

Gabriele Centi

CURRICULUM VITAE (May 26)

PERSONAL INFO

Gabriele CENTI



Office: Dip. ChiBioFarAm, Univ. degli Studi di Messina,
v.le F. Stagno D'Alcontres 31, 98166 Messina, Italia

+39 090 676 6506 +39 392 1992182

centi@unime.it

catalysis.unime.it

Sex M | Date of birth 18/10/1955 | Nationality Italian

ACTUAL POSITION

Full Professor in Industrial Chemistry (CHIM / 04) at the University of Messina

DEGREE

Degree in Industrial Chemistry (obtained in 1979 at the University of Bologna)

SHORT SUMMARY

Gabriele Centi is a Full Professor of Industrial Chemistry at the University of Messina, Italy, and President of the European Research Institute of Catalysis (ERIC). The research interests encompass applied heterogeneous catalysis, sustainable energy and chemical processes, hydrogen production and use, biomass conversion, and environmental protection. Recent activities focus on the development of catalytic technologies for solar fuels, carbon circularity, and the electrification of chemical production.

He was the coordinator of the EU Network of Excellence IDECAT and is the past President of IACS (International Association of Catalysis Societies). Previously, he served as the President of EFCATS (European Federation of Catalysis Societies). He has served as the coordinator or PI in over 30 EU projects. He recently initiated and coordinated an ERC Synergy project on plasma catalysis. He is also a member of the board of SUNERGY, the European initiative on solar fuels, and of SUNER-C, the EU coordination and support actions to prepare a partnership to substitute for fossil fuels.

He has received numerous awards, including i) the International Fellowship Initiative of the President of the Chinese Academy of Sciences, PIFI, as a Distinguished Scientist, ii) the Humboldt Research Award, iii) the Chini Memorial Lecture and the Gold Medal S. Cannizzaro of the Italian Chemical Society and recently iv) the EFCATS & APCATS Michel Che Award. He is involved in various publishing activities. He chaired the editorial board of *ChemSusChem* until 2019 and is co-editor-in-chief of the *Journal of Energy Chemistry*, which has been elevated to a high-IF journal, and the *Studies in Surface Science and Catalysis* series of books, one of the oldest and best-known in catalysis. He has been chairperson of numerous international conferences, including Europacat 2017 in Florence and the 16th International Zeolite Conference, jointly with the 7th International Mesoporous Materials Symposium (Sorrento, Italy, 2010). He has been giving extensive plenary and keynote lectures worldwide.

He is the author of over 650 scientific publications (Iris Cineca) and 17 books (2 in print), and he serves as the editor of more than 25 special issues of internationally recognised journals. The current h-index is 106, with ~46,000 citations and >470 articles with > 10 citations (Google Scholar, Nov 2025). In the 2025 ranking by Stanford University of the top 2% of worldwide scientists, he ranked among the top 5,000 researchers worldwide across all scientific areas and was first in Sicily.

EDUCATION AND CAREER

1979	Degree in Industrial Chemistry at the University of Bologna (prof. F. Trifirò)
1981	Fellowship, Experimental Fuel Station (Milan)
1983-1987	Researcher (Industrial Chemistry), Univ. Bologna
1987-1995	Associate Professor in Chemical Plants (ING-IND / 25), Univ. Of Bologna
1996-today	Full Professor (Industrial Chemistry), Univ. Messina
2008- today	President of the European Research Institute of Catalysis (ERIC aisbl, Brussels - Belgium)
2019- 2023	Delegate of the Rector of the Univ. Messina for the Green Deal
2020- today	PhD Coordinator (International, Industrial) ACCESS "Advanced Catalytic proCesses for using renewable Energy SourceS", Univ. Messina

RESEARCH & QUALIFICATION

CAREER AND ASSIGNMENTS	2026	Honorary Fellow of the Chinese Chemical Society (CCS)
	2026	Chair of the paper selection committee of 10th Conference of the Federation of European Zeolite Associations (FEZA 2026), Napoli (Italy), 28 June-2 July 2026
	2025	"National Foreign Expert Project for 2025" (Ministry of Foreign Affairs, P.R. China).
	2025	S. Perathoner, G. Centi, Y Liu, Guest Editors of JEC issue on Clean energy and catalysis - ICEC2025
	2025	Guest honorary professor, Lanzhou University, China
	2025	EFCATS & APCATS Michel Che Award, for the groundbreaking work in CO ₂ conversion, electrocatalysis, and solar fuels
	2025	ERC PoC on solar H ₂
	2025	A Bogaerts, G Centi, JC Hicks, Guest Editors of the themed collection, EES Catalysis (2025), 3 (4), 592-594.
	2024	World's Top 2% Scientists ranking (Stanford University). In the top 5.000 researchers' rankings to last year (2023) and in the first 10.000 for the career, the first among those of the University of Messina.
	2023	<i>Italian Knowledge Leader</i> award for the international research activity and promotion of the international knowledge network.
	2022	Among the 34 scientists invited by CEFIC (European federation of chemical industries) to celebrate the 50th Years of the Society on May 29, 2022.
	2021	Recognition as a Distinguished Scientist by the International Fellowship Initiative (PIFI) of the President of the Chinese Academy of Sciences,
	2021	Humboldt Research Award
	2019-today	Member of the hydrogen working group of the MUR for the preparation of an Italian hydrogen research strategy (SIRI)
	2018-today	Member of the Academy of Sciences Institute of Bologna, Section - Mathematics, Physics, Chemistry and Geology
	2017-today	Honorary Professor of Tianjin University (TJU), China
	2016-2024	President of IACS (International Association of Catalysis Societies) (from 2012 to 2016, vice president of IACS)
	2015-today	Chemistry Europe Fellow
	2008-today	President of the European Research Institute on Catalysis, coordinating the activities of 24 European institutions on catalysis.
	2001-2005	President of the European Federation of Catalysis Societies (EFCATS)
	2015-2019	Scientific Advisor of the EU Cluster of Catalysis
	2018	Member of the writing team of SAPEA (Science Advice for Policy by European Academies) Evidence Review Report for the European Commission "Novel carbon capture and usage technologies: Research and climate issues"
	2016	Coordination of preparing the "Science and Technology Roadmap on Catalysis for Europe. A Path to Create A Sustainable Future" ISBN 979-12-200-1453-3
	2001-2009	co-Director of the European Laboratory of Surface Science and Catalysis (ELCASS) created in 2001 by CNRS and University of Strasbourg (France), MPG and Fritz-Haber Institute of Berlin (Germany) and University of Messina (Italy)).
	2015-2017	Vice President of the European Federation of Catalysis Societies (EFCATS)
	2016-2019	Vice-President of the Interuniversity Consortium INSTM (Science and

	Technology of Materials), Italy (since 2013, also a member of the INSTM Executive Board)
2009-2012	Director of Thematic Section 2 - Energy and Environment - of INSTM
2008-2016	Director of the INSTM CASPE center (Catalysis for Sustainable Production and Energy)
2006-2012	Scientific Director of the Italian Sustainable Chemistry Platform
2007-2010	Member of the Mirror Group of the European Technological Platform on Sustainable Chemistry (ETP SusChem)
2005-2012	Member of several international panels and boards: CSIC (Spain), ICSC (Krakow, Poland), U.S. DoE, ACENET ERA-NET, ERA-NET CAPITA, ANR (France), Academy of Finland, etc.
2013	Member of the GEV panel (Area 3 - Chemical Sciences) for VQR 2004-2010
2015	Member of the GEV panel (Area 3 - Chemical Sciences) for VQR 2011-2014
2004-2010	Member of the Council of the International Zeolite Association (IZA)
2001-2005	Member of the Council of the Catalysis Group of the Italian Chem. Society (SCI)
2016-2021	Member of the Board of the Division of Industrial Chemistry of SCI
EDITORIAL ACTIVITIES	2015-today Editor-in-chief <i>Journal of Energy Chemistry</i> (Elsevier)
	2003-today Editor in chief of the <i>Studies in Surface Science and Catalysis</i> series of books published by Elsevier Science (Amsterdam) (180 Vol. Published in the series)
	2026-20230 Advisory Board member of the 7th Editorial Board (2026-2030) of the Chinese Journal of Catalysis, the top world journal of catalysis.
	2020-2023 ChemSusChem Board Member
	2007-2019 Chairman of the editorial board of Wiley-VCH magazine <i>ChemSusChem</i> (Chemistry & Sustainability, Energy & Materials)
	2011-2018 Editor of the series of books <i>Green Energy</i> published by De Gruyter (Berlin)
	2012-2016 Member of the Advisory Board of Wiley <i>Energy Technology</i> journal,
	2012-today Member of the Advisory Editors Board of the Elsevier <i>Journal of CO₂ Utilization</i> and <i>Chinese Journal of Catalysis</i>
	2016-today Member of the editorial board of Wiley-VCH Batteries & Supercaps and Journal of the Chinese Chemical Society
	2020-today Member of the editorial board of the <i>Journal of Catalysis</i>
	2009-2017 Member of the Scientific Committee of the journal Wiley <i>ChemCatChem</i>
	2003-2018 Member of the Scientific Committee of the magazine " <i>La Chimica e l'Industria</i> "
	1992-1996 Member of the Editorial Committee of the Applied Catalysis journal.
	1996-2004 Member of the Editorial Committee of <i>Appl. Catal. B. Env.</i>
EU ACTIVITIES	2025 ERC PoC grant on solar H ₂
selection	2020-today Coordinator of the EU DECADE project "DistributEd Chemicals And fuels production from CO ₂ in photoelectrocatalytic DEvices"
	2019-today ERC Synergy SCOPE Coordinator "Rapid Surface Modulation Plasma for Process Intensification and Energy Intensification in Small Molecule Conversion"
	2020- today Board Member of the SUNERGY Initiative on Solar Fuels and Chemicals for a Circular Economy, to prepare for an EU partnership
	2022-2025 Board Member of the EU CSA SUNER-C "Community and eco-system for accelerating the development of solar fuels and chemicals"
	2019-2020 Member of the board of EU-CSA ENERGY-X "Transformative chemistry for a Sustainable Energy Future" to prepare a flagship on fuels and chemical products made with renewable energy
	2015-2019 Coordinator of the EU TERRA project "New adaptable catalytic reactor methodologies for Process Intensification"
	2015- today PI in various EU H2020 projects (BIZEOLCAT, OCEAN, PERFORM, RECODE) and EU FP7 projects (HELMETH, Eco2CO ₂) and H2020 projects (EPOCH, Greenswap, Eretech) on topics of catalysis, electrocatalysis and electrification of reactors
	2013-2016 IAPP Project (Marie Curie Industry-Academia Partnerships and Pathways) BIOFUR "BIOpolymers and BIOfuels from FURan based building blocks"
	2005-2010 Coordinator of the Network of Excellence IDECAT (Integrated Design of Catalytic Nanomaterials for Sustainable Production) - EU (5 years, € 9.5 M, April 2005)
	2009-2014 Coordinator of the collaborative project EU NEXT-GTL (budget about 12.5 M €)
	2012-2015 Coordinator of the CSA eCamm (European Structured Research Area for Catalytic and Magnetic nanoMaterials), contract 290455

NATIONAL PROJECTS (selection)

2002-2005	Coordinator of the EU project NEOPS G5RD-CT2002-00678 New eco-efficient oxidation processes based on the synthesis of H ₂ O ₂ on catalytic membranes
2002-2005	Coordinator of the EU project NANOSTRAP G3RD-CT2002-00793 "Nanostructured Sulfur Traps for the protection of high-performance NO _x storage / reduction catalysts"
1996-today	Scientific Responsible of Messina (Univ. Or UdR INSTM / ERIC) in various projects on sustainable industrial processes and technologies for energy and environment : NATAMA, CONCORDE, SMART, SUPER, COCON, STORECAT, DENITROCAT, H ₂ O-RECYCAT, NEMCA, ALKYL, WAVES (ERA-NET CAPITA)
2011-2018	PI of Univ. Messina in the projects PON01_01725 (Photovoltaic) and PON02_00355_3391233 (Energy) [MIUR]
2014-2015	Project responsible "Development of a membrane reactor heated by molten salts for the dehydrogenation of propane" (MEME) [MAE]
2014-2016	PI of UniME in the project "Innovative processes for the conversion of algal biomass", project "PRIN10 / 11, 2010H7PXL0_006 [MIUR]
2016-2018	UNIME responsible for the "Solar driven chemistry: new materials for photo- and electrocatalysis" project PRIN2015 / 2015K7FZLH_004 [MIUR]
2019-today	National coordinator of the PRIN2017 project "Multielectronic transfer for the conversion of small molecules: an enabling technology for the chemical use of renewable energies (MULTI-e)" project 20179337R7
2022-today	Coordinator of the project MECCA (MITE research on H ₂) "Green H ₂ from bioMethane cracking through an innovative technology based on non-thermal plasma and catalysis with nanoCarbones"
2022-today	PI of the project MIAMI (MISE, Research of system on green electricity) "Innovative Materials for Hybrid Storage Systems"
2024-today	PI in the AmMoniA as a ZERo-carbon fuel and H ₂ carrier (AMAZE) project, CETPartnership Joint Call 2023 (CETP-2023-00120)
2000-today	Various bi- and multilateral cooperation between academia and industry, with industrial partners such as ENI, ERG, Bayer, BASF, ACTA, TOYOTA, etc.

COLLABORATIONS WITH COMPANIES

PUBLICATIONS

Updated publication list available on:

<https://scholar.google.com/citations?user=FlqkRbYAAAAJ&hl=it>

Selection of five recent publications on collaboration with Asian researchers:

1. Generation of oxide surface patches promoting H-spillover in Ru/(TiO_x)MnO catalysts enables CO₂ reduction to CO, H Kang, L Zhu, S Li, S Yu, Y Niu, B Zhang, W Chu, X Liu, S Perathoner, G Centi, Y Liu, *Nature Catalysis* **2023**, 1-11. (IF: 40,7)
2. Understanding the complexity in bridging thermal and electrocatalytic methanation of CO₂, H Kang, J Ma, S Perathoner, W Chu, G Centi, Y Liu, *Chem Soc Rev* **2023**, 52, 3627-3662. (IF: 46,2)
3. Develop High-Performance Cu-Based RWGS Catalysts by Controlling Oxide-Oxide Interface, S Li, X Liu, J Ma, F Xu, Y Lyu, S Perathoner, G Centi, Y Liu, *ACS Catalysis* **2025**, 15, 3475-3486. (IF: 13,1)
4. High-dispersed CeO_x species on mesopores silica to accelerate Ni-catalysed CO₂ methanation at low temperatures, J Ma, Q Jiang, S Li, W Chu, H Qian, S Perathoner, G Centi, Y Liu, *Chemical Engineering Journal* **2024**, 479, 147453. (IF: 13.4)
5. Oxygen vacancy-dependent chemical intermediates on Ru/MnO catalysts dictate the selectivity of CO₂ reduction, H Kang, L Ma, S Li, X Chen, W Chu, R Zhang, S Perathoner, G Centi, Y Liu, *Applied Catalysis B: Environment and Energy* **2024**, 352, 124010. (IF: 20.3)

QUALIFICATION

- In first place in Sicily among the top 2% of researchers, based on the Stanford University-Elsevier study (2025).
- *Top Italian Scientists*: first researcher of industrial chemistry and among the top 10 chemistry researchers operating in Italy (h-index)
- h-index 104 (Google Scholar, May 26) with about 46.000 citations and i10-index of 473. Scival (Scopus): 2024: 9.1% and 68.2% in 1% and 10% topmost viewed; Field-Weighted Views Impact 3.0; 6.7% and 26,7% in 1% and 10% most cited publications (2024); 2021-24 80.9% in top quartile (68 publications in total); 38 (55.9%) number of publications in the top 10% journals.

BIBLIOMETRIC DATA

Recent plenary, keynote and invited lectures (selection, limited to recent years)

2026

- G. Centi, Electrocatalysis for CO₂ Electrolysis - Enabling a carbon circular economy (and more), Winter school on Electrocatalysis towards a greener society, 2 - 6 February 2026, Antwerp (Belgium), plenary
- G. Centi, Green fuels and ammonia through plasma-assisted processes, The 2nd RIST International Symposium Carbon Value Science and Technology, 9-12th March, 2026 - Tokyo, Japan), plenary
- G. Centi, Carbon reuse and circularity: Why and are we looking at the right problems?, SILCO Workshop on Circular Silica for Carbon Capture and Re-Use 25 March 2026, Genova (Italy), opening keynote
- G. Centi, New developments and opportunities for plasma-catalysis, 7th International Symposium on Plasmas for Catalysis and Energy Materials (ISPCEM-7), Dalian (China), July 23-27, 2026, plenary
- G. Centi, New developments in electrocatalysis, ECAT - International Symposium on Electrocatalysis (Photo)electrolysis in Energy Conversion and Storage, Protea Hotel Stellenbosch & Conference Centre, Cape Town (South Africa), 2-5 November 2026, plenary

2025

- G. Centi, Heterogeneous catalysis for green chemistry, Scientific Symposium connected to the GCS4CE Winter School, 21 Feb. 2025, Padova - Italy, plenary
- G. Centi, ELECTROCATALYSIS, Prospects and role to enable an e-chemistry future, Clkuster meeting 2025, June 22-27, 2025, Prague (Czech Rep.), invited.
- G. Centi, Catalysis for circular energy transition, Scientific Symp. and School on Circular Economy For The Energy Transition, Padova, 30th June - 04th July 2025, plenary
- G. Centi, Solar-to-X technologies; Their essential role in a resilient and low-carbon future. IUPAC 2025 and 50th World Chemistry Congress, 14-19 July 2025, Kuala Lumpur - Malaysia, keynote
- G. Centi, Transformative catalysis for a resilient and low-carbon future, Europacat 2025, Trondheim (Norway) Aug. 30 - Sept 5, 2025, keynote
- G. Centi, A transformative landscape for catalytic technologies to enable a resilient and low-carbon future, 23rd Conference on International Exchange of Professionals - Shanghai Oct. 2025 - "High-End Dialogue and Exchange on H₂ Energy and Low Carbon" Oct. 19-22, 2025., keynote
- G. Centi, Strategies and gaps towards H₂ and carbon neutrality, Lanzhou University Oct 23-25, 2025 International Symposium on Hydrogen and Carbon Neutrality, keynote
- G. Centi, Strategies and gaps towards implementing CO₂ reutilization catalytic technologies, Virtual CAP Session - The Catalyst Group Resources, 28th Nov 2025 - online, plenary (a virtual session by invitation only for sharing new ideas to worldwide companies)

2024

- G. Centi, Expanding the catalysis concepts to address the challenge of solar fuels and electrification of the chemical production, DICP - Dalian (China), 16th Jan. 2024, plenary
- G. Centi, H₂, solar fuels and PEC devices for a solar-based and circular-carbon economy, University of Science and Technology of China (USTC), Hefei - China, 22th Jan. 2024, plenary
- G. Centi, An unorthodox viewpoint on the new frontiers to bridge heterogeneous to reactive (photo-, electro- and plasma) catalysis design, International Workshop Multiscale Computational Design of Heterogeneous Catalysts, 14-15 Feb. 2024, Napoli, plenary
- G. Centi, Why pass from Power-to-X to Solar-to-X for a disruptive approach revolutionising industrial production, Virtual meeting for industrial members of the Catalytic Advances Program (CAP), Catalysis Group TCGR (US), online, April 24th 2024 - online, invited
- G. Centi, The Chemical Industry Perspective, The future of the chemical and refining sectors: needs and opportunities for decarbonisation May 16th 2024, Confindustria Siracusa/The European House Ambrosetti, invited
- G. Centi, Addressing complexity in bridging heterogeneous and photo/electro catalysis. Why new concepts and approaches are required, Complexity at catalytically relevant interfaces (Irsee X Symposium), 6-9 June 2024, Klosterlrsee, Germany, invited
- G. Centi, Carbon-Based Catalysts for e-Chemistry Transition, CARBOCAT 10 – Florence, June 24-26, 2024, keynote
- G. Centi, Selective (Industrial) Oxidation. Quo Vadis?, ADHOC 2024, 30th June - 4th July 2024, Venice (Italy), keynote
- G. Centi, DECADE project: Synthesize the same product at both cathodic and anodic sides of photoelectrochemical cells, 4th CO₂OLING The Earth Summer School (Innovative hybrid technologies for CO₂ conversion into added-value commercial products), 9-10th July 2024 (ONLINE), invited
- G. Centi, Solar fuels for carbon circularity and closing the cycle, Catalysis in a Changing Environment – Linking Fundamental Aspects to Engineering, 21-23 July 2024, TUM - Munich, Germany, invited
- G. Centi, Reinventing chemical industry for a sustainable future, Green Chemistry workshop, Mantova, De. 17th, 2024
- G. Centi, Roundtable on research and development of e-fuels, Workshop on Synthetic fuels (e-Fuels), Accademia Nazionale Dei Lincei - Rome (Italy), 3-4 Oct. 2024, invited

2023

- G. Centi, An intro to ERC Synergy SCOPE Project, Australian national workshop of plasma and catalysis researchers, April 26, 2023, Adelaide (Australia), invited /online
- G. Centi, Foster innovation in the production and distribution of green H₂, 14th European Congress of Chemical Engineering and 7th European Congress of Applied Biotechnology, 17-21 Sept. 2023, Berlin (Germany), invited
- G. Centi, SUNER-C: foster activities between projects in the area of solar fuels, Brussels. 10th Oct. 2023, keynote
- G. Centi, From e-fuels to solar fuels to address the challenge of a carbon-neutral future, 4th EECAT (The 4th Int. Symp. on Catalytic Science and Techn. in Sustainable Energy and Environment), 15-18th Oct. 2023, Beijing, China, plenary
- G. Centi, DECADE project: CO₂ to acetyl acetate, Webinar SUN2CHEM "European strategies and perspectives for converting solar energy into fuels", October 24th, 2023, keynote
- G. Centi, Green Hydrogen peroxide, Workshop "Catalysis: yesterday, today and tomorrow", Venice, 8th Nov. 2023, invited
- G. Centi, The role of (photo)electrocatalytic devices for a solar-based and circular-carbon economy, IC-MES2023 ALGERIA, 12-14 November 2023, plenary

2022

- G. Centi, Outlook for CO₂-Reduction and Future Scenarios on a European Level, Wilhelm e Else Heraeus 758 Seminar (From Wind and Solar Energy to Chemical Energy Storage: Understanding and Engineering Catalysis under Dynamic Conditions), 10th-13rd Jan. 2022, online, plenary
- G. Centi, Chemistry and catalysis technologies for sustainable development and renewable energy, On-line School of SSCC (national Doctorate on Sustainability and Climate Changes), January 20 2022
- G. Centi, La CO₂ come risorsa, Convegno della Regione Lombardia "Il futuro ispirato alla natura: strategie, materiali, processi e orizzonte della transizione sostenibile", 18 Marzo 2022, Milano, plenary
- G. Centi, Distributed Chemicals And fuels production from CO₂ in photoelectrocatalytic Devices, CEN/TC 386 "Photocatalysis" plenary meeting 21-22 March 2022, online, keynote
- G. Centi, Electrodes synthesis and properties, eCCU3 March 30 2022, online, invited.
- G. Centi Solar to chemical energy storage: a crucial technology for islands, SOLAR2CHEM X SEAFUEL Symposium, March 30 - April 1 2022, Tenerife, Canary Island (Spain), plenary
- G. Centi, Opportunities for catalytic technologies in an evolving scenario, CASALE Co., Lugano, April 8 2022, invited.
- G. Centi, Expanding the concepts to address the challenge of solar fuels and electrification of the chemical production, Symp. on Materials for emerging energy technologies, IMDEA Energy Institute, May 19th-20th, 2022, plenary
- G. Centi, From thermal to reactive catalysis to move beyond fossil fuels, 19th Nordic Symposium on Catalysis, Espoo (Finland), 6-8th June 2022, plenary
- G. Centi, e-Refineries for solar conversion into chemicals: challenges and opportunities, SUNER-C Roadmap meeting Shaping the future: renewable fuels & chemicals from solar energy, Bruxelles, 14-15 June 2022, keynote
- G. Centi, Catalysis for the net zero emission challenge, 12th International Conference on Environmental Catalysis (ICEC2022), July 30-August 2, 2022, Osaka, Japan, keynote
- G. Centi, Expanding the concepts to address the challenge of solar fuels and electrification of the chemical production, Expanding the concepts to address the challenge of solar fuels and electrification of the chemical production, August 9 2022 (online), plenary
- G. Centi, Plasma-catalysis to address CO₂ utilisation challenge in energy-intensive industries, International Symposium on Plasma Catalysis For CO₂ Recycling, 13th-15th September 2022, Krakow, Poland, plenary
- G. Centi, Plasmonic catalysts at room temperature, 2nd Int Conf. on Unconventional Catal., Reactors and Appl. Sept. 21-23th, 2022 Leamington Spa, U.K., keynote.

2021

- G. Centi, Close the carbon cycle through substitution of fossil fuels, STOA (European Parliament) workshop "Decarbonising European Industry: Hydrogen and Other Solutions", March 1, 2021, online, invited
- G. Centi, Opportunities and needs for catalysis to close the carbon cycle and go beyond the use of fossil fuels, RIPP, SINOPEC (Beijing, PR China) March 3, 2021, Online, plenary
- G. Centi, How a strong EU community accelerates electrocatalyst research, Electrocatalysis Summit, April 14, 2021, online, keynote
- G. Centi, Photoelectrocatalysis for the conversion of CO₂ avoiding water oxidation, SUNCOCHEM Webinar, April 28, 2021, online, keynote
- G. Centi, The vision of future sustainable energy & production: opportunities for innovation & business, MSc in Business Administration Univ. Rome "Tor Vergata", May 12, 2021, online, plenary
- G. Centi, Advanced Photoelectrocatalytic Devices for Coupling Bio- and Solar-Refinery, EU Green Week, 4th June 2021, online, keynote
- G. Centi, Bio-based feedstocks to chemical building blocks: design and technical feasibility, Organic electrochemistry: towards a sustainable chemical industry in 2030, June 10, 2021, online, keynote

- G. Centi, Ripensare la produzione chimica per affrontare la sfida dei cambiamenti climatici e della sostenibilità, AIDIC - giornata sulla transizione energetica e ambientale, 23 giugno 2021, keynote
- G. Centi, La filiera dell'idrogeno, Stati Generali Idrogeno, Catania 15 Luglio 2021
- G. Centi, Electrocatalysis: role and prospects to defossilize chemical and energy, plenary production, 1st Malaysia inter-conference on nanotechnology & catalysis MICNC2021 – September 1 2021, online
- G. Centi, Rethinking e-catalysis to address defossilization of chemical and energy production, Young Researchers CIS 202, September 8 2021, online, plenary
- G. Centi, Electrocatalysis: role and prospects to defossilize chemical and energy production, Fundacion Ramon Areces, October 5, 2021, online, plenary
- G. Centi, Electrocatalytic direct nitrogen fixation: perspectives and gaps, Solvay Workshop on "Plasma Technology and Other Green Methods for Nitrogen Fixation", (Brussels, November 15-17, 2021), keynote
- G. Centi, Electrocatalysis: role and prospects to defossilize chemical and energy production, XVth International Symposium on Environment, Catalysis and Process Eng. ECGP'15, 23 - 25 November 2021, online, plenary
- G. Centi, Rethinking e-catalysis to address defossilization of chemical and energy production, Casale-Symposium «Catalysis for the Industrial Renaissance and New Sustainable Processes» November 16, 2021 - online, plenary
- G. Centi, Moderator of Public Session: European Hydrogen Research and Innovation Priorities, Session 2 (Renewable Hydrogen Production, Distribution and Storage), November 30 2021 (Brussels, Belgium).

Awards and recognitions

- | | |
|---------|--|
| 2009 | Soc. Chim. de France French-Italian. Award for outstanding works in industrial chemistry. and sustainable processes |
| 2010 | UOP 2010 Lectureship |
| 2010 | Finalist of the European Sustainable Chemistry Award 2010 (EuCheMS) |
| 2013 | MPG 2013 Award "Frontiers in Chemical Energy Science" (Mühlheim an der Ruhr, Germany) |
| 2014 | LEE HSUN Lecture Series 2014 Award, Inst. by Metal Res., Chinese Acad. Science, Shenyang (China) |
| 2015 | Catalysis Forum Lectureship (State Key Lab. Of Catalysis, Dalian - China) |
| 2015 | Kekule Lecture (Univ. Antwerpen) |
| 2015 | Fellowship award of the European Chemical Societies - ChemPubSoc Europe (F CPSE) |
| 2016 | Speaker at C5MPT Summit, Univ. Of Alberta (Edmonton, Canada) |
| 2016 | Chini Memorial Lecture (Italian Chemical Society) |
| 2017 | Gold Medal S. Cannizzaro of the Italian Chemical Society. |
| 2021 | Recipient of the International Fellowship Initiative of the President of the Chinese Academy of Sciences (PIFI) as Distinguished Scientist |
| 2021 | Recipient of the Humboldt Research Award |
| 2022 | Among the 34 worldwide scientists invited by CEFIC (Eur. Fed. Chem. Industries) to celebrate the 50th Years of the Society. |
| 2023 | Italian Knowledge Leader award for science |
| 2023-24 | World's Top 2% Scientists ranking (Stanford University). In the top 5.000 researchers' rankings to last year (2023) and in the first 10.000 for the career, the first among those of the University of Messina |
| 2025 | ERC PoC grant on solar H2 |
| 2025 | EFCATS & APCATS Michel Che Award, for the groundbreaking work in CO ₂ conversion, electrocatalysis, and solar fuels |
| 2026 | Honorary Fellow of the Chinese Chemical Society (CCS) |

Visiting professor

- | | |
|---------|--|
| 2001 | Università di Oulu (Finlandia) |
| 2003 | Université Louis Pasteur, Strasburgo (Francia) |
| 2005 | EPFL (Losanna, Svizzera) |
| 2016 | Univ. dell'Alberta (Edmonton, Canada), Relator to the Summit C5MPT |
| 2016 | Visiting professor (3 mesi) at Technische Univ. Munchen (Germany) |
| 2015-17 | Academic Icon (Univ. Malesia, Kuala Lumpur, Malesia) |
| 2021-22 | Visiting professor to CatLab Helmholtz-Zentrum Berlin (Germany) |

Chairperson in conferences and international workshops (selection)

- | | |
|------|--|
| 1995 | 1st World Conf. on Env. Catalysis (Pisa, May 1995), |
| 1999 | 6th Eur. Workshop on Selective Oxidation (Rimini, Sept. 1999) |
| 2000 | NATO Adv. Res. Workshop on "Catalysis by unique metal ion structures in solid matrices" (Prague, July 2000), |
| 2001 | 3rd Eur. Workshop on Environmental Catalysis (Maiori, May 2001), |
| 2006 | IDECAT-NRSC Conf. on Catalysis for Renewables (Rolduc, May 2006), |

- 2007 Symp. Catalysis for Pollution Control and ISO2007 at Europacat VIII (Turku, Aug. 2007),
 2010 IDECAT Conf. on Catalysis - Emerging challenges in catalysis (Porquerolles, May 2010),
 2010 Innovation in catalysis for sustainable production & energy (Messina, Sept. 2010),
 2010 Int. Zeolite and Mesoporous Materials conference (IZC16/IMMS7: Sorrento July 2010)
 2011 X European Workshop on Selective Oxidation (ISO 2011; Glasgow, Sept. 2011),
 2011 5th IDECAT/ERIC-JCAT Conference on Catalysis (Bertinoro, Sept. 2011)
 2014 CIMTEC 2014 - Symposium Advances in Photocatalytic Materials for Energy and Environmental Sustainability, Montecatini 8-13, 2014
 2015 CRS-3 Catalysis for Renewable Sources: Fuel, Energy, Chemicals (Catania, 6-11 Sept. 2015)
 2016 CIMTEC 2016, Symposium "New Concepts and Advances in Photocatalytic Materials for Energy and Environmental Applications, Perugia (Italy), June 5-9, 2016
 2017 Europacat 2017 (Florence, Italy), August 27-31, 2017
 2019 CIS2019 Chemistry meets Industry and Society, Salerno (Italy), 28-30 August 2019
 2020 CIMTEC 2020, Symposium "New Concepts and Advances in Photocatalytic Materials for Energy and Environmental Applications, Perugia (Italy), June 15-19, 2020 (suspended due to Covid-19)
 2022 CIMTEC 2022, 9th Forum on New Materials, Symposium "Advanced Photocatalytic Materials for Energy and Chemistry in Transition and for the Environment", Perugia (Italy), June 27-29th, 2022
 2025 13th ICEC International Conference on Environmental catalysis, Giardini Naxos/Taormina, 2-5 June 2025
 2026 CIMTEC 2026 & 10th Forum on New Materials, Symposium FJ - Advanced Photo/Electro Catalytic Materials for a Low-Carbon and Resilient Transition, June 21-25, 2026, Perugia, Italy
 Member of the Scientific Advisory Board of numerous international conferences (on average > 3-5 per year in the last years)

Reviewing activities

Selection

- 2015-today Editor-in-chief Journal of Energy Chemistry (Elsevier)
 2003-today Editor in chief of the Studies in Surface Science and Catalysis series of books published by Elsevier Science (Amsterdam) (179 Vol. Published in the series)
 2013-today Editor of 7 peer-reviewed books, and 8 species issues of journals
 2007-2019 Chairman of the editorial board of Wiley-VCH magazine ChemSusChem (Chemistry & Sustainability, Energy & Materials)
 2011-2018 Editor of the series of books Green Energy published by De Gruyter (Berlin)
 2012-2016 Member of the Advisory Board of Wiley Energy Technology journal,
 2012-today Member of the Advisory Editors Board or the Scientific Committee of various journals (Journal of CO₂ Utilization, Chinese Journal of Catalysis, Batteries & Supercaps, Journal of the Chinese Chemical Society, Journal of Catalysis, ChemCatChem, Applied Catalysis etc.)

Books (last ten years)

G. Centi, R.A. van Santen	<i>Catalysis for Renewables</i>	Wiley VCH Pub.: Weinheim (Germany) 2007, pp. 448.	ISBN: 978-3-527-31788-2
F. Cavani, G. Centi, S. Perathoner, F. Trifirò	<i>Sustainable Industrial Chemistry - Principles, Tools and Industrial Examples</i>	Wiley VCH (Weinheim, Germany), 2009, pp. 621	ISBN: 978-3-527-31552-9
G. Rios, N. Kanellopoulos, G. Centi	<i>Nanoporous Materials for Energy and the Environment</i>	Pan Stanford Pub Pte (Singapore), 2012, pp. 305	ISBN: 978-9-814-26717-5
M. De Falco, G. Iaquaniello, G. Centi	<i>CO₂: A Valuable Source of Carbon</i>	Springer (Heidelberg, Germany), Series: Green Energy and Techn.2013, XVI, pp. 194	ISBN 978-1-4471-5119-7
G. Centi, S. Perathoner	<i>Green Carbon Dioxide: Advances in CO₂ Utilisation</i>	Wiley & Sons, New York (U.S.), 2014, pp 322	ISBN: 978-1-118-59088-1
A. Basile, M. De Falco, G. Centi, G. Iaquaniello	<i>Membrane Reactor Engineering: Applications for a Green Process Industry</i>	Wiley & Sons, New York (U.S.), 2016, pp 350	ISBN: 978-1118-90680-4
A. Basile, G. Centi, M. De Falco, G. Iaquaniello	<i>Green Chemistry and Sustainable Energy. New Technologies for Novel Business Opportunities</i>	Elsevier, Amsterdam (NL) 2020, pp. 576	ISBN:978-0-444-64337-7
V.I. Parvulescu, B.M. Weckhuysen,	<i>Unlocking the Future of Renewable Energy and</i>	Elsevier, Amsterdam (NL) 2025, in press	ISBN: 978-0443333316

<i>G. Centi, S. Perathoner</i>	<i>Chemistry through Catalysis</i>		
<i>F Cavani, G Centi M Di Serio. I. Rossetti, A. Salvini G. Strukul</i>	<i>Fondamenti di chimica industriale Materie prime - Prodotti - Processi - Sostenibilità</i>	<i>Zanichelli, 2022.</i>	<i>ISBN 9788808320193</i>
<i>F Cavani, G Centi M Di Serio. I. Rossetti, A. Salvini G. Strukul</i>	<i>Industrial Chemistry Fundamentals Raw Materials, Chemicals, Chemical Processes, Chemical Industry</i>	<i>De Gruyter (in press), 2026.</i>	<i>ISBN: 9783111636962</i>
<i>Volker Hessel Annemie Bogaerts Gabriele Centi Evgeny Rebrov Nguyen Van Duc Long</i>	<i>Plasma-Assisted Nitrogen Fixation for Sustainable Process Industries</i>	<i>Wiley, (J. Wiley & Sons, US), 2026.</i>	<i>ISBN: 978-1-394-28301</i>

RESEARCH ACTIVITY

Main sector: Heterogeneous catalysis and catalytic technologies, chemical processes with low environmental impact, development of nanomaterials for applications in the field of treatment and control of gaseous and liquid emissions, catalysis for sustainable processes and energy, development of electrocatalysts for fuel cells and electrochemical devices, nanostructured photocatalysts for water splitting, membranes for the separation of H₂, chemical energy storage (NH₃, formic acid), green H₂

Other fields: cleanup technologies (gas and liquid emissions), environmental catalysis, industrial catalytic processes, solid catalysts (mixed oxides and zeolites, in particular containing transition metals, mesoporous materials, nanostructured oxides and carbon), reduction of greenhouse gases, use of solar energy, fuel cells and electrocatalytic (photo) devices

Systems based on nanotubes and nanostructures. Based on metal nanoclusters deposited on organised 1D-type carbon or metal oxide nanostructures for applications ranging from electrodes in PEM and PEC devices to photoactive thin films, sensors, advanced microreactors and catalysts for new energy and chemical processes.

Materials for solar fuels and renewable energy. Synthesis, characterisation and testing for applications ranging from advanced coatings and photoactive materials to novel catalysts and devices in sustainable chemical and energy processes (biomass conversion, renewable H₂, solar fuel from CO₂).

Catalytic membranes. Based on thin films supported by Pd alloy for applications from environmental protection (reduction of nitrates in water) to chemical synthesis (direct H₂O₂ synthesis) and energy. The recent focus is on new processes based on highly energy-efficient membranes for producing H₂ by steam reforming CH₄ and syngas by partial catalytic oxidation.

Chemo-catalytic processes for lignocellulosic biorefineries. Development of new catalysts for the conversion of lignocellulosic biomass (in particular waste materials) into new platform molecules (furfural) and catalytic upgrading of the latter to biofuels (petrol and diesel) or chemical products.

<http://catalysis.unime.it>

Gabriele Centi

PUBLICATIONS LAST 5 YEARS

2026

- (1) H Kang, X Zhai, S Perathoner, G Centi, Y Liu, Tailoring the surface properties of catalytic nanomaterials for energy by atmosphere-induced modulation, *Journal of Energy Chemistry* 2026, in press, DOI: 10.1016/j.jechem.2026.04.095
- (2) W Zhao, Z Wang, S Perathoner, G Centi, S Meng, S Zhang, Y Ma, H Wei, S Chen, S-vacancy modulated CuS/ZnIn₂S₄ heterojunction for enhanced photothermal CO₂ and water conversion to ethanol, *Chemical Engineering Journal*, 2026, in press. DOI: 10.1016/j.cej.2026.177179
- (3) CA Dos Santos, M Miceli, LPC Romao, MVB Zanoni, S Perathoner, G Centi, C Ampelli, Discovery of the role of GDL porosity in direct N₂ fixation to NH₃ using enhanced MnFe₂O₄/graphene-based photoelectrocatalytic devices, *Electrochimica Acta* 2026, 556, 148423. DOI: 10.1016/j.electacta.2026.148423
- (4) F Tavella, MF Torre, F Rabino, B Masciocchi, E Palo, G Iaquaniello, S Perathoner, G Centi, C Ampelli, Electrochemical CO₂ reduction at scale: Current status, technological readiness and industrial perspective, *Chemical Engineering Journal*, 2026, in press. DOI: 10.1016/j.cej.2026.176357
- (5) V Longo, S Perathoner, G Centi, C Genovese, Effect of in-situ plasma surface treatments on the activity and regeneration of Pd/TiO₂ for the photocatalytic non-oxidative coupling of methane, *Chemical Physics Letters*, 2026, 891, 142775. DOI: 10.1016/j.cplett.2026.142775
- (6) L Isidoro, G Santoriello, G Tuci, A Rossin, BD Belviso, R Caliendo, G Giambastiani, I Ritacco, M Farnesi Camellone, L Caporaso, C Ampelli, D Giusi, G Centi, S Perathoner, Decoding CO₂RR selectivity and activity features on a series of well-defined iron single-atom catalysts, *Journal of Energy Chemistry* 2026, 117, 915-926. DOI: 10.1016/j.jechem.2026.03.012
- (7) MF Torre, L Veerapuram, F Tavella, C Genovese, S Perathoner, F Torrigino, P Biasi, G Centi, C Ampelli, Engineering Plasma–Liquid Microdischarge Systems for Direct N₂-to-NH₃ Conversion at Ambient Conditions, *ACS Sustainable Chemistry & Engineering* 2026, 14 (12), 6062-6074. DOI: 10.1021/acssuschemeng.5c13108
- (8) H Kang, R Cao, Y Zhang, X Wang, L Li, W Chu, R Zhang, S Perathoner, G Centi, Y Liu, Reaction-induced modification of Co nanoclusters driven by Co–Mn interfacial sites to control selectivity in CO₂ hydrogenation, *Nature Communications* 2026, 17, 3604. DOI: 10.1038/s41467-026-70328-z
- (9) G Palma, UP Laverdura, N Lisi, F Gallucci, G Centi, A predictive steady-state plasma–reactor model for CO₂ splitting: Connecting kinetic, thermal, and electrical transport in dielectric barrier discharges, *Chemical Engineering Journal*, 2026, 532, 174470. DOI: 10.1016/j.cej.2026.174470
- (10) P Demoro, N Pourali, FP Abramo, C Vantomme, E Rebrov, G Centi, S Perathoner, S Verbruggen, A Bogaerts, S Abate, The Role of Plasma-Emitted Photons in Plasma-Catalytic CO₂ Splitting over TiO₂ Nanotube-Based Electrodes, *Catalysts* 2026, 16 (2), 137. DOI: 10.3390/catal16020137
- (11) S Perathoner, C Li, J Wang, R Li, W Wang, G Centi, V Romano, A Multifaceted Vision of Challenges and Opportunities in Practical Artificial Photosynthesis Devices, *Artificial Photosynthesis* 2026, 2, 67–76. DOI: 10.1021/aps.5c00034
- (12) H Yamashita, G Centi, Preface: The 13th International Conference on Environmental Catalysis (ICEC2025), Isola delle Femmine, Sicily, Italy during 2-5 June, 2025, *Applied Catalysis B: Environment and Energy*, 2026, 387, 126490. DOI: 10.1016/j.apcatb.2026.126490
- (13) IU Din, A I. Alharthi, M A. Alotaibi, MA Bakht, G Centi, T Saeed, A Naeem, H Soon Min, Deciphering the Promoter Aspects of Potassium for Green Methanol Fuel Synthesis by Catalytic CO₂ Conversion, *Catalysts* 2026, 16 (1), 75. DOI: 10.3390/catal16010075

2025

- (14) Suliman, M. H.; Usman, M.; Al Najj, H.; Abdinejad, M.; Ullah, N.; Helal, A.; Abdelnaby, M. M.; Díaz-Sainz, G.; Centi, G. CO₂ electroreduction to C₂ products on bimetallic silver copper melamine complexes. *Carbon Capture Science & Technology* **2025**, 14, 100355.
- (15) Li, S.; Liu, X.; Ma, J.; Xu, F.; Lyu, Y.; Perathoner, S.; Centi, G.; Liu, Y. Develop High-Performance Cu-Based RWGS Catalysts by Controlling Oxide–Oxide Interface. *ACS Catalysis* **2025**, 15, 3475-3486.
- (16) Centi, G.; Perathoner, S. Electrocatalysis: Prospects and Role to Enable an E-Chemistry Future. *The Chemical Record* **2025**, e202400259.
- (17) Centi, G.; Perathoner, S. Addressing the Complexity of Bridging Thermal and Reactive Catalysis. The Role of Strong Localised Electrical Fields. *Topics in Catalysis* **2025**, DOI: 10.1007/s11244-025-02062-7.
- (18) Bogaerts, A.; Centi, G.; Hessel, V.; Rebrov, E. Perspectives and Emerging Trends in Plasma Catalysis: Facing the Challenge of Chemical Production Electrification. *ChemCatChem* **2025**, 17, e202401938.

- (19) AM Ronsisvalle, D Giusi, M Samperi, C Genovese, S Perathoner, G Centi, C Ampelli, Does the presence of only specific active sites control the switch of selectivity from C1 to C2+ products in CO₂RR? *J. CO₂ Utilization* **2025**, *100*, 103188
- (20) D Chillè, G Papanikolaou, P Squillaci, S Abate, C Cannilla, P Lanzafame, S Perathoner, G Centi, Metal-free (B, N, P)-doped ordered mesoporous carbons for enhanced electrocatalytic oxidation of phenol, *Applied Catalysis O: Open*, **2025**, 207067, DOI: 10.1016/j.apcato.2025.207067
- (21) M Miceli, F Tavella, D Giusi, ME Tefera, MF Torre, S Perathoner, G Centi, C Ampelli, Activation of Dinitrogen Molecule (N₂) in Unconventional Electrochemical Reactors for Ammonia Production, *Chem. Eng. Trans.* **2025**, *117*, 733-738
- (22) S Li, J Ma, N Wang, X Liu, W Cui, Y Lyu, S Perathoner, G Centi, Y Liu, Engineering dual-active sites on CeO_x-modified defective MgO for efficient CO₂ thermocatalytic reduction, *J Energy Chemistry* **2025**, *110*, 486-496
- (23) V Longo, S Perathoner, G Centi, C Genovese, Mitigation of C-deposits in plasma-assisted non-oxidative methane coupling using a water-cooled double dielectric barrier discharge reactor, *Chem. Eng. J.* **2025**, 164334
- (24) M Usman, MH Suliman, M Abdinejad, J Kok, H Al Najji, A Helal, ZH Yamani, G Centi, Highly efficient CO₂ electroreduction to formate using Bismuth nanodots within ZIF-8 scaffold, *Carbon Capture Science & Techn* **2025**, *16*, 100450
- (25) X Ren, J Huang, J Ma, Y Zhang, W Chu, S Perathoner, G Centi, Y Liu, Boosting the activity in the liquid-phase hydrogenation of S-containing nitroarenes by dual-site Pt/CeO₂ catalysts design, *Nature Comm* **2025**, *16*, 4851
- (26) FP Abramo, G Giorgianni, S Perathoner, G Centi, F Gallucci, S Abate, Unlocking the impact of electrode porosity on CO₂ splitting efficiency in porous DBD plasma reactors, *Chem Eng J* **2025**, *512*, 162608
- (27) J Ma, B Xu, S Cao, S Li, W Chu, S Perathoner, G Centi, Y Liu, Structural dynamics of Ni/Mo₂CT_x MXene catalysts under reaction modulate CO₂ reduction performance, *Chin J Catal* **2025**, *72*, 243-253
- (28) A Bogaerts, G Centi, JC Hicks, Introduction to understanding and new approaches to create synergy between catalysis and plasma themed collection, *EES Catal* **2025**, *3*, 592-594
- (29) V Longo, L De Pasquale, S Perathoner, G Centi, C Genovese, Synergistic effects of light and plasma catalysis on Au-modified TiO₂ nanotube arrays for enhanced non-oxidative coupling of methane, *Catalysis Science & Techn* **2025**, *15*, 3725-3735
- (30) P Kaur, J Wang, X Li, R Karinen, G Papanikolaou, P Lanzafame, G Centi, Y Li, Valorization of Lignin and Its Derived Molecules by Electrocatalytic Oxidation, *ACS Sustainable Chem. & Eng.* **2025**, *13* (39), 16214-16231
- (31) P Squillaci, G Papanikolaou, S Perathoner, G Centi, M Melloni, A Ferrando, P Lanzafame, CO₂ Electroreduction to Ethylene: The Determining Role of the Cell and Electrode Design, *Energy & Fuels* **2025**, *39* (37), 17899-17912

2024

- (32) Wang, J.; Li, Y.; Hummel, C.; Huang, G.; Ji, X.; Demiröz, E.; Urakawa, A.; Huang, S.; Zhao, R.; Lercher, J. Electrocatalytic Production of a Liquid Organic Hydrogen Carrier with Anodic Valorization of the Process: Review and Outlook. *Energy & Fuels* **2024**, *39* (1), 132-165.
- (33) Verduci, R.; Creazzo, F.; Tavella, F.; Abate, S.; Ampelli, C.; Lubber, S.; Perathoner, S.; Cassone, G.; Centi, G.; D'Angelo, G. Water structure in the first layers on TiO₂: a key factor for boosting solar-driven water-splitting performances. *Journal of the American Chemical Society* **2024**, *146* (26), 18061-18073.
- (34) Tuci, G.; Rossin, A.; Saki, Z.; Caporaso, L.; Liu, Y.; Centi, G.; Giambastiani, G. The Still Elusive Role of Lightweight Doping in Carbon-Based Electrocatalysts for the Selective Oxygen Reduction Reaction to Hydrogen Peroxide. *ChemSusChem* **2024**, *17* (22), e202400660.
- (35) Serrano, D. P.; Centi, G.; Diddams, P. A.; Čejka, J. Outlooks for zeolite catalysts in a low-carbon scenario. *Catalysis Today* **2024**, *426*, 114365.
- (36) Papanikolaou, G.; Centi, G.; Perathoner, S.; Lanzafame, P. Green synthesis and sustainable processing routes. *Current Opinion in Green and Sustainable Chemistry* **2024**, 100918.
- (37) Maccarrone, D.; Giorgianni, G.; Italiano, C.; Perathoner, S.; Centi, G.; Abate, S. Comparative analysis of hydrogen production from ammonia decomposition in membrane and packed bed reactors using diluted NH₃ streams. *International Journal of Hydrogen Energy* **2024**, *82*, 513-522.
- (38) Ma, J.; Jiang, Q.; Li, S.; Chu, W.; Qian, H.; Perathoner, S.; Centi, G.; Liu, Y. High-dispersed CeO_x species on mesopores silica to accelerate Ni-catalysed CO₂ methanation at low temperatures. *Chemical Engineering Journal* **2024**, *479*, 147453.
- (39) Longo, V.; De Pasquale, L.; Tavella, F.; Barawi, M.; Gomez-Mendoza, M.; de la Peña O'Shea, V.; Ampelli, C.; Perathoner, S.; Centi, G.; Genovese, C. High photocatalytic yield in the non-oxidative coupling of methane using a Pd-TiO₂ nanomembrane gas flow-through reactor. *EES catalysis* **2024**, *2* (5), 1164-1175.
- (40) Longo, V.; Centi, G.; Perathoner, S.; Genovese, C. CO₂ utilisation with plasma technologies. *Current Opinion in Green and Sustainable Chemistry* **2024**, *46*, 100893.

- (41) Kang, H.; Ma, L.; Li, S.; Chen, X.; Chu, W.; Zhang, R.; Perathoner, S.; Centi, G.; Liu, Y. Oxygen vacancy-dependent chemical intermediates on Ru/MnO catalysts dictate the selectivity of CO₂ reduction. *Applied Catalysis B: Environment and Energy* **2024**, *352*, 124010.
- (42) Giorgianni, G.; Van Putten, R.-J.; Van Der Waal, J. C.; Perathoner, S.; Centi, G.; Abate, S. The Conversion of 5-chloromethylfurfural Into 5-methoxymethylfurfural via Nucleophilic Substitution: Kinetic Modelling. *Chemical Engineering Transactions* **2024**, *109*, 265-270.
- (43) Centi, G.; Perathoner, S. Reduction of Non-CO₂ Greenhouse Gas Emissions by Catalytic Processes. In *Handbook of Climate Change Mitigation and Adaptation*, Springer, **2024**; pp 1-43.
- (44) Centi, G.; Perathoner, S. CO₂ Electrocatalytic Conversion: Outlooks, Pitfalls and Scientific Gaps. In *Advances in CO₂ Utilization: From Fundamentals to Applications*, Springer Nature Singapore Singapore, **2024**; pp 133-155.
- (45) Centi, G.; Perathoner, S. Rethinking chemical production with “green” hydrogen. *Pure and Applied Chemistry* **2024**, *96* (4), 471-477.
- (46) Centi, G.; Perathoner, S. Making chemicals from the air: the new frontier for hybrid electrosyntheses in artificial tree-like devices. *Green Chemistry* **2024**, *26* (1), 15-41.
- (47) Centi, G.; Liu, Y.; Perathoner, S. Catalysis for Carbon-Circularity: Emerging Concepts and Role of Inorganic Chemistry. *ChemSusChem* **2024**, *17* (21), e202400843.
- (48) Centi, G.; Ampelli, C. CO₂ conversion to solar fuels and chemicals: Opening the new paths. *Journal of Energy Chemistry* **2024**, *91*, 680-683.
- (49) Abramo, F. P.; De Luca, F.; Chiodoni, A.; Centi, G.; Giorgianni, G.; Italiano, C.; Perathoner, S.; Abate, S. Nanostructure-performance relationships in titania-only electrodes for the selective electrocatalytic hydrogenation of oxalic acid. *Journal of Catalysis* **2024**, *429*, 115277.

2023

- (50) Tavella, F.; Genovese, C.; Pineda, F. A. G.; Centi, G.; Perathoner, S.; Ampelli, C. Tantalum oxynitride nanotube film arrays for unconventional nanostructured photo-electrodes active with visible light. *Catalysis Today* **2023**, *418*, 114146.
- (51) Passalacqua, R.; Abate, S.; De Luca, F.; Perathoner, S.; Centi, G. Graphitic Layered Structures Enhancing TiNT Catalyst Photo-Electrochemical Behaviour. *Coatings* **2023**, *13* (2), 358.
- (52) Papanikolaou, G.; Chillè, D.; Perathoner, S.; Centi, G.; Migliori, M.; Giordano, G.; Lanzafame, P. Use of zeolites in green chemicals and bio-fuel production via HMF valorisation. *Microporous and Mesoporous Materials* **2023**, *418*, 114146.
- (53) Mebrahtu, C.; Krebs, F.; Giorgianni, G.; Abate, S.; Perathoner, S.; Centi, G.; Large, A. I.; Held, G.; Arrigo, R.; Palkovits, R. Insights by in-situ studies on the nature of highly-active hydrothermalite-based Ni-Fe catalysts for CO₂ methanation. *Chemical Engineering Research and Design* **2023**, *193*, 320-339.
- (54) Marino, A.; Catizzone, E.; Migliori, M.; Ferrarelli, G.; Aloise, A.; Chillè, D.; Papanikolaou, G.; Lanzafame, P.; Perathoner, S.; Centi, G. Hydrothermal synthesis and catalytic assessment of high-silica (B, Fe)-beta zeolites. *Crystal Growth & Design* **2023**, *23* (4), 2988-3001.
- (55) Kang, H.; Zhu, L.; Li, S.; Yu, S.; Niu, Y.; Zhang, B.; Chu, W.; Liu, X.; Perathoner, S.; Centi, G. Generation of oxide surface patches promoting H-spillover in Ru/(TiO_x) MnO catalysts enables CO₂ reduction to CO. *Nature Catalysis* **2023**, *6* (11), 1062-1072.
- (56) Kang, H.; Ma, J.; Perathoner, S.; Chu, W.; Centi, G.; Liu, Y. Understanding the complexity in bridging thermal and electrocatalytic methanation of CO₂. *Chemical Society Reviews* **2023**, *52*, 3627-3662.
- (57) Gu, Q.; Huang, R.; Xu, C.; Li, S.; Perathoner, S.; Centi, G.; Liu, Y. Nanodiamond derived N-doped sp³@sp² hybrid carbocatalysts for the aerobic oxidative synthesis of 2-substituted benzoxazoles. *Chemical Synthesis* **2023**, *3* (3), N/A-N/A.
- (58) Giorgianni, G.; Perathoner, S.; Centi, G.; Soo-Tang, S.-H.; de Jong, E.; van der Waal, J. C.; Abate, S. Exploring the hydrogenation of furfural in the liquid phase by high-throughput screening of commercial catalysts: Effects of temperature, solvents, and promoters on the production of 2-methylfuran. *Chemical Engineering Research and Design* **2023**, *197*, 968-983.
- (59) Gianolio, D.; Higham, M.D.; Quesne, M.G.; Aramini, M.; Xu, R.; Large, A. I.; Held, G.; Velasco-Vélez, J.-J.; Haevecker, M.; Knop-Gericke, A.; Genovese, C.; Ampelli, C.; Schuster, M. E. Interfacial Chemistry in the Electrocatalytic Hydrogenation of CO₂ over C-Supported Cu-Based Systems. *ACS Catalysis* **2023**, *13* (9), 5876-5895.
- (60) Fasolini, A.; Mafessanti, R.; Abate, S.; Gramazio, P.; De Maron, J.; Centi, G.; Basile, F. Integration of catalytic methane oxy-reforming and water gas shift membrane reactor for intensified pure hydrogen production and methanation suppression over Ce_{0.5}Zr_{0.5}O₂ based catalysts. *Catalysis Today* **2023**, *418*, 114047.
- (61) Din, I. U.; Alotaibi, M. A.; Alharthi, A. I.; Naeem, A.; Centi, G. Synthesis, characterization and activity of CeO₂ supported Cu-Mg bimetallic catalysts for CO₂ to methanol. *Chemical Engineering Research and Design* **2023**, *192*, 158-166.

- (62) De Pasquale, L.; Tavella, F.; Longo, V.; Favaro, M.; Perathoner, S.; Centi, G.; Ampelli, C.; Genovese, C. The role of substrate surface geometry in the photo-electrochemical behaviour of supported TiO₂ nanotube arrays: a study using electrochemical impedance spectroscopy (EIS). *Molecules* **2023**, *28* (8), 3378.
- (63) Centi, G.; Perathoner, S.; Genovese, C.; Arrigo, R. Advanced (photo) electrocatalytic approaches to substitute the use of fossil fuels in chemical production. *Chemical Communications* **2023**, *59* (21), 3005-3023.
- (64) Centi, G.; Perathoner, S. The chemical engineering aspects of CO₂ capture, combined with its utilisation. *Current Opinion in Chemical Engineering* **2023**, *39*, 100879.
- (65) Centi, G.; Perathoner, S. Catalysis for an electrified chemical production. *Catalysis Today* **2023**, *423*, 113935.
- (66) Centi, G.; Liu, Y. Editorial overview: Electrochemical synthesis 2022. *Current Opinion in Green and Sustainable Chemistry* **2023**, *39*, 100735.
- (67) Bogaerts, A.; Centi, G.; Hessel, V.; Rebrov, E. Challenges in unconventional catalysis. *Catalysis Today* **2023**, *420*, 114180.
- (68) Appolloni, A.; Centi, G.; Yang, N. Promoting carbon circularity for a sustainable and resilience fashion industry. *Current Opinion in Green and Sustainable Chemistry* **2023**, *39*, 100719.
- (69) Ampelli, C.; Tavella, F.; Giusi, D.; Ronsisvalle, A. M.; Perathoner, S.; Centi, G. Electrode and cell design for CO₂ reduction: A viewpoint. *Catalysis Today* **2023**, *421*, 114217.
- (70) Ampelli, C.; Giusi, D.; Miceli, M.; Merdzhanova, T.; Smirnov, V.; Chime, U.; Astakhov, O.; Martín, A. J.; Veenstra, F. L. P.; Pineda, F. A. G. An artificial leaf device built with earth-abundant materials for combined H₂ production and storage as formate with efficiency > 10%. *Energy & Environmental Science* **2023**, *16* (4), 1644-1661.

2022

- (71) Tabandeh, M.; Cheng, C. K.; Centi, G.; Show, P. L.; Chen, W.-H.; Ling, T. C.; Ong, H. C.; Ng, E.-P.; Juan, J. C.; Lam, S. S. Recent advancement in deoxygenation of fatty acids via homogeneous catalysis for biofuel production. *Molecular Catalysis* **2022**, *523*, 111207.
- (72) Papanikolaou, G.; Chille, D.; Abate, S.; Perathoner, S.; Centi, G.; Giorgianni, G.; Cozza, D.; Dalena, F.; Migliori, M.; Giordano, G. Zeolite templated carbon from Beta replica as metal-free electrocatalyst for CO₂ reduction. *Applied Materials Today* **2022**, *26*, 101383.
- (73) Papanikolaou, G.; Centi, G.; Perathoner, S.; Lanzafame, P. Catalysis for e-chemistry: need and gaps for a future de-fossilized chemical production, with focus on the role of complex (direct) syntheses by electrocatalysis. *ACS catalysis* **2022**, *12* (5), 2861-2876.
- (74) Giusi, D.; Miceli, M.; Genovese, C.; Centi, G.; Perathoner, S.; Ampelli, C. In situ electrochemical characterization of Cu_xO-based gas-diffusion electrodes (GDEs) for CO₂ electrocatalytic reduction in presence and absence of liquid electrolyte and relationship with C₂⁺ products formation. *Applied Catalysis B: Environmental* **2022**, *318*, 121845.
- (75) Giorgianni, G.; Mebrahtu, C.; Perathoner, S.; Centi, G.; Abate, S. Hydrogenation of dimethyl oxalate to ethylene glycol on Cu/SiO₂ catalysts prepared by a deposition-decomposition method: Optimization of the operating conditions and pre-reduction procedure. *Catalysis Today* **2022**, *390*, 343-353.
- (76) Demet, A. E.; Gimello, O.; Arletti, R.; Tanchoux, N.; Sougrati, M. T.; Stievano, L.; Quignard, F.; Centi, G.; Perathoner, S.; Di Renzo, F. 5-Hydroxymethylfurfural oxidation to 2, 5-furandicarboxylic acid on noble metal-free nanocrystalline mixed oxide catalysts. *Catalysts* **2022**, *12* (8), 814.
- (77) Centi, G.; Perathoner, S.; Salladini, A. laquaniello G (2020) Economics of CO₂ Utilization: A Critical Analysis. *Front. Beyond Current Research Trends in CO₂ Utilization* **2022**, *8*, 560849109.
- (78) Centi, G.; Perathoner, S. Turning CO₂ into fuels and chemicals: An introduction. *Chemical Valorisation of Carbon Dioxide*, Edited by Georgios Stefanidis; Andrzej Stankiewicz, **2022**, pp. 1 - 18.
- (79) Centi, G.; Perathoner, S. Status and gaps toward fossil-free sustainable chemical production. *Green Chemistry* **2022**, *24* (19), 7305-7331.
- (80) Centi, G.; Perathoner, S. Catalytic Technologies for the Conversion and Reuse of CO₂. In *Handbook of Climate Change Mitigation and Adaptation*, Springer International Publishing Cham, **2022**; pp 1803-1852.
- (81) Centi, G.; Perathoner, S. Revealing the role of edges in the electrocatalytic synthesis of H₂O₂ over metal-free nanocarbon. *Chem Catalysis* **2022**, *2* (6), 1251-1253.
- (82) Centi, G.; Perathoner, S. Reduction of Non-CO₂ Greenhouse Gas Emissions by Catalytic Processes. In *Handbook of Climate Change Mitigation and Adaptation*, Springer International Publishing Cham, **2022**; pp 1759-1802.
- (83) Centi, G.; Perathoner, S. Photoelectrocatalytic CO₂ Activation Toward Artificial Leaves: Outlooks and Needs of a System Approach. In *Chemical Energy Storage*, De Gruyter, **2022**; pp 499-536.
- (84) Centi, G.; Perathoner, S. Redesign chemical processes to substitute the use of fossil fuels: A viewpoint of the implications on catalysis. *Catalysis Today* **2022**, *387*, 216-223.

- (85) Centi, G. Across the board: Gabriele Centi on decoupling electrocatalytic reactions to electrify chemical production. *ChemSusChem* **2022**, *15* (4), e202200007.
- (86) Centi, G. Controlled location of S vacancies in MoS₂ nanosheets for high-performance hydrogenation of CO₂ to methanol. *Journal of Energy Chemistry* **2022**, *64*, 113-115.
- (87) Borgogna, A.; Centi, G.; Iaquaniello, G.; Perathoner, S.; Papanikolaou, G.; Salladini, A. Assessment of hydrogen production from municipal solid wastes as competitive route to produce low-carbon H₂. *Science of The Total Environment* **2022**, *827*, 154393.
- (88) Abramo, F. P.; De Luca, F.; Passalacqua, R.; Centi, G.; Giorgianni, G.; Perathoner, S.; Abate, S. Electrocatalytic production of glycolic acid via oxalic acid reduction on titania debris supported on a TiO₂ nanotube array. *Journal of Energy Chemistry* **2022**, *68*, 669-678.

2021

- (89) Romano, V.; D'Angelo, G.; Perathoner, S.; Centi, G. Current density in solar fuel technologies. *Energy & Environmental Science* **2021**, *14* (11), 5760-5787.
- (90) Perini, J. A. L.; Tavella, F.; Neto, E. P. F.; Zanoni, M. V. B.; Ribeiro, S. J. L.; Giusi, D.; Centi, G.; Perathoner, S.; Ampelli, C. Role of nanostructure in the behaviour of BiVO₄-TiO₂ nanotube photoanodes for solar water splitting in relation to operational conditions. *Solar Energy Materials and Solar Cells* **2021**, *223*, 110980.
- (91) Perathoner, S.; Van Geem, K. M.; Marin, G. B.; Centi, G. Reuse of CO₂ in energy intensive process industries. *Chemical Communications* **2021**, *57* (84), 10967-10982.
- (92) Passalacqua, R.; Pellicano, L. C.; Abate, S.; Perathoner, S.; Centi, G. NiFe Oxide Catalysts for Electro-Oxidation of Glucose. *Energy* **2021**, *5000*, 6000.
- (93) Passalacqua, R.; Abate, S.; Perathoner, S.; Centi, G. Improved Nanocomposite Photoanodes by Controlled Deposition of gC₃N₄ on Titania Nanotube Ordered Films. *CHEMICAL ENGINEERING* **2021**, *84*, 25-30.
- (94) Papanikolaou, G.; Lanzafame, P.; Perathoner, S.; Centi, G.; Cozza, D.; Giorgianni, G.; Migliori, M.; Giordano, G. High performance of Au/ZTC based catalysts for the selective oxidation of bio-derivative furfural to 2-furoic acid. *Catalysis Communications* **2021**, *149*, 106234.
- (95) Marepally, B.; Ampelli, C.; Genovese, C.; Sayah, R.; Veyre, L.; Dalverny, C.; Thieuleux, C.; Quadrelli, E.; Perathoner, S.; Centi, G. Supported metallic nanoparticles prepared by an organometallic route to boost the electrocatalytic conversion of CO₂. *Journal of CO₂ Utilization* **2021**, *50*, 101613.
- (96) Ma, J.; Jiang, Q.; Zhou, Y.; Chu, W.; Perathoner, S.; Jiang, C.; Wu, K. H.; Centi, G.; Liu, Y. Tuning the chemical properties of Co-Ti₃C₂T_x MXene materials for catalytic CO₂ reduction. *Small* **2021**, *17* (26), 2007509.
- (97) Giusi, D.; Tavella, F.; Miceli, M.; Ampelli, C.; Centi, G.; Cosio, D.; Genovese, C.; Perathoner, S. Synergetic Electrocatalytic Effects of Cu₂O-TiO₂ Heterostructures in a Solar Driven PEC Device for CO₂ Reduction to > C₁ Chemicals. *Chemical Engineering Transactions* **2021**, *86*, 1405-1410.
- (98) Giusi, D.; Ampelli, C.; Genovese, C.; Perathoner, S.; Centi, G. A novel gas flow-through photocatalytic reactor based on copper-functionalized nanomembranes for the photoreduction of CO₂ to C₁-C₂ carboxylic acids and C₁-C₃ alcohols. *Chemical Engineering Journal* **2021**, *408*, 127250.
- (99) Din, I. U.; Usman, M.; Khan, S.; Helal, A.; Alotaibi, M. A.; Alharthi, A. I.; Centi, G. Prospects for a green methanol thermo-catalytic process from CO₂ by using MOFs based materials: A mini-review. *Journal of CO₂ Utilization* **2021**, *43*, 101361.
- (100) De Luca, F.; Passalacqua, R.; Abramo, F. P.; Perathoner, S.; Centi, G.; Abate, S. gC₃N₄ Decorated TiO₂ Nanotube Ordered Thin Films as Cathodic Electrodes for the Selective Reduction of Oxalic Acid. *CHEMICAL ENGINEERING* **2021**, *84*, 37-42.
- (101) Centi, G.; Perathoner, S.; Papanikolaou, G. Plasma assisted CO₂ splitting to carbon and oxygen: A concept review analysis. *Journal of CO₂ Utilization* **2021**, *54*, 101775.
- (102) Centi, G.; Perathoner, S. 1 Applications of hydrogen technologies and their role for a sustainable future. In *Utilization of Hydrogen for Sustainable Energy and Fuels*, Vol. 3; De Gruyter Pub. Berlin, **2021**; pp 137-156.
- (103) Centi, G.; Perathoner, S. Nanocarbon for energy material applications: N₂ reduction reaction. *Small* **2021**, *17* (48), 2007055.
- (104) Arrigo, R.; Blume, R.; Streibel, V.; Genovese, C.; Roldan, A.; Schuster, M. E.; Ampelli, C.; Perathoner, S.; Velasco Vélez, J. J.; Hävecker, M. Dynamics at polarized carbon dioxide-iron oxyhydroxide interfaces unveil the origin of multicarbon product formation. *ACS Catalysis* **2021**, *12* (1), 411-430.
- (105) Alotaibi, M. A.; Din, I. U.; Alharthi, A. I.; Bakht, M. A.; Centi, G.; Shaharun, M. S.; Naeem, A. Green methanol synthesis by catalytic CO₂ hydrogenation, deciphering the role of metal-metal interaction. *Sustainable Chemistry and Pharmacy* **2021**, *21*, 100420.

- (106) Alotaibi, M. A.; Din, I. U.; Alharthi, A. I.; Ahmad, P.; Naeem, A.; ElSayed, I.; Centi, G. Synthesis, characterization, and magnetic behavior of cobalt-ferrite nanoparticles under variant temperature conditions. *Physics of the Solid State* **2021**, *63* (4), 519-524.
- (107) Alharthi, A. I.; Din, I. U.; Alotaibi, M. A.; Centi, G. Application of cobalt ferrite nano-catalysts for methanol synthesis by CO₂ hydrogenation: deciphering the role of metals cations distribution. *Ceramics International* **2021**, *47* (13), 19234-19240.

2020

- (108) Wu, K. H.; Zhang, Q.; Lin, Y.; Ali, M. A.; Zhao, S.; Heumann, S.; Centi, G. Real-Time Carbon Monoxide Detection using a Rotating Gold Ring Electrode: A Feasibility Study. *ChemElectroChem* **2020**, *7* (21), 4417-4422.
- (109) Wei, H.; Ma, Y.; Luo, J.; Wu, K.-H.; Xie, W.; Wen, G.; Chiang, C.-L.; Yan, W.; Perathoner, S.; Centi, G. Creation of NC=O active groups on N-doped CNT as an efficient CarboCatalyst for solvent-free aerobic coupling of benzylamine. *Carbon* **2020**, *170*, 338-346.
- (110) Wei, H.; Jiang, Q.; Ampelli, C.; Chen, S.; Perathoner, S.; Liu, Y.; Centi, G. Cover Feature: Enhancing N₂ Fixation Activity by Converting Ti₃C₂ MXenes Nanosheets to Nanoribbons (ChemSusChem 21/2020). *ChemSusChem* **2020**, *13* (21), 5597-5597.
- (111) Wei, H.; Jiang, Q.; Ampelli, C.; Chen, S.; Perathoner, S.; Liu, Y.; Centi, G. Enhancing N₂ fixation activity by converting Ti₃C₂ MXenes nanosheets to nanoribbons. *ChemSusChem* **2020**, *13* (21), 5614-5619.
- (112) Perathoner, S.; Centi, G. Artificial leaves using sunlight to produce fuels. In *Studies in Surface Science and Catalysis*, Vol. 179; Elsevier, **2020**; pp 415-430.
- (113) Papanikolaou, G.; Lanzafame, P.; Giorgianni, G.; Abate, S.; Perathoner, S.; Centi, G. Highly selective bifunctional Ni zeolite catalysts for hydroprocessing of methyl palmitate to green diesel. *Catalysis Today* **2020**, *345*, 14-21.
- (114) Marepally, B. C.; Ampelli, C.; Genovese, C.; Tavella, F.; Quadrelli, E. A.; Perathoner, S.; Centi, G. Electrocatalytic reduction of CO₂ over dendritic-type Cu-and Fe-based electrodes prepared by electrodeposition. *Journal of CO₂ Utilization* **2020**, *35*, 194-204.
- (115) Mallamace, D.; Papanikolaou, G.; Perathoner, S.; Centi, G.; Lanzafame, P. Comparing molecular mechanisms in solar NH₃ production and relations with CO₂ reduction. *International Journal of Molecular Sciences* **2020**, *22* (1), 139.
- (116) Lanzafame, P.; Papanikolaou, G.; Perathoner, S.; Centi, G.; Giordano, G.; Migliori, M. Weakly acidic zeolites: A review on uses and relationship between nature of the active sites and catalytic behaviour. *Microporous and Mesoporous Materials* **2020**, *300*, 110157.
- (117) Giorgianni, G.; Mebrahtu, C.; Schuster, M. E.; Large, A. I.; Held, G.; Ferrer, P.; Venturini, F.; Grinter, D.; Palkovits, R.; Perathoner, S. Elucidating the mechanism of the CO₂ methanation reaction over Ni-Fe hydrotalcite-derived catalysts via surface-sensitive in situ XPS and NEXAFS. *Physical Chemistry Chemical Physics* **2020**, *22* (34), 18788-18797.
- (118) Choo, M.-Y.; Oi, L. E.; Ling, T. C.; Ng, E.-P.; Lin, Y.-C.; Centi, G.; Juan, J. C. Deoxygenation of triolein to green diesel in the H₂-free condition: Effect of transition metal oxide supported on zeolite Y. *Journal of Analytical and Applied Pyrolysis* **2020**, *147*, 104797.
- (119) Choo, M.-Y.; Oi, L. E.; Daou, T. J.; Ling, T. C.; Lin, Y.-C.; Centi, G.; Ng, E.-P.; Juan, J. C. Deposition of NiO nanoparticles on nanosized zeolite NaY for production of biofuel via hydrogen-free deoxygenation. *Materials* **2020**, *13* (14), 3104.
- (120) Chen, S.; Perathoner, S.; Ampelli, C.; Wei, H.; Abate, S.; Zhang, B.; Centi, G. Direct synthesis of ammonia from N₂ and H₂O on different iron species supported on carbon nanotubes using a gas-phase electrocatalytic flow reactor. *ChemElectroChem* **2020**, *7* (14), 3028-3037.
- (121) Chen, S.; Perathoner, S.; Ampelli, C.; Wei, H.; Abate, S.; Zhang, B.; Centi, G. Enhanced performance in the direct electrocatalytic synthesis of ammonia from N₂ and H₂O by an in-situ electrochemical activation of CNT-supported iron oxide nanoparticles. *Journal of Energy Chemistry* **2020**, *49*, 22-32.
- (122) Centi, G.; Perathoner, S.; Salladini, A.; Iaquaniello, G. Economics of CO₂ Utilization: A Critical Analysis. *Front. Frontiers in Energy Research* **2020**, *8*, 567986.
- (123) Centi, G.; Perathoner, S. Chemistry and energy beyond fossil fuels. A perspective view on the role of syngas from waste sources. *Catalysis Today* **2020**, *342*, 4-12.
- (124) Centi, G. Smart Catalytic Materials for Energy Transition. *Smartmat* **2020**, e1005.
- (125) Centi, G. Catalysis to Go Beyond the Use of Fossil Fuels: A Dream or an Effective Possibility? *The Catalyst Review* **2020**, *10*, 6-15.
- (126) Bogaerts, A.; Tu, X.; Whitehead, J. C.; Centi, G.; Lefferts, L.; Guaitella, O.; Azzolina-Jury, F.; Kim, H.-H.; Murphy, A. B.; Schneider, W. F. The 2020 plasma catalysis roadmap. *Journal of physics D: applied physics* **2020**, *53* (44), 443001.
- (127) Bogaerts, A.; Centi, G. Plasma Technology for CO₂ Conversion: A Personal Perspective on Prospects and Gaps. *Front. Frontiers in Energy Research* **2020**, *8*, 111.

(128) Basile, A.; Centi, G.; De Falco, M.; Iaquaniello, G. The vision of future sustainable energy, catalyst, and chemistry: opportunities for innovation and business. In *Studies in Surface Science and Catalysis*, Vol. 179; Elsevier, **2020**; pp 7-20.