalysts enable efficient hydrogen-free recycling of polypropylene waste, S. Zou Y. Ge, P.O. Willi, J. Fernández-González, R.N. Grass, W.J. Stark, G. Guillén-Gosálbez, A.J. Martín, J. Pérez Ramírez, *Nat. Commun.* **2026**, in press (doi:10.1038/s41467-026-73420-6)

Fine-tuning large language models to generate single-atom catalyst synthesis procedures, M. Suvarna, M. Manica, F. Ficarra, A. Marulanda Bran, A. Ruiz-Ferrando, M. Lederbauer, P. Schwaller, J. Pérez-Ramírez, T. Laino, *Commun. Chem.* **2026**, in press (doi not yet available)

Toward predictive theory in single-atom catalysis, A. Ruiz-Ferrando, S. Mitchell, N. López, J. Pérez-Ramírez, *Adv. Sci.* **2026**, 0:e75156 (doi:10.1002/adv.75156)

Filament-catalyst lightbulb reactor for efficient methane conversion, J.Y. Tan, S. Wang, A. Nabera, K.S. Indriadi, S.S. Wong, G. Guillén-Gosálbez, J. Pérez-Ramírez, N. Yan, *Nat. Sustain.* **2026**, in press (doi:10.1038/s41893-026-01812-z)

Gold-modified rare earth oxides with tunable lattice oxygen reactivity for N₂O synthesis, G.-M. Beshara, T. Heinrich, A. Pitzer, K. Engel, K. Raue, F. Krumeich, W.J. Stark, D. Teschner, J. Pérez-Ramírez, *ACS Catal.* **2026**, 16, 6509-6524 (doi:10.1021/acscatal.5c08624)

Breaking the activity-stability limit in acidic oxygen evolution reaction with dual iridium active sites, L. Tang, Y. Tu, M. Zhang, Y. Yan, S. Xi, Y. Liu, Y. Liu, J. Pérez-Ramírez, Z. Lin, *Sci. Adv.* **2026**, 12, eae7510 (doi:10.1126/sciadv.aee7510)

A metrics-driven framework for a circular chemical industry, A. Nabera, L.F. Santos, A.J. Martín, D. Vázquez, J. Pérez-Ramírez, G. Guillén-Gosálbez, *Chem Circularity* **2026**, 1, 100009 (doi:10.1016/j.checir.2026.100009, front cover)

Sustainable diamine synthesis via continuous-flow reductive amination over a stable Re₁O_x-Ni interface, J. Qin, T. Feng, J. Wang, W. Cui, A.P. Amrute, X. Mou, L. Yan, S. Xi, R. Lin, J. Pérez-Ramírez, Y. Ding, *Green Chem.* **2026**, 28, 4640 (doi:10.1039/D5GC06288H)

Origins of N₂O selectivity limits in catalyzed ammonia oxidation, I. Surin, E.V. Kondratenko, J. Pérez-Ramírez, *ACS Catal.* **2026**, 16, 3231 (doi:10.1021/acscatal.5c07065)

Single atoms of indium on hafnia enable superior CO₂-based methanol synthesis, Y.-T. Chiang, M. Ritopecki, P.O. Willi, K. Raue, J. Morales-Vidal, T. Zou, M. Agrachev, H. Eliasson, J. Wang, R. Erni, W.J. Stark, G. Jeschke, R.N. Grass, N. López, S. Mitchell, J. Pérez Ramírez, *Nat. Nanotechnol.* **2026**, 21, 588 (doi:10.1038/s41565-026-02135-y, front cover)

Phases and architectures in metal/metal oxide systems driven by strong metal-support interactions, J. Morales-Vidal, Z. Lian, T. Pinheiro Araújo, S. Mitchell, J. Pérez-Ramírez, N. López, *ACS Phys. Chem. Au* **2026**, 6, 340 (doi:10.1021/acspyschemau.5c00138)

Nitrous oxide as a green oxidant: a holistic evaluation based on economic, environmental, and safety metrics, A. Nabera, G.-M. Beshara, G. Guillén-Gosálbez, J. Pérez-Ramírez, *Green Chem.* **2026**, 28, 4850 (doi:10.1039/D5GC04863J, front cover)

Tracking chromium evolution on ceria from particles to single atoms: a catalyst regeneration strategy for ammonia oxidation, I. Surin, M. Agrachev, F. Krumeich, D. Stoian, Q. Yang, T. Otroshchenko, J. Weiss, C. Kubis, G. Jeschke, E.V. Kondratenko, J. Pérez-Ramírez, *J. Am. Chem. Soc.* **2026**, 49, 44759 (doi:10.1021/jacs.5c08918)

A feasible methanol economy for a green future, H. Kolmeijer, A. Nabera, A.J. Martín, G. Guillén-Gosálbez, J. Pérez-Ramírez, *Green Chem.* **2026**, 28, 174 (doi:10.1039/D5GC04615G, front cover)

Polyethylene hydrogenolysis to liquid products over bimetallic catalysts with favorable environmental footprint and economics, I. Nogueroles-Langa, Y. Ge, C. Salah, S.D. Jaydev, J. Morales-Vidal, P.S. Berman, H. Eliasson, R. Erni, G. Guillén-Gosálbez, N. López, A.J. Martín, J. Pérez-Ramírez, *Nat. Commun.* **2025**, 16, 9791 (doi:10.1038/s41467-025-65260-7)

A global analysis of the rise, reign, and retreat of topics in research toward sustainable platform chemicals, P. Tautorat, B. Tremolada, A.J. Martín, L.F. Santos, G. Guillén-Gosálbez, J. Pérez-Ramírez, B. Steffen, *Green Chem.* **2025**, 27, 12985 (doi:10.1039/D5GC02863A)

Integrated life cycle assessment guides sustainability in synthesis: antiviral Letemovir as a case study, S. Folkerts, M.G. Hoepfner, G. Guillén-Gosálbez, J. Pérez-Ramírez, E.M. Carreira, *J. Am. Chem. Soc.* **2025**, 147, 40944 (doi:10.1021/jacs.5c14470)

Influence of hydrogen and oxygen impurities on platinum-catalyzed acetylene hydrochlorination, A.A. Alkhoori, A. Ruiz-Ferrando, V. Giulimondi, J. Pérez-Ramírez, *ACS Sustain. Chem. Eng.* **2025**, 13, 10765 (doi:10.1021/acssuschemeng.5c04423)

Advancing catalysis for sustainable biofuels, S. Mitchell, J. Pérez-Ramírez, *One Earth*, **2025**, 8, 101385 (doi.org/10.1016/j.oneear.2025.101385)

Descriptors toward higher alcohols and olefins formation in CO₂ hydrogenation on promoted iron catalysts, Y. Ge, A.J. Martín, M. Suvarna, T. Zou, F. Krumeich, J. Pérez-Ramírez, *Appl. Catal. B Environ. Energy* **2025**, 378, 125578 (doi:10.1016/j.apcatb.2025.125578)

Controlling hydrocarbon chain growth and degree of branching in CO₂ electroreduction on fluorine-doped nickel catalysts, Y. Ou, L. Liu, R.R. Seemakurthi, F. You, H. Ma, J. Pérez-Ramírez, N. López, B.S. Yeo, *Nat. Catal.* **2025**, 8, 714 (doi:10.1038/s41929-025-01370-1)

Coordination environments of Pt single-atom catalysts from NMR signatures, J. Koppe, A.V. Yakimov, D. Gioffrè, M.-E. Usteri, T. Vosegaard, G. Pintacuda, A. Lesage, A.J. Pell, S. Mitchell, J. Pérez-Ramírez, C. Copéret, *Nature* **2025**, 642, 613 (doi:10.1038/s41586-025-09068-x)

Shifting acetylene hydrochlorination from the gas to the liquid phase: vinyl chloride production in bichloride-based ionic liquids, G.H. Dreyhsig, V. Giulimondi, M. Kleoff, L. Lanfredi, M. Fuchs, N. Limberg, M. Reimann, M. Kaupp, J. Pérez-Ramírez, S. Riedel, *Adv. Sci.* **2025**, 12, e03992 (doi:10.1002/advs.202503992)

Tracking life and death of carbon nitride supports in platinum-catalyzed vinyl chloride synthesis, V. Giulimondi, M. Agrachev, S. Kuzin, J.M. González-Acosta, A. Ruiz Ferrando, F. Krumeich, F. Bondino, Y.-T. Chiang, M. Vanni, G. Jeschke, N. López, J. Pérez Ramírez, *Nat. Commun.* **2025**, 16, 4842 (doi:10.1038/s41467-025-60169-7)

Explainable artificial intelligence elucidates synthesis-structure-property-function relationships in nanostructured catalysts, M. Suvarna, M.E. Usteri, F. Krumeich, S. Mitchell, J. Pérez-Ramírez, *Adv. Mater.* **2025**, 37, 2420465 (doi:10.1002/adma.202420465)

Tracking dynamics of supported indium oxide catalysts in CO₂ hydrogenation to methanol by in-situ TEM, H. Eliasson, Y.-T. Chiang, T. Pinheiro Araújo, X. Li, R. Erni, S. Mitchell, J. Pérez-Ramírez, *Adv. Mater.* **2025**, 37, 2419859 (doi:10.1002/adma.202419859, inside front cover)

Descriptors of InZrO_x vs ZnZrO_x catalysts for CO₂ hydrogenation to methanol, T. Zou, E. Tazedaki, K.M. Engel, Y.-T. Chiang, M. Agrachev, K. Raue, F. Krumeich, H. Eliasson, R. Erni, W.J. Stark, R.N. Grass, T. Pinheiro Araújo, J. Pérez Ramírez, *Adv. Energy Mater.* **2025**, 15, 2404967 (doi:10.1002/aenm.202404967)

SPOCK tool for constructing empirical volcano diagrams from catalytic data, M. Suvarna, R. Laplaza, R. Graux, N. López, C. Corminboeuf, K. Jorner, J. Pérez-Ramírez, *ACS Catal.* **2025**, 15, 7296-7307 (doi:10.1021/acscatal.5c00412, supplementary cover)

Rekindling the use of acetylene as a chemical building block, Z. Zhang, A. Nabera, G. Guillén-Gosálbez, J. Pérez-Ramírez, *Nat. Chem. Eng.* **2025**, 2, 99-109 (doi:10.1038/s44286-025-00185-y)

C₁-based route for vinyl chloride synthesis with environmental and economic benefits, Y. Wang, S. Zou, A. Nabera, X. Chen, Y. Pan, K. Wei, Y. Bao, J. Hu, Y. Zhao, C. Liu, J. Liu, Y. Wang, Y. Ren, G. Guillén-Gosálbez, J. Pérez-Ramírez, J. Fan, *J. Am. Chem. Soc.* **2025**, 147, 7757-7764 (doi:10.1021/jacs.4c17531, front cover)

Droplet-based EPR spectroscopy for real-time monitoring of liquid-phase catalytic reactions, T. Moragues, M. Agrachev, S. Mitchell, G. Jeschke, J. Pérez-Ramírez, A.J. de Mello, *Small Methods* **2025**, 9, 2401771 (doi not available)

Diatomic palladium catalyst for enhanced photocatalytic water-donating transfer hydrogenation, E. Zhao, J. Morales-Vidal, Y. Yang, S. Mitchell, Y. Zhu, Z. Hu, J.-M. Chen, S.-C. Haw, T.-S. Chan, Z. Fan, Z.-J. Wang, N. López, J. Pérez-Ramírez, Z. Chen, *J. Am. Chem. Soc.* **2025**, 147, 2029-2036 (doi:10.1021/jacs.4c15235)

Ligand-induced activation of single-atom palladium heterogeneous catalysts for cross coupling reactions , D. Poier, O. Loveday, M.E. Usteri, D. Stoian, N. López, S. Mitchell, R. Marti, J. Pérez-Ramírez, *ACS Nano* **2025**, 19, 1424-1432 (doi:10.1021/acsnano.4c14131)

Reactivity and mechanism of recoverable Pd₁@C₃N₄ single-atom catalyst in Buchwald-Hartwig aminations, G. Giannakakis, M.-E. Usteri, A. Bugaev, A. Ruiz-Ferrando, D. Faust Akl, N. Lopez, S. Fantasia, K. Püntener, J. Pérez-Ramírez, S. Mitchell, *ACS Catal.* **2025**, 15, 284-295 (doi:10.1021/acscatal.4c05134)

Precise size determination of supported catalyst nanoparticles via generative AI and scanning transmission electron microscopy, H. Eliasson, A. Lothian, I. Surin, S. Mitchell, J. Pérez-Ramírez, R. Erni, *Small Methods* **2025**, 9, 2401108 (doi:10.1002/smtd.202401108)

One-tenth of the EU's sustainable biomethane coupled with carbon capture and storage can enable net-zero ammonia production, R. Istrate, A. Nabera, J. Pérez-Ramírez, G. Guillén-Gosálbez, *One Earth* **2024**, 7, 2235-2249 (doi:10.1016/j.oneear.2024.11.005)

The role of metal nanostructure in ceria supported catalysts for ammonia oxidation to nitrous oxide, I. Surin, Q. Yang, F. Krumeich, M. Agrachev, T. Otroshchenko, V.A. Kondratenko, E.V. Kondratenko, J. Pérez-Ramírez, *Chem Catal.* **2024**, 5, 101165 (doi:10.1016/j.checat.2024.101165)

CO₂ electroreduction to long-chain hydrocarbons on cobalt catalysts, P. Preikschas, J. Zhang, R.R. Seemakurthi, Z. Lian, A.J. Martín, S. Xi, F. Krumeich, H. Ma, Y. Zhou, N. López, B.S. Yeo, J. Pérez-Ramírez, *Adv. Energy Mater.* **2024**, 14, 2401447 (doi:10.1002/aenm.202401447, back cover)

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Patents and Patents Applications

- J. Pérez-Ramírez, V. Giulimondi, P. Johnston, J.J. Smit, Platinum containing catalyst, method of preparation, and use, **2025**, WP2025163300
- J. Pérez-Ramírez, W. Bonrath, J.A. Medlock, T. Nescher, S. Mitchell, R. Lin, Rearrangement of dimethylphenylacrylates using zeolites, **2021**, WO2021156214
- J. Pérez-Ramírez, C. Mondelli, H.T. Luk, J.A. Stewart, D. Curulla Ferré, Copper-iron-based catalytic composition comprising zeolites, method for producing such catalytic composition and process using such catalytic composition for the conversion of syngas to higher alcohols, **2020**, WO2020157057
- J. Pérez-Ramírez, C. Mondelli, H.T. Luk, J.A. Stewart, D. Curulla Ferré, Process using catalytic composition for the conversion of syngas to higher alcohols, **2020**, WO2020157049
- J. Pérez-Ramírez, C. Mondelli, M. Frei, J.A. Stewart, D. Curulla Ferré, Noble metal promoted supported indium oxide catalyst for the hydrogenation of CO₂ to methanol and process using said catalyst, **2020**, WO2020049071
- J. Pérez-Ramírez, C. Mondelli, M. Frei, J.A. Stewart, D. Curulla Ferré, Noble metal-promoted In₂O₃ catalyst for the hydrogenation of CO₂ to methanol, **2020**, WO2020049082
- J. Pérez-Ramírez, F.J.A.G. Coumans, J.A. Medlock, S. Mitchell, J. Schütz, Process for the selective acylation of primary hydroxy groups in the presence of secondary hydroxy groups and catalyst therefor, **2020**, WO2020007856
- J. Pérez-Ramírez, S. Wershofen, A. Vidal-Ferran, J.L. Nuñez-Rico, B. Puértolas Lacambra, A.P. Amrute, Catalyst useful for producing carbamate compound, preferably aromatic carbamate for producing isocyanate, comprises binary oxide, **2019**, WO2019185608
- J. Pérez-Ramírez, A.P. Amrute, A catalyst composition for direct synthesis of vinyl chloride from ethylene, **2018**, WO2018015363
- J. Pérez-Ramírez, J. Arras, T.C. Keller, Process for the preparation of di and polyamines of diphenylmethane series, **2018**, US2018002271
- J. Pérez-Ramírez, O. Martín, A.J. Martín, C. Mondelli, D. Curulla-Ferré, C. Drouilly, Process for methanol synthesis using an indium oxide based catalyst, **2017**, WO2017118573
- J. Pérez-Ramírez, O. Martín, A.J. Martín, C. Mondelli, D. Curulla-Ferré, C. Drouilly, Supported indium oxide catalysts and process for methanol synthesis using the same, **2017**, WO2017118572
- J. Pérez-Ramírez, J. Arras, S. Wershofen, T.C. Keller, Process for the preparation of di and polyamines of diphenylmethane series, **2016**, WO2016005269-A1
- J. Pérez-Ramírez, T. Schmidt, A. Wolf, O.F.-K. Schlüter, T. Westermann, C. Mondelli, H. Soerijanto, R. Schomäcker, D. Teschner, R. Schlögl, Process for the production of chlorine using a cerium oxide catalyst in an isothermic reactor, **2013**, WO2013004651
- J. Pérez-Ramírez, T. Schmidt, A. Wolf, O. F.-K. Schlüter, T. Westermann, C. Mondelli, H. Soerijanto, R. Schomäcker, D. Teschner, R. Schlögl, Process for the production of chlorine using a cerium oxide catalyst in an adiabatic reaction cascade, **2013**, WO2013004649
- J. Pérez-Ramírez, J. Gomez-Segura, Catalyst for chlorine production, **2011**, WO2011104112
- J. Pérez-Ramírez, J. Gomez-Segura, Catalyst for chlorine production comprising a copper aluminate of the spinel type, **2010**, WO2010149286
- J. Pérez-Ramírez, J.C. Groen, J.A. Moulijn, Mesoporous mordenite, preparation and the use thereof, **2008**, WO2008147190
- J. Pérez-Ramírez, Y. Segura, Gold-based catalysts for the selective hydrogenation of unsaturated compounds, **2008**, WO2008107445
- J. Pérez-Ramírez, S. Abelló Cros, M. Santiago Redondo, A process for the preparation of uniform nano-sized solid materials by continuous precipitation, **2007**, WO2007147881
- J. Pérez-Ramírez, B. Vigeland, S. Julsrud, Catalytic membrane reactor for the oxidation of NH₃ to NO, and method for the oxidation of NH₃ to NO, **2006**, WO2006041300
- J. Pérez-Ramírez, Catalyst packing, a structured fixed bed reactor and use, **2006**, WO2006009453

J. Pérez-Ramírez, A. Gallardo-Llamas, Method and apparatus for N₂O-mediated oxidative dehydrogenation of alkanes to alkenes over iron zeolites, **2005**, WO2005105711

J. Pérez-Ramírez, A.H. Øygarden, D. Waller, K. Schöffel, D.M. Brackenbury, Method for producing supported oxide catalysts, **2004**, WO2004110622

J. Pérez-Ramírez, Method for preparation and activation of multimetallic zeolite catalysts, a catalyst composition and application for N₂O abatement, **2004**, WO2004047960

Supervision of Research Work

Doctoral Theses

- Ivan Surin, Ceria-supported catalysts for ammonia oxidation to nitrous oxide, 24th September **2025**
- Manu Suvana, Data science tools for heterogeneous catalyst design, 28th May **2025**
- Tangsheng Zou, Design of heterogeneous catalysts for methanol and higher alcohol synthesis, 18th December **2024**
- Thomas D.R. Moragues, Microfluidic synthesis and characterization of single-atom catalysts, 11th December **2024** (co-supervised with Prof. Andrew deMello)
- Dario Poier, Toward sustainable cross-couplings through the design of heterogeneous Pd single-atom catalytic systems, 27th November **2024** (co-supervised with Prof. Roger Marti)
- Vera Giulimondi, Towards atomic precision in heterogeneous catalyst design, 20th September **2024**
- Shibashish Devidutta Jaydev, Chemical recycling of polyolefin waste via catalyzed hydrogenolysis, 25th September **2024**
- Thaylan Pinheiro Araujo, Design of promoted reducible oxide catalysts for green methanol synthesis, 4th October **2023**
- Dario Faust Akl, Novel tools for the design of single-atom catalysts, 11th October **2023**
- Florentine L.P. Veenstra, Chemical and compositional effects in electroreduction of CO₂ over Cu-based catalysis, 21st September **2022**
- Simon Büchele, Effects of size, modifiers, and carrier engineering in the design of nanostructured catalysts, 24th November **2021**
- Ali J. Saadun, Catalyst design for the hydrodehalogenation of halomethanes in natural gas upgrading, 3rd November **2021**
- Selina K. Kaiser, Nanostructured catalysts for sustainable acetylene-based vinyl chloride production, 24th March **2021**
- Matthias S. Frei, Design of indium oxide-based catalysts for sustainable methanol production, 13th January **2021**
- Guido Zichittella, Alkane activation by catalytic oxyhalogenation, ETH Zurich, 11th December **2019**
- Ho Ting Luk, Multicomponent catalytic systems for syngas conversion into higher alcohols, ETH Zurich, 4th December **2019**
- Evgeniya Vorobyeva, Carbon nitride as a platform for metal atoms and low-nuclearity clusters, ETH Zurich, 20th November **2019**
- Matthias Scharfe, Catalytic processes for intensified vinyl chloride production, ETH Zurich, 30th October **2019**
- Davide Albani, Ensemble design in heterogeneous catalysts for selective hydrogenation, ETH Zurich, 21st November **2018**
- Vladimir Paunović, Catalytic processes for natural gas valorization via bromine chemistry, ETH Zurich, 4th April **2018**
- Gastón Larrazábal, Transition metal-based catalysts modified with p-block elements for the electrochemical reduction of CO₂, ETH Zurich, 6th December **2017**
- Giacomo Lari, Chemocatalytic technologies towards the glycerol biorefinery, ETH Zurich, 18th October **2017**
- Tobias C. Keller, Tailored aluminosilicate catalysts for sustainable polymer and fuel production, ETH Zurich, 26th October **2016**
- Oliver Martin, Novel materials for CO₂ capture and conversion to methanol, ETH Zurich, 4th May **2016**
- Maximilian Moser, Bridging HCl and HBr oxidation over heterogeneous catalysts for halogen production, ETH Zurich, 9th December **2015**
- Gianvito Vilé, Design of new nanostructured catalysts for selective hydrogenations in flow, ETH Zurich, 4th November **2015**
- Pierre-Yves Dapsens d'Yvoir, Tailored Lewis-acid zeolites for the production of bio-based chemicals, ETH Zurich, 10th June **2015**

Nina-Luisa Michels, From powder to technical body: Structured zeolite catalysts with enhanced functionality, ETH Zurich, 17th December **2014**

Maria Milina, Property-function interplay in the design of hierarchical zeolite catalysts, ETH Zurich, 1st October **2014**

Amol P. Amrute, Deacon chemistry revisited: new catalysts for chlorine recycling, ETH Zurich, 9th October **2013**

Danny Verboekend, New hierarchical zeolite catalysts by post-synthetic design, ETH Zurich, 10th October **2012**

Blaise Bridier, Selective hydrogenation of alkynes - catalyst design aided by molecular understanding, ETH Zurich, 14th March **2012**

Marta Santiago, Hexaaluminate-type catalysts for N₂O abatement, Universitat Rovira i Virgili, 29th September **2010**

Georgiana Stoica, Chemistry of dawsonites and application in catalysis, Universitat Rovira i Virgili, 18th February **2010**

Gerard Novell-Leruth, Catalytic ammonia oxidation on noble metal surfaces: A theoretical approach, Universitat Rovira i Virgili, 15th November **2008**

Jozef C. Groen, Mesoporous zeolites obtained by desilication, Delft University of Technology, 26th June **2007**

Mohammed N. Debbagh, Catalytic conversions of nitrogen oxides over transition metal zeolites, Université Abdelmalek Essaadi, 21st April **2007**

Master Theses

Yimeng Jin, Single-atom cobalt alloying with ruthenium promotes liquid products in polypropylene hydrogenolysis, ETH Zurich, **2025**

Bayan Karapenchev, An accelerated data-driven platform for screening and discovery of bimetallic single-atom catalysts, ETH Zurich, **2025**

Alexandru-Tudor Toderaşcu, Towards the scale-up of direct ammonia oxidation to nitrous oxide: developing selective and robust ceria-zirconia technical catalysts, ETH Zurich, **2024**

Elisavet Tazedaki, A standardized comparison of InZrO_x and ZnZrO_x catalysts for CO₂ hydrogenation to methanol, ETH Zurich, **2024**

Iris Nogueroles Langa, Supported ruthenium-nickel alloys for tunable polyethylene hydrogenolysis, ETH Zurich, **2023**

Dennis Ciliak, Design of bimetallic nickel-cobalt electrocatalysts for CO₂ reduction to long-chain hydrocarbons, ETH Zurich, **2023**

Suyash Damir, Kinetics of acetylene hydrochlorination over platinum single-atom catalysis: from lab-scale to technical systems, ETH Zurich, **2023**

Sok Ho Chong, Data-driven design of superior ZrO₂-promoted CuCoFe catalytic systems for higher alcohol synthesis, ETH Zurich, **2023**

Katia Chikri, Hydrogenolysis of commercial-grade high-density polyethylene and polypropylene with titania-supported ruthenium catalysts, ETH Zurich, **2023**

Gian Marco Potros Beshara, Novel catalytic materials for stable and selective propylene production via nitrous oxide-mediated propane dehydrogenation, ETH Zurich, **2023**

Gabriela Dutcă, Manganese-ceria catalysts for direct ammonia oxidation to nitrous oxide, ETH Zurich, **2023**

Simon Verstraeten, ZnO-ZrO₂ catalysts prepared by flame spray pyrolysis for CO₂ hydrogenation to methanol, ETH Zurich, **2022**

Marc Eduard Usteri, Design of ruthenium-based catalysts for polypropylene hydrogenolysis to liquid products, ETH Zurich, **2022**

Adrian H. Hergesell, Thermocatalytic CO₂-based methanol synthesis with hybrid CO₂-CO feeds and at mild conditions, ETH Zurich, **2021**

Hristo Bonchev, Bimetallic catalysts for the selective hydrodebromination of dibromomethane to methyl bromide, ETH Zurich, **2021**

Ivan Surin, The role of the carbon support in metal-catalyzed acetylene hydrochlorination, ETH Zurich, **2021**

David Capeder, Pioneering the quantification of interface impact through microfabricated catalysts for thermal CO₂ hydrogenation, ETH Zurich, **2020**

James Luethi, Democratization of ¹H-NMR in eN₂RR: protocol development and critical assessment for ammonia quantification in electrocatalytic nitrogen reduction, ETH Zurich, **2020**

Spyridon Kanatakis, Design of carbon-based catalysts for propane dehydrogenation: metal-free and earth-abundant metal-containing systems, ETH Zurich, **2020**

Arjun Shah, Impact of hybrid CO₂-CO feeds on methanol synthesis over In₂O₃-oxide-based catalysts, ETH Zurich, **2020**

Marion Short, Kinetic fingerprints of CO₂-based synthesis and steam reforming of methanol over heterogeneous catalysts, ETH Zurich, **2020**

Michelle Philipp, Promoter engineering of In₂O₃ catalysts for methanol production via CO₂ hydrogenation, ETH Zurich, **2019**

Gabrijel Novak, CO₂ promotion on higher alcohols synthesis from syngas over copper-iron catalysts, ETH Zurich, **2019**

Dario Faust Akl, Design of low-nuclearity metal catalysts, ETH Zurich, **2019**

Alessia Cesarini, Role of the zirconia carrier on the performance of indium oxide for CO₂ hydrogenation, ETH Zurich, **2019**

Gabriele Manzocchi, Design of noble metal-based catalysts for acetylene hydrochlorination, ETH Zurich, **2019**

Klara S. Key, Pd promoted In₂O₃ catalysts for the direct CO₂ hydrogenation to methanol, ETH Zurich, **2018**

Florian Goedicke, Mechanistic understanding of selectivity patterns in ethane oxyhalogenation, ETH Zurich, **2018**

Bittor A. Markaide-Aiastui, Catalysts for the selective hydrodechlorination of dichloromethane in natural gas upgrading, ETH Zurich, **2018**

Sebastiano D'Angelo, Techno-economic analysis of a glycerol biorefinery, ETH Zurich, **2018**

Nicolas Aellen, Olefins from natural gas via oxychlorination catalysis: from active phase to technical body, ETH Zurich, **2017**

Tim Forster, Higher alcohols synthesis via carbon nanofibers-supported KCoMo catalysts: impact of carriers, catalyst synthesis, and activation, ETH Zurich, **2017**

Giorgio Pastore, Glycerol valorization: towards sustainable bio-refinery processes, ETH Zurich, **2017**

Moritz Haus, Sustainable polyurethane precursors through the development of post-empirical models based on mechanistic insights, ETH Zurich, **2016**

Matthias S. Frei, Production of acrylic acid from lactic acid on alkaline activated zeolites, ETH Zurich, **2015**

Matthias Scharfe, Stable cerium-based catalysts for the oxychlorination of ethylene, ETH Zurich, **2015**

Guido Zichittella, Oxybromination of methane over vanadium phosphate catalysts: a novel route for selective methane upgrading, ETH Zurich, **2015**

Patrick Dähler, Performance of doped ceria catalysts in alkyne hydrogenation, ETH Zurich, **2014**

Kartikeya Desai, Design of basic zeolite catalysts by alkaline activation in alcoholic media and the application in bio-oil deoxygenation, ETH Zurich, **2014**

Isabella Giovinazzo, Production of lactic acid and alkyl lactates over Sn-containing MFI zeolites: from batch to continuous operation, ETH Zurich, **2014**

Anna Beltzung, Design of hierarchical zeolites for the synthesis of methylenedianiline mixtures, ETH Zurich, **2013**

Stéphane Isabetini, Design of hierarchical silica-rich zeolite base catalysts, ETH Zurich, **2013**

Laura Rodríguez-García, Catalysts and hybrid fixed-bed reactors for the gas-phase oxidation of hydrogen halides, ETH Zurich, **2013**

Tobias Keller, Superior base catalysis through hierarchical faujasite zeolites, ETH Zurich, **2012**

Martin Menart, Hierarchical zeolites as efficient catalysts for the conversion of dihydroxyacetone to alkyl lactates, ETH Zurich, **2012**

Tazawa Atsushi, Development of IrO₂-based catalysts in technical form for the gas-phase HCl oxidation, ETH Zurich, **2012**

Jonas Wichert, Selective hydrogenation of acetylene over ceria-based catalysts, ETH Zurich, **2012**

Maximilian Moser, Micro kinetic studies and modeling of the hydrogen chloride oxidation on ceria catalysts, ETH Zurich, **2011**

Gianvito Vilé, Hierarchical zeolite Y and USY obtained by strategic combinations of post-synthetic modifications, ETH Zurich, **2011**

Research Projects

Zhouyu Zhang, Rational control of Ni-In-Zr elemental combinations for selective CO₂ hydrogenation to C1 products, ETH Zurich, **2026**

Jan Sarro, In-situ formation of PdIn ensemble in flame-made InHfO_x catalyst unlock superior methanol productivity, ETH Zurich, **2025**

Viviane Müller, Universality of TiO₂-supported ruthenium-platinum catalysts for chemical recycling of polyolefins, ETH Zurich, **2025**

Seung Eun Choi, Refining the synthesis protocol for ultra-high-density single-atom catalysts, ETH Zurich, **2025**

Alexander Pitzer, Towards NH₃-based descriptors of Au-modified rare earth oxides for N₂O synthesis, ETH Zurich, **2025**

Giuseppe Salvati, Kinetic investigation of nickel-based catalysts for electrocatalytic CO₂ reduction into long-chain hydrocarbons using an advanced parallel electrochemical setup, ETH Zurich, **2025**

Manuel Meinhardt, Interface-engineered WO_x/ZrO₂ catalysts for highly effective hydrogen-free polypropylene upgrading to gasoline, ETH Zurich, **2025**

Federico Remi, Synergistic oxide-support interaction in M₁M₂O_x catalysts facilitate methanol synthesis from CO₂, ETH Zurich, **2025**

Amir Zholdasbekov, Precursor effects on activity, selectivity, and stability of carbon-supported copper catalysts for acetylene hydrochlorination, ETH Zurich, **2025**

Tobias Heinrich, Flame-made gold-modified rare earth oxides catalyze N₂O synthesis from NH₃, ETH Zurich, **2025**

Pit Hoffmann, Flame-made hafnia stabilized indium oxide catalysing CO₂ hydrogenation to methanol, ETH Zurich, **2024**

Xiaoyu Jin, ZnO/ZrO₂ catalysts prepared by wet impregnation for CO₂ hydrogenation to methanol, ETH Zurich, **2023**

Wiktoria Wnętkowska, Electrochemical CO₂ conversion toward long-chain hydrocarbons, ETH Zurich, **2023**.

Suyash Damir, Ceria-supported transition metal oxides as catalysts for nitrous oxide production via ammonia oxidation, ETH Zurich, **2022**

Georgios Marnieros, Exploring oxide layers as modifiers of copper electrocatalysts in CO₂ reduction, ETH Zurich, **2022**

Clemens Wöllhaf, Host effects in palladium single-atom catalysts for alkyne semi hydrogenations, ETH Zurich, **2021**

Optimization of gold on CeO₂ for single-step production of nitrous oxide via ammonia oxidation, Asbjörn Rasmussen, ETH Zurich, **2021**

Ivan Surin, Gold supported in ceria as a superior catalyst for nitrous oxide production via direct ammonia oxidation, ETH Zurich, **2021**

Lucrezia Cartocci, Carbon-supported gold-based catalysts for acetylene hydrochlorination, ETH Zurich, **2020**

Samuel Scheiber, Enhanced higher alcohols synthesis via cascade byproduct upgrading over zeolites, ETH Zurich, **2019**

James Luethi, Alkane functionalization via catalytic oxychlorination: performance as a function of the carbon number, ETH Zurich, **2019**

Oliver Stiz, Design of nickel single-atom catalysts on heteroatom-doped carbons, ETH Zurich, **2019**

Louisa Buttsworth, Impact of carrier acidity in the conversion of syngas to higher alcohols on zeolite-supported copper-iron catalysts, ETH Zurich, **2019**

Kevin Kleemann, Structure-performance relationship of silica-supported transition metal catalysts in the hydrodebromination of dibromomethane, ETH Zurich, **2019**

Lorenz Olbrich, Nanostructured ceria catalysts for ethylene oxychlorination, ETH Zurich, **2019**

Samuel Stähelin, Selective propane-to-propylene via catalyzed oxychlorination over metal phosphates, ETH Zurich, **2019**

Nicola Carrara, Selective alkane oxyhalogenation over supported metal nanoparticles, ETH Zurich, **2018**

Igor Rombaut, Direct higher alcohol synthesis from syngas over copper-iron based catalysts, ETH Zurich, **2018**

Agostino Dall'Ara, Capital cost estimation for the production of glycerol carbonate and 1,2-propanediol using the Guthrie method, ETH Zurich, **2018**

Kevin Zeiter, Investigation of sulfur-modified transition metals for CO₂ reduction, ETH Zurich, **2018**

Martín Artusi, Methane activation through catalytic oxybromination, ETH Zurich, **2018**

Bharath Tata, Selective oxychlorination of ethylene to vinyl chloride, ETH Zurich, **2017**

Dragona Ristanovic, Modelling of the methane oxybromination, ETH Zurich, **2016**

Doohyun Hwang, Higher alcohol synthesis from syngas over carbon-supported CoMo catalysts, ETH Zurich, **2016**

Arthur Brucoli Leme de Moura, Carbonation of glycerol with urea in continuous mode catalyzed by magnesium-aluminum mixed oxides, ETH Zurich, **2016**

Nicolas Aellen, Comparative study of oxybromination and oxychlorination of methane over metal oxide, phosphate and vanadate catalysts, ETH Zurich, **2016**

Lukas Weimann, Towards the continuous carbonation of glycerol with urea, ETH Zurich, **2016**

Rohan Murty, New insights into the pore development mechanism of layered hydroxides upon thermal activation, ETH Zurich, **2016**

Moritz Haus, Finding new applications for the NanoselectTM catalyst family: conversion of nitriles and aldehydes in a continuous flow reactor, ETH Zurich, **2015**

Ali Saadun, Stability of metallated zeolites in biomass conversion in continuous flow conditions and the development of bifunctional zeolite catalysts for the oxidehydration of glycerol, ETH Zurich, **2015**

Fabian Brüning, Influence of the composition of an industrial catalyst on CO₂-promoted methanol synthesis, ETH Zurich, **2014**

Sarah Correa, Hybrid nanocatalysts for selective hydrogenation of nitroarenes, ETH Zurich, **2014**

Kartikya Desai, Basic zeolite catalysts for the catalytic deoxygenations of bio-oil, ETH Zurich, **2014**

Matthias Frei, Synthesis and evaluation of Tin containing BEA, FAU, MOR prepared by alkaline assisted stannation, ETH Zurich, **2014**

Olivier Gröninger, Production of mannitol from glucose over epimerization-hydrogenation, ETH Zurich, **2014**

Stefan Reuteler, Insights into the alkaline-assisted metallation process: Location of the active Lewis-acid sites in sugars isomerization, ETH Zurich, **2014**

Sotiria Mostrou, Performance of metal oxide catalysts for bromine recycling, ETH Zurich, **2014**

Gabriele Colombo, Bio-oil upgrading by condensation reactions: Performance of zeolite catalysts in the esterification of acetic acid, ETH Zurich, **2013**

Oliver Ingold, Room-temperature synthesis of metal-organic frameworks from layered double hydroxides, ETH Zurich, **2013**

Jakub Jagielski, A rational approach to the synthesis of the Lindlar catalyst, ETH Zurich, **2013**

Leonard Floryan, Chemo- and Stereoselective Behavior of CeO₂-Based Catalysts for Liquid-Phase Partial Hydrogenation of Alkynes, ETH Zurich, **2013**

Patrick Dähler, Promoted ceria catalysts for alkyne semi-hydrogenation, ETH Zurich, **2012**

Thomas Soltermann, Development of kinetic tools for the investigation of the CO₂ promotion, ETH Zurich, **2012**

Mario Stucki, Chemo-catalytic conversion of biomass to chemicals, ETH Zurich, **2012**

Jose Zhao, Impact of extrusion with silica, alumina, and natural clays on the intrinsic properties of desilicated ZSM-5, ETH Zurich, **2012**

Gastón Larrazábal, CuCrO₂-CeO₂ composite for the oxidation of HCl to Cl₂, ETH Zurich, **2012**

Johan Mendez, Hierarchical ZSM-5 zeolites in liquid-phase alkylation of toluene with isopropanol, ETH Zurich, **2012**

Zair Dominguez Trinidad, Catalytic Performance of Hierarchical ZSM-5 Zeolites for Liquid Phase Alkylation, ETH Zurich, **2011**

Maximilian Moser, CeO₂/ZrO₂ catalysts for sustainable hydrogen chloride oxidation, ETH Zurich, **2011**

Mrugendra Kamtikar, Novel approaches for desilication of zeolites, Institute of Chemical Research of Catalonia, Tarragona, Spain, **2008**

Danny Verboekend, Novel catalysts for the selective hydrogenation of triple bonds, Institute of Chemical Research of Catalonia, Tarragona, Spain, **2007**

Ripudaman Manchanda, Memory effect of dawsonite-derived aluminas, Institute of Chemical Research of Catalonia, Tarragona, Spain, **2007**

Vijay Shankar, Reusability and scalability of solid-base catalysts in C-C bond formation reactions, Institute of Chemical Research of Catalonia, Tarragona, Spain, **2007**

Saurabh Dhir, Kinetic analysis of the aldol condensation of citral and acetone over activated hydrotalcites, Institute of Chemical Research of Catalonia, Tarragona, Spain, **2006**

Olga Sánchez Galofré, In situ DRIFTS study of the N₂O-mediated oxidative dehydrogenation of propane, Institute of Chemical Research of Catalonia, **2006**

Lluís Maldonado, Redistribution of iron species in FeZSM-5 upon treatment in alkaline media, Institute of Chemical Research of Catalonia, Tarragona, Spain, **2005**

Key Projects as Program Director

2020 – now	NCCR Catalysis, Swiss National Science Foundation. 14 Swiss institutions, 45 principal investigators, >200 students and researchers
2019 – 2022	Flagship Green Energy Program, National University of Singapore. 19 principal investigators, 20 research fellows

Selected Projects as Principal Investigator

2024 – 2028	National Center of Competence in Research, Sustainable chemical processes through catalysis, Swiss National Science Foundation
2021 – 2023	Heterogeneous single-atom catalysis for C-N coupling applications, Roche, Switzerland
2021 – 2024	Catalytic systems for hydrogenolysis-based upcycling of plastic waste, ETH Zurich
2020 – 2024	National Center of Competence in Research, Sustainable chemical processes through catalysis, Swiss National Science Foundation
2020 – 2022	Application of machine learning to catalyst design for CO ₂ to methanol, TOTAL Raffinage Chimie, Belgium
2019 – 2022	Microstructured electrocatalysts as a design platform for decentralized ammonia synthesis and carbon dioxide fixation in artificial leaves, ETH Zurich
2019 – 2020	ENERGY-X, Horizon 2020, European Union
2018 – 2021	Catalyst design for the reforming of halomethanes in natural gas upgrading, ETH Zurich
2017 – 2020	Design of acetylene hydrochlorination catalysts for sustainable PVC production, ETH Zurich
2017 – 2020	An artificial leaf: a photo-electro-catalytic cell, European Research Council
2017 – 2018	Heterogeneous single-atom catalysts for Suzuki coupling, Idorsia, Switzerland
2016 – 2019	Doing more with less: efficient single-atom catalysts based on carbon nitride for sustainable chemical transformations, Swiss National Science Foundation
2016 – 2020	Insight into In ₂ O ₃ -based catalysts for methanol synthesis, TOTAL Raffinage Chimie, Belgium
2016 – 2019	Novel zeolite catalysts for continuous selective acylation reactions and design of continuous heterogeneously-catalyzed process for acylation reactions in vitamin synthesis for vitamins A and E, DSM Nutritional Products AG, Switzerland
2016 – 2019	Gas to value: halogen-mediated catalytic processes for natural gas conversion to chemicals, ETH Zurich
2015 – 2019	Heavy alcohols synthesis, TOTAL Raffinage Chimie, Belgium
2015 – 2020	Heterogeneous catalysts for urethane synthesis via amines and dialkyl carbonates, Covestro AG, Germany
2015 – 2018	Polymer building blocks from bio-derived feedstocks, Swiss National Science Foundation
2015 – 2016	MDA synthesis over ASA catalysts, Covestro AG, Germany
2015 – 2016	Advanced catalyst engineering with positron annihilation spectroscopy, ETH Zurich
2014 – 2017	Design of oxyhalogenation catalysts for hydrocarbon functionalization, Swiss National Science Foundation
2014 – 2016	Methanol synthesis, TOTAL Raffinage Chimie, Belgium
2014 – 2016	Styrene production over zeolite-based catalysts, thyssenkrupp Industrial Solutions, Germany
2014 – 2016	Swiss Competence Center for Energy Research, Biomass for Swiss Energy Future, Commission for Technology and Innovation, Switzerland
2014 – 2017	Design of electrocatalysts for the conversion of CO ₂ into valuable chemicals, ETH Zurich

2013 – 2017	Cascade deoxygenation process using tailored nanocatalysts for the production of biofuels from lignocellulosic biomass, Seventh Framework Programme, European Union
2012 – 2015	Enabling new sustainable applications of zeolite catalysts through hierarchical structuring, ETH Zurich
2012 – 2014	CO ₂ -based products – From dream to reality, EIT Climate-KIC, European Union
2012 – 2014	Biomass to chemicals over tailored hierarchical zeolite-based catalysts, Swiss National Science Foundation
2011 – 2014	A fundamental approach to the scale up of hierarchical zeolite catalysts, Swiss National Science Foundation
2011 – 2012	Mesoporous ZSM-5 zeolites, Zeochem, Switzerland
2011 – 2012	The catalytic conversion of methanol to olefins over desilicated ZSM-5 zeolites, BASF, Germany
2010 – 2013	Chemicals on methanol synthesis, TOTAL Energy Development, France
2007 – 2009	Rational design of efficient catalytic processes through an improved mechanistic understanding. Development and application of time-resolved transient methodologies, Spanish Ministry for Education and Science
2006 – 2013	Catalyst design for sustainable chemistry: an integrated approach, Consolider Ingenio, Spanish Ministry for Education and Science, Germany
2006 – 2009	Modeling of catalytic oxidation of ammonia in a gauze reactor, Yara International, Norway
2006	Gold catalysts for acetylene semi-hydrogenation, BASF, Germany
2005 – 2007	Modeling of catalytic oxidation of ammonia in a gauze reactor, Yara International, Norway
2005 – 2007	Towards optimized chemical processes and new materials by combinatorial science, Sixth framework programme, European Union

Selected Lectures

Plenary Lectures

Catalysis and sustainability from atom to planet, 2nd International Symposium on Green and Sustainable Chemistry, Cartagena, Spain, 27th May **2026**

Catalysis and sustainability from atom to planet, School on Sustainable Catalysis, Liblice, Czech Republic, 21st October **2025**

Design of reducible oxide catalysts for green methanol synthesis, 13th Natural Gas Conversion Symposium, Xiamen, China, 24th April **2024**

Catalysis and sustainability: a journey from atom to planet, Europacat 2023, Prague, Czech Republic, 31st August **2023**

Catalysis as a driver for sustainable chemistry, SECAT'2023, Málaga, Spain 21st June **2023**

Sustainability driven catalysis engineering, UK Catalysis Conference, Loughborough, United Kingdom, 5th January **2023**

Sustainability driven catalysis engineering, UK Catalysis Conference, Loughborough, United Kingdom, 5th January **2023**

Halogen chemistry on catalytic surfaces, 9th World Congress on Oxidation Catalysis, Cardiff, United Kingdom, 7th September **2022**

Advancing heterogeneous catalysis via nanoscale engineering, 55th Bürgenstock Conference, Brunnen, Switzerland, 2nd May **2022**

Frontiers in catalysis engineering for sustainable technologies, 4th EuCheMS Conference on Green and Sustainable Chemistry, Tarragona, Spain, 24th September **2019**

Catalysis engineering for sustainable technologies, 20th Brazilian Catalysis Conference, São Paulo, Brazil, 4th September **2019**

Frontiers in catalysis engineering for sustainable technologies, 26th North American Catalysis Society, Chicago, US, 25th June **2019**

Catalysis engineering for sustainable technologies, 2nd Trans-Pyrenean Meeting in Catalysis, Tarragona, Spain, 19th October **2018**

Design of heterogeneous catalysts for sustainable technologies, 4th International Symposium on the Catalysis for Clean Energy and Sustainable Chemistry, Bilbao, Spain, 9th July **2018**

Zeolites as enablers for sustainable technologies, 19th Chinese Zeolite Conference, Wuhan, China, 25th October **2017**

Discovery and design of catalysts for sustainable technologies, 1st European Conference on Plasma Catalysis for CO₂ Valorization and Green Chemistry, Paris, France, 6th September **2017**

Discovery and design of catalysts for sustainable technologies, 49. Polish Annual Conference on Catalysis, Cracow, Poland, 17th March **2017**

Towards the design of heterogeneous catalysts for sustainable technologies, XVIII Porotec Workshop, Bad Soden, Germany, 8th November **2016**

Towards the design of heterogeneous catalysts for sustainable technologies, Innovative Catalytic Technologies in Chemistry, Petrochemistry and Oil Refining, Saint Petersburg, Russia, 21st October **2016**

Halogen chemistry on catalytic surfaces, X International Conference Mechanisms of Catalytic Reactions, Svetlogorsk, Russia, 3rd October **2016**

Quality of pore networks in hierarchical zeolites, 2nd Workshop: Hierarchically-ordered Materials: From Theory to Applications, Erlangen, Germany, 28th September **2016**

Halogen chemistry on ceria and related materials, Symposium on Fundamentals and Applications of Cerium Oxide in Catalysis, Beijing, 2nd July **2016**

Towards the design of heterogeneous catalysts for sustainable technologies, 4th Indo French Symposium, Villeneuve d'Ascq, France, 27th June **2016**

Catalyst and process design for glycerol valorization to commodities, Catalysis applied to biomass – toward sustainable processes and chemicals, Compiègne, France, 9th March **2016**

Design of hierarchically organized zeolite catalysts, 6th International Symposium Advanced Micro- and Mesoporous Materials, Burgas, Bulgaria, 7th September **2015**

Design of hierarchically organized zeolite catalysts, Massachusetts Institute of Technology, Cambridge MA, US, 27th August **2015**

Expanding the horizons of ceria in oxidation and hydrogenation catalysis, Workshop of CeO₂-based Materials in Catalysis and Electrochemistry, Rauischholzhausen, 27th July **2015**

Are we able to design heterogeneous catalysts?, SECAT'15, Barcelona, Spain, 15th July **2015**

Design of hierarchically organized zeolite catalysts, Southeast Asia Catalysis Conference, Singapore, 15th May **2015**

Glycerol to commodities via chemocatalytic routes, International Symposium on Green Chemistry, La Rochelle, France, 5th May **2015**

Design of hierarchical zeolite catalysts – Where pore and active site quality meet, 6th EAM Symposium, Kloster Banz, Bad Staffelstein, Germany, 25th November **2014**

New catalytic processes for halogen recycling, NIOK/KNAW symposium – Catalysis for the future, 12th November **2014**

Design of hierarchical zeolite catalysts: where pore and active site quality meet, 6th FEZA conference, Leipzig, Germany, 11th September **2014**

Design of hierarchical zeolite catalysts, FEZA pre-school, FEZA-Pre-School: Hierarchically-ordered Materials: From Theory to Applications, Lichtenfels, Germany, 7th September **2014**

Revitalizing the chemical industry by catalyst design, 1st Centennial Shell Catalysis Conference, Amsterdam, the Netherlands, 22nd May **2014**

Design of hierarchical zeolite catalysts – Where pore and active site quality meet, 37th Meeting of the British Zeolite Association, Glasgow, UK, 11th April **2014**

New catalytic processes for halogen recycling, NCCC XV – The Netherlands' Catalysis and Chemistry Conference, Noordwijkerhout, the Netherlands, 11th March **2014**

Catalytic processes for halogen recycling, Slonano, Ljubljana, Slovenia, 23rd October **2013**

Deacon chemistry revisited – New catalytic processes for chlorine recycling, Frontiers in chemical reaction engineering, Ghent, Belgium, 25th June **2013**

Deacon chemistry revisited: new catalytic processes for chlorine recycling, 46. Jahrestreffen Deutscher Katalytiker, Weimar, Germany, 13th March **2013**

Engineering of hierarchical zeolite catalysts, Jahrestreffen Reaktionstechnik, Würzburg, Germany, 16th May **2012**

Hierarchical zeolites by demetallation, School of Molecular Sieves, Prague, Czech Republic, 2nd April **2012**

Design of hierarchical zeolite catalysts, Royal Society of Chemistry SURCAT meeting, London, UK, 9th December **2011**

Scale up of hierarchical porous zeolites – Science fiction or science reality?, 23. Deutsche Zeolithe Tagung, Erlangen, Germany, 4th March **2011**

Engineering of hierarchical zeolite catalysts, 23rd Entretiens Jacques Cartier, Lyon, France, 22nd November **2010**

Chlorine recycling via catalyzed HCl oxidation: from fundamentals to implementation, Frontiers in Heterogeneous Catalysis, Garching, Germany, 23rd October **2010**

Demand more on your catalyst – Design of hierarchical zeolites, IDECAT conference on catalysis, Porquerolles, France, 22nd May **2009**

Demand more on your catalyst – Design of hierarchical zeolites, French Group of Zeolites, Port-Bail, France, 1st April **2009**

Keynote Lectures

Catalysis and sustainability from atom to planet, 1st Summer School on Single Atom Catalysis, Como, Italy, 25th May **2026**

Catalysis and sustainability from atom to planet, Dream Reactions: Towards a Sustainable Future, Münster, Germany, 21st August **2025**

Catalysis and sustainability from atom to planet, 50th IUPAC World Chemistry Congress, Kuala Lumpur, Malaysia, 15th July **2025**

My path towards sustainable chemistry, XL Biennial Meeting of the Royal Spanish Society of Chemistry, Bilbao, Spain, 1st July **2025**

Chemical plastic recycling across scales, Designing for Circularity in Biodegradable Chemicals and Polymers, Liverpool, 20th May **2025**

Catalysis and sustainability from atom to planetary scale, Emerald Isle Conference on Sustainable Chemistry & Engineering, Belfast, Northern Ireland, 11th April **2025**

Catalysis and sustainability from atom to planetary scale, II Workshop on Sustainable Chemistry, University of Murcia, Spain, 4th April **2025**

Catalysis as a driver for sustainable chemistry, IUPAC World Chemistry Congress, The Hague, Netherlands, 21st August **2023**

Catalysis as a driver for sustainable chemistry, International Conference of the Cluster of Excellence 'The Fuel Science Center', 23rd May **2023**

Advanced catalysis via nanoscale engineering, TOCAT9, Fukuoka, Japan, 28th July **2022**

Frontiers in catalyst design for sustainable technologies, Workshop: SHINE - Sunshine into New Energy, National University of Singapore, Singapore, 2nd August **2019**

Analysis of pore quality in hierarchical zeolite catalysts, 19th International Zeolite Conference, Perth, Australia, 9th July **2019**

Halogen-mediated catalytic processes for natural gas upgrading, 12th Natural Gas Conversion Symposium, San Antonio, US, 4th June **2019**

Catalysis engineering for sustainable technologies, 14. Freiburger Symposium Industrial and Applied Chemistry, School of Engineering & Architecture of Fribourg, Switzerland, 17th May **2019**

Catalysis engineering for sustainable technologies, Annual meeting of the Sustainable Chemistry division of the German Chemical Society, RWTH Aachen, Germany, 18th September **2018**

Catalysis engineering for sustainable technologies, Sunshine in a barrel – next generation green energy, National University of Singapore, 26th March **2018**

Towards catalyst design for CO₂ valorization, Nature Conference on Materials Electrochemistry: Fundamentals and Applications, Shenzhen, China, 13th January **2018**

Catalytic technologies towards the glycerol biorefinery, 46th World Chemistry Congress, São Paulo, Brazil, 11th July **2017**

Design of stable single-atom catalysts based on graphitic carbon nitride, International Symposium on Single-Atom Catalysis, Dalian, China, 1st July **2016**

Hybrid nanostructured catalysts for selective hydrogenation, Third International Conference on Advanced Complex Inorganic Nanomaterials, Namur, Belgium, 13th July **2015**

New applications of CeO₂ in oxidation and hydrogenation catalysis, Fundamentals and Applications of Ceria in Catalysis, Udine, Italy, 13th July **2014**

Design of hierarchical zeolite catalysts, Tailor-Made Fuels from Biomass, Aachen, Germany, 16th June **2014**

Catalytic processes for halogen recycling, TOCAT7, Kyoto, Japan, 5th June **2014**

Sustainable chlorine recycling via HCl oxidation, 8th European Congress on Chemical Engineering, Berlin, Germany, 28th September **2011**

Control of N₂O emissions in industry – Catalysts and processes, 2nd International Symposium on Air Pollution Abatement Catalysis, Cracow, Poland, 9th September **2010**

Control of N₂O in industry – Overview of present technologies and challenges ahead, Fifth International Symposium on Non-CO₂ Greenhouse Gases, NCGG5, Wageningen, the Netherlands, 30th June **2009**

Hierarchical zeolites – The engineering starts in the pore, Europacat VIII, Turku, Finland, 30th August **2007**

New catalytic processes for chlorine recovery – From fundamentals to implementation, Europacat X, Glasgow, UK, 30th August **2011**

Perovskites membranes in ammonia oxidation – Opportunities for pocket-sized nitric acid plants, 2nd International Conference on Structured Catalysts and Reactors, Delft, the Netherlands, 2nd October **2005**

Control of N₂O emissions in the chemical industry, ourth International Symposium on Non-CO₂ Greenhouse Gases, NCGG4, Utrecht, the Netherlands, 5th July **2005**

N₂O abatement – Low vs high temperature catalysis, 4th International Conference on Environmental Catalysis, Heidelberg, Germany, 8th June **2005**

Invited Lectures

Catalysis and sustainability from atom to planet, Polymat and University of the Basque Country, San Sebastian, Spain, 5th March **2026**

Catalysis and sustainability from atom to planet, Finnish Catalysis Society Webinar series, 18th February **2026**

Catalysis and sustainability from atom to planet, Zhejiang Normal University, Jinhua, China, 8th December **2025**

Halogen chemistry on catalytic surfaces, Juhua Group Corporation, Quzhou, China, 9th December **2025**

Design of reducible oxide catalysts for green methanol synthesis, Zhejiang Normal University, Jinhua, China, 10th December **2025**

My path to sustainable chemistry, National University of Singapore, 12th August **2025**

Catalysis and sustainability from atom to planetary scale, Qizhen Chemistry Forum, Zhejiang University, China, 16th May **2025**

Catalysis and sustainability from atom to planetary scale, Zhejiang NHU Co. Ltd, Xinchang, China, 14th May **2025**

Catalysis and sustainability from atom to planetary scale, University of Basel, Switzerland, 2nd May **2025**

Catalysis and sustainability from atom to planetary scale, Frontiers of Science lecture, Biocity Turku, Finland, 20th March **2025**

Halogen chemistry on catalytic surfaces, National University of Singapore, 17th January **2025**

Sustainable vinyl chloride synthesis, Beijing University, China, 14th November **2024**

Design of reducible oxide catalysts for green methanol synthesis, Beijing University, China, 13th November **2024**

Catalysis and sustainability: a journey from atom to planet, Beijing University, China, 13th November **2024**

Catalysis as a driver for sustainable chemistry, Feria Destaca, Vila-real, Spain, 6th November **2024**

Design of reducible oxide catalysts for green methanol synthesis, National University of Singapore, 5th September **2024**

Catalysis and sustainability: a journey from atom to planet, National University of Singapore, 3rd September **2024**

The ties that bind, Khalifa University, UAE, 27th June **2024**

Catalysis and sustainability: a journey from atom to planet, CNRS Toulouse, France, 14th May **2024**

Catalysis and sustainability: a journey from atom to planet, Shenzhen University, China, 27th April **2024**

Catalysis and sustainability: a journey from atom to planet, TotalEnergies Incubation Network Day, Paris, France, 3rd April **2024**

Catalysis and sustainability: a journey from atom to planet, Technische Universität Berlin, Germany, 31st January **2024**

Catalysis and sustainability: a journey from atom to planet, Frei Universität Berlin, Germany, 30th January **2024**

Catalysis and sustainability: a journey from atom to planet, Universitat Rovira i Virgili, Spain, 15th December **2023**

Catalysis and sustainability: a journey from atom to planet, Khalifa University, UAE, 28th November **2023**

Catalysis and sustainability: a journey from atom to planet, MIT, United States, 31st October **2023**

Catalysis as a driver for sustainable chemistry, Zhejiang NHU Co. Ltd, Xinchang, China, 7th June **2023**

Catalysis as a driver for sustainable chemistry, Institute of Chemical Technology, Valencia, Spain, 30th May **2023**

Advanced catalysis via nanoscale engineering, RWTH Aachen, Germany, 22nd May **2023**

Catalysis as a driver for sustainable chemistry, University of Stuttgart, Germany, 11th May **2023**

Catalysis as a driver for sustainable chemistry, Centre of Hydrogen Innovation Distinguished Speaker Series, National University of Singapore, 12th April **2023**

Advanced catalysis via nanoscale engineering, Technische Universität Darmstadt, Germany, 26th January **2023**

Catalysis engineering for sustainable development, Barcelona Institute of Science and Technology @ICIQ, Tarragona, Spain, 17th January **2023**

Catalysis engineering for sustainable development, Transactions of Tianjin University (Virtual), China, 22nd November **2022**

Catalysis engineering for sustainable development, Centre of Hydrogen Innovation Distinguished Speaker Series, National University of Singapore, 20th October **2022**

Catalysis engineering for sustainable development, School of Chemistry, Chemical Engineering and Biotechnology, Nanyang Technological University, Singapore, 18th October **2022**

Advanced catalysis via nanoscale engineering, Cambridge Centre for Advanced Research and Education, Singapore, 29th June **2022**

Advanced catalysis via nanoscale engineering, Department of Chemistry, Faculty of Science, National University of Singapore, Singapore, 23rd June **2022**

Advanced catalysis via nanoscale engineering, 9th Irsee Symposium, Robert K. Grasselli Foundation, Irsee, Germany, 17th June **2022**

Advanced catalysis via nanoscale engineering, John van Geuns lecture, Amsterdam University, the Netherlands, 13th September **2011**

Enhancing catalysis via nanoscale engineering, Givaudan, Kempthal, Switzerland, 14th December **2021**

Catalysis engineering for sustainable technologies, Sulzer, Winterthur, 30th November **2021**

Nanoscale engineering for sustainable catalysis, Frontiers in Catalysis Lecture Series, Pacific Northwest National Laboratory, 14th July **2021**

Nanoscale engineering for sustainable catalysis, ChemSusChem Virtual Symposium on Green Carbon Chemistry, 8th July **2021**

Frontiers in catalyst design for sustainable technologies, Micromeritics Material Characterization Webinar, 16th July **2020**

Frontiers in catalyst design for sustainable technologies, Nanyang Technological University, Singapore, 13th February **2020**

Frontiers in catalyst design for sustainable technologies, Delft University of Technology, Netherlands, 8th January **2020**

Frontiers in catalyst design for sustainable technologies, Casale, Lugano, Switzerland, 6th December **2019**

Frontiers in catalyst design for sustainable technologies, College of Chemistry, Trinity College Dublin, Ireland, 28th November **2019**

Frontiers in catalysis engineering for sustainable technologies, Cell Symposia: Next-Generation Materials for Energy Applications, Xiamen, China, 19th November **2019**

Frontiers in catalysis design for sustainable technologies, Nature Research Round Table, Energy Materials for Sustainability: Bridging Academia and Industry, Beijing, China, 8th November **2019**

Frontiers in catalysis design for sustainable technologies, Beijing Institute of Technology, China, 7th November **2019**

Overview of the Energy-X project, Sunrise Swiss Stakeholder Workshop, Dübendorf, Switzerland, 27th September **2019**

Catalysis engineering for sustainable technologies, XXXVII Biennial Meeting of the Spanish Royal Society of Chemistry, San Sebastian, Spain, 28th May **2019**

Catalysis engineering for sustainable technologies, Seminar at the Center for Natural Sciences, Hungarian Academy of Sciences, Budapest, Hungary, 18th January **2019**

Transformative chemistry for a sustainable future, Seminar at the Universitat Rovira i Virgili, Tarragona, Spain, 11th January **2019**

Catalysis engineering for sustainable technologies, Seminar at the Bernese Chemical Society, University of Bern, Switzerland, 5th December **2018**

Catalysis engineering for sustainable technologies, Seminar at the Munich Chemical Society, Technical University of Munich, Germany, 13th November **2018**

Catalysis engineering for sustainable technologies, International Symposium on Catalysis Engineering, Delft University of Technology, the Netherlands, 27th September **2018**

Catalysis engineering for sustainable technologies, Syngenta Chemistry Lecture 2018, Stein, Switzerland, 13th September **2018**

Transformative chemistry for the energy grand challenge, Workshop 'Tackling the CO₂ challenge', National University of Singapore, 10th September **2018**

Catalysis engineering for sustainable technologies, Event 'Mitigating issues of future wastes: enhancing resource productivity in emerging technologies', Royal Society of Chemistry, Burlington House, London, 5th September, **2018**

Summer School 'Power to X: Fundamentals and Applications of Modern Electrosynthesis', Villars-sur-Ollon, Switzerland, 28th August **2018**

Catalysis engineering for sustainable technologies, Summer School 'Power to X: Fundamentals and Applications of Modern Electrosynthesis', Villars-sur-Ollon, Switzerland, 28th August **2018**

Catalysis engineering for sustainable technologies, Zhang Dayu Lectureship, Dalian Institute of Chemical Physics, China, 23rd August **2018**

Zeolites as enablers for sustainable technologies, EFCATS School on Catalysis, Liblice, Czech Republic, 26th June 2018

Catalysis engineering for sustainable technologies, Xing Da Lectureship, Peking University, China, 8th June **2018**

Propelling sustainable chemistry with catalysis, Tsinghua University, China, 6th June **2018**

Catalysis engineering for sustainable technologies, University of Fribourg, Switzerland, 11th April **2018**

Catalysis engineering for sustainable technologies, University of Oxford, UK, 12th March **2018**

Design of heterogeneous catalysts for sustainable technologies, Aston University, UK, 8th March **2018**

Propelling sustainable chemistry with catalysis, University of Aberdeen, UK, 7th March **2018**

Discovery and design of catalysts for sustainable technologies, Micromeritics Instruments, Norcross GA, 13th December **2017**

Discovery and design of catalysts for sustainable technologies, École Polytechnique Fédérale de Lausanne, Switzerland, 1st December **2017**

Discovery and design of catalysts for sustainable technologies, SUNCAT Summer Institute, Stanford University, Palo Alto CA, US, 14th August **2017**

Catalysis engineering for sustainable technologies, Micromeritics workshop on materials characterization, Hermsdorf, Germany, 26th April **2017**

Catalysis engineering for sustainable technologies, Firmenich, Geneva, Switzerland, 7th April **2017**

Discovery and design of catalysts for sustainable technologies, University of Udine, Italy, 27th March **2017**

Catalyst design and discovery for sustainable technologies, University of Ljubljana, Slovenia, 18th January **2017**

Catalyst design and discovery for sustainable technologies, University of Cambridge, UK, 2nd February **2017**

Design and discovery of heterogeneous catalysts for sustainable technologies, University of Cordoba, Spain, 22nd November **2016**

Towards the design of heterogeneous catalysts for sustainable technologies, TOTAL Research & Technology Center Feluy, Seneffe, Belgium, 4th November **2016**

Chemical innovation through catalysis engineering, Industry Day, ETH Zurich, 22nd September **2016**

Halogen chemistry on catalytic surfaces, thyssenkrupp Industrial Solutions, Dortmund, Germany 8th September **2016**

Catalyst design for bio-oil deoxygenation, CASCATBEL Workshop on Thermochemical Lignocellulose Conversion Technologies, Porto Carras, Chalkidiki, Greece, 18th May **2016**

Bringing catalysts to technical scale – New processes in polymer manufacture, SECAT Summer School, Barcelona, Spain, 16th July **2015**

Towards the design of heterogeneous catalysts for sustainable technologies, King Abdullah University of Science & Technology, Thuwal, Saudi Arabia, 20th June **2016**

Towards the design of heterogeneous catalysts for sustainable technologies, University College London, UK, 8th June **2016**

Towards the design of heterogeneous catalysts for sustainable technologies, EPFL Valais Wallis, Sion, Switzerland, 12th May **2016**

A glimpse into catalyst design, Micromeritics Instruments, Norcross GA, US, 18th January **2016**

Are we able to design heterogeneous catalysts?, National Institute of Chemistry, Ljubljana, Slovenia, 21st October **2015**

Are we able to design heterogeneous catalysts?, DSM Nutritional Products, Kaiseraugst, Switzerland, 20th October **2015**

Design of hierarchically organized zeolite catalysts, Instituto de Ciencia de Materiales, Seville, Spain, 11th November **2015**

Design of hierarchically organized zeolite catalysts, Micromeritics Day, CSIC, Madrid, Spain, 25th June **2015**

Catalyst innovation in polyurethane manufacture, Karlsruhe Institute of Technology, Germany, 7th April **2015**

Catalyst innovation in polyurethane manufacture, Beilby Lecture, Society of Chemical Industry, London, UK, 17th March **2015**

New processes for glycerol valorization to commodities, SuBiCat II Symposium, University of St Andrews, UK, 2nd March **2015**

Design of hierarchical zeolite catalysts – Where pore and active site quality meet, University of Bremen, Germany, 5th January **2015**

Design of hierarchical zeolite catalysts – Where pore and active site quality meet, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany, 8th October **2014**

Collaborate with the right partner: my experience with Micromeritics, Micromeritics Instruments, Norcross GA, US, 26th October **2014**

Design of catalytic materials, Albemarle, Amsterdam, Netherlands, 22nd September **2014**

Bringing catalysts to technical scale – New processes for chlorine production, 10th Anniversary, Institute of Chemical Research of Catalonia, Tarragona, Spain, 18th July **2014**

Design of hierarchical zeolite catalysts – Where pore and active site quality meet, Synfuels, Beijing, China, 4th July **2014**

Design of hierarchical zeolite catalysts – Where pore and active site quality meet, National Institute of Clean-and-Low Carbon Energy, Beijing, China, 3rd July **2014**

Revitalizing the chemical industry by catalyst design, PetroChina Research Institute, Beijing, 2nd July **2014**

Catalytic processes for halogen recycling, PetroChina Research Institute, Beijing, 2nd July **2014**

Design of hierarchical zeolite catalysts – Where pore and active site quality meet, IFP Energies nouvelles, Solaize, France, 17th April **2014**

Design of hierarchical zeolites: opportunities in base catalysis, thyssenkrupp Industrial Solutions, Dortmund, Germany, 7th February **2014**

New catalytic processes for halogen recycling, Clariant Produkte, Bruckmühl, Germany, 29th January **2014**

Catalytic processes for halogen recycling, General meeting COST Action CM1104, Uppsala, Sweden, 6th November **2013**

Deacon chemistry revisited – New catalytic processes for chlorine recycling, Solvay, Brussels, Belgium, 8th July **2013**

Treasure hunting in catalysis by hierarchical zeolite design, Micromeritics workshop on materials characterization, Frickenhausen, Germany, 17th April **2013**

Treasure hunting in catalysis by hierarchical zeolite design, 16th RTIG Diffusion of porous materials, Delft University of Technology, the Netherlands, 4th April **2013**

Treasure hunting in catalysis by hierarchical zeolite design, Andrew Main lecture, University of Alberta, Canada, 14th February **2013**

Scale up of hierarchical zeolites: science fiction or science reality?, TOTAL Catalysis Club Meeting, La Hulpe, Belgium, 24th January **2013**

New catalytic processes for chlorine production, Delft University of Technology, Netherlands, 13th November **2012**

Engineering of hierarchical zeolite catalysts, UOP-Honeywell Invitational Lecture Series, Des Plaines IL, US, 10th September **2012**

Design of hierarchical zeolites from lab to plant scale, Advanced Porous Materials workshop, ETH Zurich, Switzerland, 22nd August **2012**

Catalysis engineering: from molecules to products, Zeochem, Uetikon am See, Switzerland, 22nd May **2012**

Design of hierarchical zeolite catalysts – Beyond laboratory potential towards implementation, Bayer MaterialScience, Dormagen, Germany, 26th April **2012**

Design of hierarchical zeolite catalysts – Beyond laboratory potential towards implementation, Karlsruhe Institute of Technology, Germany, 25th April **2012**

Design of hierarchical zeolite catalysts – Beyond laboratory potential towards technical realization, Micromeritics Instruments, Norcross GA, US, 15th January **2012**

Design of hierarchical zeolite catalysts – Science fiction or science reality?, University of Alicante, Spain, 10th October **2011**

Catalysis engineering for sustainable development, Bayer Science and Innovation Dialogue, Leverkusen, Germany, 19th October **2011**

Scale up of hierarchical zeolite catalysts – Science fiction or science reality?, John van Geuns lecture, Amsterdam University, the Netherlands, 13th September **2011**

Design of hierarchical zeolite catalysts, Leipzig University, Germany, 19th May **2011**

Hierarchical zeolites – From lab curiosity to industrial use, RWTH Aachen, Germany, 10th May **2011**

Scale up of hierarchical porous zeolites: science fiction or science reality?, Utrecht University, Netherlands, 19th April **2011**

Scale up of hierarchical porous zeolites: science fiction or science reality?, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic, 7th April **2011**

Hierarchically structured zeolite catalysts: from lab curiosity to industrial practice, Paul Scherrer Institute, Villigen, Switzerland, 28th January **2011**

The post-synthesis toolbox to design hierarchical zeolite catalysts, NANO-HOST workshop, Montpellier, 5th October **2010**

Demand more on your catalyst – Engineering hierarchical zeolites, BASF, Ludwigshafen, Germany, 19th May **2010**

Demand more on your catalyst – Engineering hierarchical zeolites, École Polytechnique Fédérale de Lausanne, Switzerland, 5th May **2010**

Demand more on your catalyst – Design hierarchical zeolites, Zeochem, Uetikon am See, Switzerland, 25th March **2010**

Demand more on your catalyst – Engineering hierarchical zeolites, Institute of Chemical Research of Catalonia, Tarragona, Spain, 25th September **2009**

Control of N₂O emissions in industry – Catalysts and processes, 6th Tøpsoe Catalysis Forum, Munkerpugaard, Denmark, 28th August **2009**

Demand more on your catalyst – Engineering hierarchical zeolites, ENSICAEN, Caen, France, 3rd May **2009**

Control of N₂O in the chemical industry – From waste to product, ENSICAEN, Caen, France, 12th May **2009**

Enhanced catalyst effectiveness – Design of hierarchical zeolites, CAT Catalytic Center, Bayer Materials Science, Aachen, 29th January **2009**

Catalyst effectiveness – The case of (hierarchical) zeolites, Denmark Technical University, Lyngby, Denmark, 21st January **2009**

Hierarchical zeolites: the engineering starts in the pore, University of Valladolid, Spain, 26th November **2008**

Mesoporous zeolites by desilication – Enhanced utilization of microporous crystals, Denmark Technical University, Lyngby, Denmark, 29th April **2008**

Mesoporous zeolites by desilication, Utrecht University, Netherlands, 2nd June **2008**

Hierarchical zeolites – Enhanced utilization of microporous crystals, Ruhr University Bochum, Germany, 15th April **2008**

Laughing gas in nitric acid production: not a laughing matter, Ercros, Tarragona, Spain, 17th January **2008**

Summary of options for N₂O mitigation in the chemical industry, DSM, Geleen, Netherlands, 10th January **2008**

Mesoporous zeolite crystals obtained by desilication, ENSICAEN, Caen, France, 21st November **2007**

Mesoporous zeolites obtained by desilication, UC Berkeley, US, 15th June **2007**

The TAP reactor in catalyst development programs, Engelhard, Iselin NJ, US, 9th February **2006**

Greening up catalytic processes in nitric acid production, Universitat Rovira i Virgili, Tarragona, Spain, 21st January **2005**

Catalysis engineering on three levels, Institute of Chemical Research of Catalonia, Tarragona, Spain, 14th April **2004**

Elucidation of the surprising role of NO on the N₂O conversion over Fe-catalysts, Institute of Applied Chemistry Adlershof, Berlin, Germany, 30th April **2002**

N₂O activation – new catalysts and processes for abatement and utilization, University of Alicante, Spain, 19th December **2002**