

Curriculum Vitae of Francesco Vizza

Francesco Vizza Director of the Istituto di Chimica dei Composti Organometallici del Consiglio Nazionale delle Ricerche (ICCOM CNR), Florence, Italy.

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Date and place of birth: 07-04-1957 Cirò (KR), Nationality: Italian.

Education: Italian University degree (Laurea) in Biology, December 1982. University of Florence (Italy).

Career/Employment:

1982-1985: Post graduate researcher at the University of Florence, Department of Chemistry.

1986-2010: Technician, Researcher and Senior Researcher at the Istituto di Chimica dei Composti OrganoMetallici (ICCOM)-CNR, Florence, Italy.

2010-present: Research Director at the Istituto di Chimica dei Composti Organometallici (ICCOM)-CNR, Florence, Italy.

2012 and 2019: Qualified as Full Professor in the field of "Fundamentals of Chemical Sciences and Inorganic systems".

2019: Qualified as Full Professor in the field of "Industrial Chemistry".

2017 to present: Director of ICCOM.

Bibliometric data (Scopus 07/01/2021): h-index 51; results found 206; sum of times cited 7475; citing articles: 4863; average citation per item >36.

Publications: Author of 206 peer-reviewed publications in qualified international journals, 35 patents, 2 monographs, 9 chapters in specialized books, >200 presentations at International and National Chemical Meetings.

Current research interests

Fuel Cells (DAFC, PEMFC).

Electroreforming for hydrogen production from renewable resources.

Electrocatalysts for solar fuel production.

Carbon dioxide capture and valorization

Electrocatalysts for the reduction of CO₂ to fuels and chemicals.

Electrocatalysis of nitrogen to ammonia

Electrocatalysis for reduction of O₂ to H₂O₂

Direct electrochemical oxidation reaction of alcohols at medium-high temperature (150-200 °C).

Development of photocatalysts for H₂ evolution.

Catalysts for hydrogen evolution by controlled hydrolysis or thermolysis of metal hydrides.

Recovery of Metals from waste Lithium Batteries.

Organometallic Fuel cells (OMFC) and Organometallic Electroreformers (OMER).

Important recent research projects

- Principal Investigator of the FISR 2019 Alkaline Membranes and Platinum-free catalysts Enabling innovative, open electrochemical devices for Energy storage and conversion (AMPERE)
- Principal Investigator of the PRIN 2017 "Novel Multilayered and Micro-Machined Electrode Nano-Architectures for Electrocatalytic Applications (Fuel Cells and Electrolyzers) (2019-2022).
- Principal Investigator of the "GREEN FIELD P.E.A.S. Tuscany Green Chemistry project (2018-2020).
- Principal Investigator of "BIO2Energy" Tuscany energy project (2016-2018).
- Principal Investigator of the industrial research project "recovery of materials and metals from Lithium Batteries (2015-2017)".
- Principal Investigator of "G.R.E.E.N. impact C.A.P.A.C.I.T.Y." (Tuscany Region Project) (2016-2017).
- Principal Investigator of a research unit of the project EnergyLab (2016-2018) (Ente Cassa di Risparmio di Firenze project).
- Head of the CNR's project PM.P.03001: "Electrocatalysts for fuel cells and electrolyzers and selective conversion of renewable resources" of the Department of Chemical Sciences and Materials Technologies of CNR (2005-2015)
- Principal Investigator of the industrial research project; Energy Production" ICCOM-BELENOS CLEAN POWER HOLDING (2012-2013).
- Principal Investigator of a research unit of the project PRIT, INDUSTRIA 2015: "Sviluppo di una tecnologia di pretrattamento italiana per la produzione di bioetanolo di seconda generazione" (2012-2014).
- Principal Investigator of an industrial research project with Worgas srl. "Nanostructured catalysts for hydrogen production from borohydrides hydrolysis (2010-2013)."
- Principal Investigator of a research unit of the project PIRODE: "Production of Hydrogen from Renewables and its chemical storage" (2010-2011).
- Principal Investigator of a research unit of the Operational Agreement "Valorizzazione del glicerolo per mezzo di catalisi chimica per la produzione di 1,3-propandiolo e/o acido lattico" between CNR - "Dipartimento Progettazione Molecolare" and the Italian Company "Finanziaria MOSSI & GHISOLFI Srl" (2007-2010).
- Principal Investigator of a research unit of the project CESARE: "Concentrated PV CombinED Solar Energy System" financed by Tuscany Region (2008-2010).
- Principal Investigator of industrial research projects with Argus s.r.l "Characterization of organic and inorganic compounds" (2005-2011).
- Principal Investigator of a research unit of the project "HYRDOLAB" on Electrocatalysts for fuel cells (PEMFCs and DAFCs), and electrolyzers for hydrogen production, financed by Ente Cassa di Risparmio di Firenze (2009-2015).
- Principal Investigator of the FISR project: "Nanosistemi inorganici ed ibridi per lo sviluppo e l'innovazione di celle a combustibile", MIUR (2005-2009).
- Scientific director of industrial research projects with Idealab srl on nanostructured catalysts for Fuel Cells (PEMFC and DAFC) (2005-2008).
- Principal Investigator of industrial research projects ACTA SPA on nanostructured catalysts for hydrogen production (2005-2008).
- Principal Investigator of a research unit of the project EBH2, ob Project ROP. 3 d4 extent Tuscany "Sustainable production of hydrogen using electrochemical and photo-biological processes" (2007-2008).
- Principal Investigator of a research unit of the project "Synthesis and characterization of copper-64 complexes with nitrogen macrocycles and their use in diagnostic and therapy" CNR-Agenzia 2000, (2000-2001).
- Principal Investigator of a research unit of the project "Synthesis and biological activity of new radio-tracers" Tuscany (1999-2000).
- Principal Investigator of a research unit of the project "Design and development of anticancer drugs" CIRCMSB, Interuniversity Consortium for Research on Metals in Biological Systems. (2002-2003).

Courses taught at advanced level

- 1) Professor during the academic year 2010-2011 for the course: "Analysis and reactivity of surfaces" Degree course in chemistry, Chemistry department, University of Florence.
- 2) Professor at the XVI Scuola Nazionale di Scienza dei Materiali (Bressanone 22-30 September 2008) and the XII Scuola Nazionale di Scienza dei Materiali (Bressanone 11-16 September 2006).
- 3) Professor of the following course: "Tecniche sperimentali di spettroscopia NMR multinucleare e multidimensionale ad alta risoluzione e sotto alta pressione di gas" held at ICCOM-CNR for a total of 26 hours; Protocollo n° 104; date 28-02-2002.

Responsibilities in ICCOM:

- 1) Scientific director of ICCOM for the laboratory: "advanced materials for energy production" and its research staff composed of 8 permanent staff, 2 PhD students and 1 post-doctoral fellow.
- 2) Responsible for the project area PM.P03.001 "*Elettrocatalizzatori per celle a combustibile ed elettrolitiche e per la trasformazione selettiva di risorse rinnovabili*" belonging to project N° 3 "Prodotti e processi innovativi per la chimica sostenibile" of the Dipartimento di Scienze Chimiche e Tecnologie dei Materiali. (2005-2015).
- 3) Member of the management board of the CNR-ICCOM research unit at Trieste (2014-2018).

Technological-Scientific Boards

- 1) Editor of Energies MDPI
- 2) Guest Editor for Special Issue of ENERGIES "Electrocatalysts for Fuel Cells and Hydrogen Production"
https://www.mdpi.com/journal/energies/special_issues/Electrocatalysts_Fuel_Cells_Hydrogen_Production
- 3) Member of the National Advisory Board of Clean, Secure and Efficient Energy "(ENERGY) of the EU research and innovation program HORIZON 2020
- 4) Guest Editor for Special Issue of CATALYSTS Platinum free Electrocatalysts (Electrocatalysis Pt-free Energy Nanomaterials Fuel cells Metal air batteries);
https://www.mdpi.com/journal/catalysts/special_issues/Pt-free
- 5) Energy and Energy efficiency" (PIERRE: Polo di Innovazione per le tecnologie sulle Energie Rinnovabili ed il Risparmio Energetico) of the Tuscany Region (2011 - 2014)
- 6) Member of the Technological-Scientific Board; "Nanoxm Nanotecnologie" for the mercato- Polo innovazione regionale sulle nanotecnologie
- 7) Member of the Technological-Scientific Board; Centro Ricerca e Impresa Area di ricerca CNR Florence.

Participation in Scientific and Technical Organizations

- Member of the Doctorate committee in chemical and pharmaceutical sciences of the University of Siena.
- Member of IDECAT, (Network of Excellence) "Integrated Design of Catalytic Nanomaterials for a Sustainable Production". (2004-2010).
- Responsible for the Hydrogen and Fuel cells section of ENERCHEM (Interdivisional Group of Chemistry

for Renewable Energy of the Italian Chemical Society) (2010-2016).

- Member of the round table group on the Decarbonization of the Italian Economy. Consiglio dei Ministri del Governo Italiano (2016).

Participation in organizing committees of International conferences:

- Member of the Organizing Committee of the 28th International Conference on Organometallic Chemistry (ICOMC-2018) 15-20 July 2018 Florence (Italy).
- Member of the Organizing Committee of the International Conference on Modern Materials and Technologies (CIMTEC). June 4-14-2018, Perugia (Italy); Symposium FE Fuel Cells: Materials and Technology Challenges.
- Member of Local Organizing Committee of the 13th European Congress on Catalysis (Europacat 2017) 27-31 August Florence (Italy).
- Member of the Organizing Committee of the first EnerChem Congress, 18-10 February 2016, Florence-Italy.
- Member of the Organizing Committee of the International Workshop on Ethanol Electrooxidation December 5 -7 2016, Florence - Italy.
- Member of the Organizing Committee of the International Symposium on Homogeneous Catalysis - ISHC XVI , Florence 6-11 July 2008.
- Member of the Organizing Committee of the "International Symposium on Relation between homogeneous and Heterogeneous Catalysis"- ISHHC-XII, Florence 18-22 July 2006

Referee of the following international journals:

AMERICAN CHEMICAL SOCIETY: Chemical Reviews; Accounts of Chemical Research; Journal of the American Chemical Society; Inorganic Chemistry; Organometallics; Crystal Growth & Design; ACS Catalysis; Environmental Science & Technology; Energy & Fuels; Industrial & Engineering Chemistry Research;

ROYAL SOCIETY OF CHEMISTRY: Chemical Society Reviews; Energy & Environmental Science; Chemical Communications; Chemical Sciences; Crystal Engineering Communications; Physical Chemistry Chemical Physics (PCCP); New Journal of Chemistry; RSC Advances; Catalysis Science & Technology; RSC advances; Journal of Materials Chemistry A;

WILEY-VCH: Angewandte Chemie International Edition; ChemSusChem; ChemCatChem; ChemPlusChem; ChemElectroChem; Chemistry a European Journal; Advance Synthesis and Catalysis; Chemistry an Asian Journal; ChemCatChem; European Journal of Organic Chemistry; European Journal of Inorganic Chemistry; Applied Organometallic Chemistry;

ELSEVIER: Nano Energy; Coordination Chemistry Reviews; Applied Catalysis A: General; Applied Catalysis B: Environmental; Journal Power Sources; Journal of Molecular Catalysis; International Journal of Hydrogen Energy; Journal of Cleaner Production; Electrochimica Acta; electrochemistry Communications; Journal of CO2 Utilization; Journal of Organometallic Chemistry; Inorganic Chemistry Communications; Catalysis Communications; Inorganica Chimica Acta; International Journal of Hydrogen Energy.

SPRINGER: Topics in Catalysis, Catalysis Letters; Journal of Solid State Electrochemistry

Ph. D. Thesis Supervisor:

- 1) Jonathan Filippi (2009-2011); University of Florence
- 2) Andrea Marchionni (2008-2010). University of Florence

- 3) Francesco Carlà (2008-2010). University of Florence
- 4) Marco Bellini (2013-2015); University of Florence
- 5) Chen Yan-xin (2010-2012). University of Trieste
- 6) Lianqin Wang (2014-2016). University of Trieste
- 7) Maria Folliero Gelsomina (2015-2017). University of Siena
- 8) Maria Vincenza Pagliaro (2017-2019) University of Siena
- 9) Francesco Bartoli (2019-2022) University of Siena

Selected recent publications

- 1) Ren R., Wang X., Chen H., Miller A.H., Salam I., Varcoe J.R., Wu X., Chen Y., Liao H-G., Liu E., Bartoli F., Vizza F., Jia Q., He Q. "Reshaping the Cathodic Catalyst Layer for Anion Exchange Membrane Fuel Cells: From Heterogeneous Catalysis to Homogeneous Catalysis" *ANGEWANDTE CHEMIE - INTERNATIONAL EDITION*, **2020** doi.org/10.1002/anie.202012547
- 2) Miller H.A., Pagliaro M.V., Bellini M., Varcoe, J.R., Vizza, F. "Integration of a Pd-CeO₂/C anode with Pt and Pt-free cathode catalysts in high power density anion exchange membrane fuel cells" *ACS APPLIED ENERGY MATERIALS*, **2020**, 3(10), pp. 10209–10214, <https://doi.org/10.1021/acsaem.0c01998>
- 3) Pagliaro M. V., Bellini M., Lavacchi A., Miller A.H., Bartoli C., Vizza F. "Phosphate stabilized PdCoP@Nifoam catalyst for self-pressurized H₂ production from the electrochemical reforming of ethanol at 150 °C". *JOURNAL OF CATALYSIS* **382** (2020) 237–246 doi.org/10.1016/j.jcat.2019.12.019
- 4) Passaponti M, Rosi L, Savastano M, Giurlani W, Miller HA, Lavacchi A, Filippi J, Zangari G, Vizza F, Innocenti M (2019). Recycling of waste automobile tires: Transforming char in oxygen reduction reaction catalysts for alkaline fuel cells. *JOURNAL OF POWER SOURCES*, vol. 427, p. 85-90, ISSN: 0378-7753, doi: 10.1016/j.jpowsour.2019.04.067
- 5) Rotundo L, Filippi J, Gobetto R, Miller HA, Rocca R, Nervi C, Vizza F (2019). Electrochemical CO₂ reduction in water at carbon cloth electrodes functionalized with a fac-Mn(apbpy)(CO)(3)Br complex. *CHEMICAL COMMUNICATIONS*, vol. 55, p. 775-777, ISSN: 1359-7345, doi: 10.1039/c8cc08385a
- 6) Chen Y X, Gombac V, Montini T, Lavacchi A, Filippi J., Miller H A, Fornasiero, Vizza F (2018) "An increase in hydrogen production from light and ethanol using a dual scale porosity photocatalyst". *GREEN CHEMISTRY*, vol. 20, p. 2299–2307 -2307, ISSN: 1463-9262, doi: 10.1039/c7gc03508j
- 7) Miller, H. A.; Vizza, F.; Marelli, M.; Zadick, A.; Dubau, L.; Chatenet, M.; Geiger, S.; Cherevko, S.; Doan, H.; Pavlicek, R. K.; Mukerjee, S.; Dekel, D. R. Highly Active Nanostructured Palladium- Ceria Electrocatalysts for the Hydrogen Oxidation Reaction in Alkaline Medium. *NANO ENERGY* **2017**, 33, 293–305 DOI: 10.1016/j.nanoen.2017.01.051.
- 8) H. A. Miller, A. Lavacchi, F. Vizza, M. Marelli, F. Di Benedetto, F. D'Acapito, Y. Paska, M. Page, D. R. Dekel "Pd/C-CeO₂ anode catalyst for high performance platinum free anion exchange membrane fuel cells". *ANGEW. CHEM. INT. ED.* **55** (2016) 6004 - 6007: DOI: 10.1002/anie.201600647R1.
- 9) Y.X. Chen, A. Lavacchi, H.A. Miller, M. Bevilacqua, J. Filippi, M. Innocenti, A. Marchionni, W. Oberhauser, L. Wang, F. Vizza "Nanotechnology makes biomass electrolysis more energy efficient than water electrolysis" *NATURE COMMUN* **5**:4036 (2014) DOI: 10.1038/ncomms5036

- 10) Y.X. Chen, A. Lavacchi, S.P. Chen, F. Di Benedetto, M. Bevilacqua, C. Bianchini, P. Fornasiero, M. Innocenti, M. Marelli, W. Oberhauser, S.G. Sun, F. Vizza; "Electrochemical Milling and Faceting (ECMF): A Method for Size Reduction and Faceting of Palladium Nanoparticles" *ANGEW CHEM.* 51 (2012) 8500-8504
- 11) M. Bevilacqua, C. Bianchini, A. Marchionni, J. Filippi, A. Lavacchi, H.A. Miller, W. Oberhauser W., F. Vizza, Granozzi, L. Artiglia, S.P. Annen, F. Krumeich, H. Grützmacher; "Improvement in the efficiency of an Organometallic Fuel Cell by tuning the molecular architecture of the anode electrocatalyst and the nature of the carbon support;" *ENERGY ENVIRON. SCI.* 5 (2012) 8608-86

Recent Patents:

- 1) Vizza F, Miller H A, Folliero M G, Marchionni A, Filippi J (2019). "Hydrometallurgic processes for the treatment of lithium batteries and recovery of the metals contained therein." PCT/IT2019/050013
- 2) Vizza Francesco, Cenci Giulio, Righi Ermanno, Sibani Fabrizio, Marchionni Andrea, Filippi Jonathan, Bianchini Claudio, Magnani Sabrina "Apparatus for the production of Gas" US 2015/0284246 A1; WO 2014/115178 A1; PCT/IT2013/000022
- 3) Cenci Giulio, Righi Ermanno, Sibani Fabrizio, Marchionni Andrea, Filippi Jonathan, Vizza Francesco, Bianchini Claudio, Magnani Sabrina "Gas generator, in particular for gaseous hydrogen" US 2015/0284246 A1; WO 2014/097334 A1; PCT/IT2012/000397
- 4) Vizza Francesco, Cenci Giulio, Filippi Jonathan, Bianchini Claudio, Marchionni Andrea "Device for the generation of hydrogen, apparatuses that contain the device and their use" WO 2013/021242 A1; PTWO 11254 filling date 16-09-2011
- 5) Vizza Francesco, Bianchini Claudio, Cenci Giulio, Filippi Jonathan, Marchionni Andrea "Hydrogen generator, its realization and use" WO 2013/021243 A1; PTWO 11255 filling date 16-09-2011;

Recent books:

- 1) Lavacchi, A.; Miller, H.A.; Vizza, F. "Nanotechnology in Electrocatalysis for Energy" *Nanostructure Science and Technology* 170, Springer Science+Business Media New, York, 2014, DOI: 10.1007/978-1-4899-8059-5_1
- 2) Bambagioni, V.; Bianchini, C; Vizza, F. "Palladium nanostructured electrocatalysts for renewables conversion" Lambert Academic Publishing, Gmb&Co. KG Sarbrucken, Germany 2012, ISBN: 978-3-659-24512-1

Publications

- (1) Ferrara, M.; Bevilacqua, M.; Melchionna, M.; Criado, A.; Crosera, M.; Tavagnacco, C.; Vizza, F.; Fornasiero, P. Exploration of Cobalt@N-Doped Carbon Nanocomposites toward Hydrogen Peroxide (H₂O₂) Electrosynthesis: A Two Level Investigation through the RRDE Analysis and a Polymer-Based Electrolyzer Implementation. *Electrochim. Acta* 2020, 364, 137287 DOI: 10.1016/j.electacta.2020.137287.
- (2) Ferrara, M.; Bevilacqua, M.; Tavagnacco, C.; Vizza, F.; Fornasiero, P. Fast Screening Method for Nitrogen Reduction Reaction (NRR) Electrocatalytic Activity with Rotating Ring-Disc Electrode (RRDE) Analysis in Alkaline Environment. *ChemCatChem* 2020, 12 (24), 6205–6213 DOI: 10.1002/cctc.202001498.
- (3) Miller, H. A.; Pagliaro, M. V.; Bellini, M.; Bartoli, F.; Wang, L.; Salam, I.; Varcoe, J. R.; Vizza, F. Integration of a Pd-CeO₂/C Anode with Pt and Pt-Free Cathode Catalysts in High Power Density Anion Exchange Membrane Fuel Cells. *ACS Appl. Energy Mater.* 2020, 3 (10), 10209–10214 DOI: 10.1021/acsaem.0c01998.

- (4) Ipadeola, A. K.; Lisa Mathebula, N. Z.; Pagliaro, M. V.; Miller, H. A.; Vizza, F.; Davies, V.; Jia, Q.; Marken, F.; Ozoemena, K. I. Unmasking the Latent Passivating Roles of Ni(OH)₂ on the Performance of Pd–Ni Electrocatalysts for Alkaline Ethanol Fuel Cells. *ACS Appl. Energy Mater.* **2020**, *3* (9), 8786–8802 DOI: 10.1021/acsaem.0c01314.
- (5) Miller, H. A.; Lavacchi, A.; Vizza, F. Storage of Renewable Energy in Fuels and Chemicals through Electrochemical Reforming of Bioalcohols. *Curr. Opin. Electrochem.* **2020**, *21*, 140–145 DOI: 10.1016/j.coelec.2020.02.001.
- (6) Tuci, G.; Filippi, J.; Rossin, A.; Luconi, L.; Pham-Huu, C.; Yakhvarov, D.; Vizza, F.; Giambastiani, G. CO₂ Electrochemical Reduction by Exohedral N-Pyridine Decorated Metal-Free Carbon Nanotubes. *Energies* **2020**, *13* (11), 2703 DOI: 10.3390/en13112703.
- (7) D'Olimpio, G.; Boukhvalov, D. W.; Fujii, J.; Torelli, P.; Marchionni, A.; Filippi, J.; Kuo, C.-N.; Edla, R.; Ottaviano, L.; Lue, C. S.; Vizza, F.; Nappini, S.; Politano, A. Catalytic Activity of PtSn₄: Insights from Surface-Science Spectroscopies. *Appl. Surf. Sci.* **2020**, *514*, 145925 DOI: 10.1016/j.apsusc.2020.145925.
- (8) Pagliaro, M. V.; Bellini, M.; Lavacchi, A.; Miller, H. A.; Bartoli, C.; Vizza, F. Phosphate Stabilized PdCoP@Nifoam Catalyst for Self-Pressurized H₂ Production from the Electrochemical Reforming of Ethanol at 150 °C. *J. Catal.* **2020**, *382*, 237–246 DOI: 10.1016/j.jcat.2019.12.019.
- (9) Bellini, M.; Bevilacqua, M.; Marchionni, A.; Miller, H. A.; Filippi, J.; Grützmacher, H.; Vizza, F. Energy Production and Storage Promoted by Organometallic Complexes. *Eur. J. Inorg. Chem.* **2018**, *2018* (40), 4392–4392 DOI: 10.1002/ejic.201801149.
- (10) Boukhvalov, D. W.; Marchionni, A.; Filippi, J.; Kuo, C.-N.; Fujii, J.; Edla, R.; Nappini, S.; D'Olimpio, G.; Ottaviano, L.; Lue, C. S.; Torelli, P.; Vizza, F.; Politano, A. Efficient Hydrogen Evolution Reaction with Platinum Stannide PtSn₄ via Surface Oxidation. *J. Mater. Chem. A* **2020**, *8* (5), 2349–2355 DOI: 10.1039/C9TA10097K.
- (11) Ren, R.; Wang, X.; Chen, H.; Miller, H. A.; Salam, I.; Varcoe, J. R.; Wu, L.; Chen, Y.; Liao, H.; Liu, E.; Bartoli, F.; Vizza, F.; Jia, Q.; He, Q. Reshaping the Cathodic Catalyst Layer for Anion Exchange Membrane Fuel Cells: From Heterogeneous Catalysis to Homogeneous Catalysis. *Angew. Chemie Int. Ed.* **2020**, anie.202012547 DOI: 10.1002/anie.202012547.
- (12) Baccioli, A.; Ferrari, L.; Vizza, F.; Desideri, U. Potential Energy Recovery by Integrating an ORC in a Biogas Plant. *Appl. Energy* **2019**, *256*, 113960 DOI: 10.1016/j.apenergy.2019.113960.
- (13) Rossi, F.; Bevilacqua, M.; Busson, B.; Corva, M.; Tadjeddine, A.; Vizza, F.; Vesselli, E.; Bozzini, B. An in Situ IR-Vis Sum Frequency Generation Spectroscopy Study of Cyanide Adsorption during Zinc Electrodeposition. *J. Electroanal. Chem.* **2019**, *855*, 113641 DOI: 10.1016/j.jelechem.2019.113641.
- (14) Ren, R.; Zhang, S.; Miller, H. A.; Vizza, F.; Varcoe, J. R.; He, Q. Facile Preparation of an Ether-Free Anion Exchange Membrane with Pendant Cyclic Quaternary Ammonium Groups. *ACS Appl. Energy Mater.* **2019**, *2* (7), 4576–4581 DOI: 10.1021/acsaem.9b00674.
- (15) Bellini, M.; Pagliaro, M. V.; Lenarda, A.; Fornasiero, P.; Marelli, M.; Evangelisti, C.; Innocenti, M.; Jia, Q.; Mukerjee, S.; Jankovic, J.; Wang, L.; Varcoe, J. R.; Krishnamurthy, C. B.; Grinberg, I.; Davydova, E.; Dekel, D. R.; Miller, H. A.; Vizza, F. Palladium–Ceria Catalysts with Enhanced Alkaline Hydrogen Oxidation Activity for Anion Exchange Membrane Fuel Cells. *ACS Appl. Energy Mater.* **2019**, *2* (7), 4999–5008 DOI: 10.1021/acsaem.9b00657.
- (16) Lenarda A; Bevilacqua M; Tavagnacco C; Nasi L; Criado A; Vizza F; Melchionna M; Prato M; Fornasiero P. Selective Electrocatalytic H₂O₂ Generation by Cobalt@N-Doped Graphitic Carbon Core–Shell Nanohybrids. *ChemSusChem* **2019**, *12*, 1664–1672. <https://doi.org/10.1002/cssc.201900238>.
- (17) Passaponti, M.; Rosi, L.; Savastano, M.; Giurlani, W.; Miller, H. A.; Lavacchi, A.; Filippi, J.; Zangari, G.; Vizza, F.; Innocenti, M. Recycling of Waste Automobile Tires: Transforming Char in Oxygen Reduction Reaction Catalysts for Alkaline Fuel Cells. *J. Power Sources* **2019**, *427*, 85–90. <https://doi.org/10.1016/j.jpowsour.2019.04.067>.
- (18) Enrico Berretti; Andrea Giaccherini; Giordano Montegrossi; Francesco D'Acapito; Francesco Di Benedetto; Claudio Zafferoni; Alessandro Puri; Giovanni Orazio Lepore; Hamish Miller; Walter Giurlani; et al. In-Situ Quantification of Nanoparticles Oxidation: A Fixed Energy X-Ray Absorption Approach. *CATALYSTS* **2019**, *9*, 1–12. <https://doi.org/10.3390/catal9080659>.
- (19) Baccioli A; Ferrari L; Vizza F; Desideri U. Feasibility Analysis of Coupling an ORC to a MGT in a Biogas Plant. *ENERGY PROCEDIA* **2019**, *Volume 158*, 2311–2316, 2311–2316.
- (20) Vizza, F.; Baccioli, A.; Ferrari, L.; Guiller, R.; Yousfi, O.; Vizza, F.; Desideri, U. Feasibility Analysis of Bio-Methane Production in a Biogas Plant: A Case Study. *Energies* **2019**, *12*. <https://doi.org/10.3390/en12030473>.
- (21) Ren, R.; Zhang, S.; Miller, H. A.; Vizza, F.; Varcoe, J. R.; He, Q. Facile Preparation of Novel Cardo Poly(Oxindolebiphenylene) with Pendant Quaternary Ammonium by Superacid-Catalysed Polyhydroxyalkylation Reaction for Anion Exchange Membranes. *J. Memb. Sci.* **2019**, *591*, 117320. <https://doi.org/10.1016/j.memsci.2019.117320>.
- (22) Rotundo, L.; Filippi, J.; Gobetto, R.; Miller, H. A.; Rocca, R.; Nervi, C.; Vizza, F. Electrochemical {CO}₂ Reduction in Water at Carbon Cloth Electrodes Functionalized with a Fac-Mn(Apby)₃(CO)₃Br Complex. *Chem. Commun.* **2019**, *55*, 775–777. <https://doi.org/10.1039/c8cc08385a>.
- (23) Bellini M; Folliero M.G.; Evangelisti C.; He Q.; Hu Y.; Pagliaro M.V.; Oberhauser W.; Marchionni A.; Filippi J.; Miller H.A.; et al. A Gold–Palladium Nanoparticle Alloy Catalyst for CO Production from CO₂ Electroreduction. *ENERGY Technol.* **2019**, *7*. <https://doi.org/DOI: 10.1002/ente.201800859>.
- (24) Iglesias D; Giuliani A; Melchionna M; Marchesan S; Criado A; Nasi L; Bevilacqua M; Tavagnacco C; Vizza F; Prato M; et al. N-Doped Graphitized Carbon Nanohorns as a Forefront Electrocatalyst in Highly Selective O₂ Reduction to H₂O₂. *CHEM* **2018**, *4*,

106–123. <https://doi.org/10.1016/j.chempr.2017.10.013>.

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