MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

Part A. PERSONAL INFORMATION

CV date	30-10-2023

First name	PATRICIA		
Family name	PIZARRO DE ORO		
Research codes		ORCID	0000-0002-4764-0254
		ID SCOPUS	6508017438

A.1. Current position

Position	Profesora Titular de Universidad		
Initial date	20/12/2017		
Institution	Universidad Rey Juan Carlos		
Department/Center	Departamento de Tecnología Química, Energética y Mecánica		
Country	Spain	Teleph. number	
Key words	Heterogeneous catalysts, zeolites, organic wastes, catalytic pyrolysis, dehalogenation, dry reforming, sustainable aviation fuels		

A.2. Previous positions

Period	Position/Institution/Country/Interruption cause
01/10/2000 - 19/12/2017	Lecturer with tenure track (Contratado Doctor) / Rey Juan Carlos University / Spain
01/10/2000 - 30/09/2008	Lecturer (Prof. Asociados tipo LRU) / Rey Juan Carlos University / Spain
01/03/2000 - 30/09/2000	Collaborating researcher (investigador colaborador) / y Juan Carlos University / Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
CHEMICAL ENGINEERING	UNIVERSIDAD COMPLUTENSE DE MADRID	2000
PhD IN CHEMICAL ENGINEERING	UNIVERSIDAD REY JUAN CARLOS	2005

Part B. CV SUMMARY

Research activities

Her research activities started at Rey Juan Carlos University, through the PhD work that was focused on the development of mesostructured titanium dioxide with photocatalytic applications for the degradation of pollutants in the aqueous phase. She made a short predoctoral stay of 3 months in the “Laboratoire D'application de la Chimie A L'environnement (LACE)”, Lyon (France), as well as a post-doctoral stay of 6.5 months in the “Max-Planck-Institute für Kohlenforschung”, in Germany. Her scientific activity has also covered other fields such as the development of heterogeneous catalysts for the epoxidation of olefins and the production of hydrogen by both photocatalytic decomposition of water and catalytic decomposition of methane. In this last line, it should be noted that, together with the research group she belongs to, they have been pioneers in the application of mesostructured carbons as catalysts of methane decomposition, achieving outstanding conversions and stability against deactivation.

Since 2012 most of her research activity has been carried out as Associate Researcher at IMDEA Energy Institute, focusing on two main fields: a) development of redox materials for their application in thermochemical cycles for energy storage or dissociation of CO_2 and CH_4 into syngas or hydrogen; b) development of catalysts and sustainable processes (mainly pyrolysis and hydrotreatments) for the valorization of organic waste (lignocellulose, plastics, FORSU, tires, etc.) into fuels and chemicals.

The main outcomes from her research activities are listed below:

- Research projects: participation as researcher in 19 research projects with public funding granted through competitive calls, 6 research projects in URJC calls and in 4 in R+D+i contracts of special relevance with Companies and / or Administrations. Among them, to be highlighted those referenced in section C.3 because of her role as: leader of a work package in the European project CASCATBEL; co-IP of the projects REDEFINERY, CIRPLACAR and HYWARE; coordinator of the European project BIOCTANE.
- Dissemination and exploitaiton of scientific results: co-author of 82 articles, 77 of them indexed in the JCR and 65 located in the first quartile (Q1) of the classification by impact index. h-index from SCOPUS = 39. Co-author of 6 book chapters and attendance to more than 100 conferences, mostly of international level and as oral presentation. 3 plenary talks. 2 patents.
- Dissemination to society: participation in the European action “Researcher`s Night”; publication of news in websites or blogs such as of IMDEA Energy, “The Conversation” and Sacyr; recording of several informative videos within the BIOTRES project that can be watched in youtube, and participation as a guest speaker in science dissemination conferences among women.
- Organization of congresses: member of the organization Committee of the Hypothesis XI symposium in 2013 and of the 8th International Workshop on Layered and Nanostructured Materials (2022). Member of the scientific Committee of the congresses IZC-2022 and SECAT 2023. Co-chaired the CIS-9 congress on Molecular Sieves and Catalysis (2023).
- Others: Since July 2023, she is secretary of the Spanish Group of Zeolites (GEZ); Reviewer of numerous Scientific Journals; Reviewer of projects and contracts (Spanish Ministry, 2019, 2022, 2023; Regional Government of Madrid, 2021, European Science Foundation, 2023)
- Three six-year terms complements (“sexenios de investigación”), the last one in 2020.

Part C. RELEVANT MERITS *(last ten years)*

C.1. Publications

1. Artillo F., Zhang Y., Alonso-Doncel M.M., Amodio L., Mazur M., Pizarro P., Kalkov K., Cejka J., Serrano D.P.. Performance of Nanosponge and Nanosheet Al- and Ga-MFI Zeolites in Catalytic Pyrolysis of Biomass and Plastics. ACS Sustainable Chem. Eng. 11, 35 (2023) 12868–12876.
2. Marino A., Aloise A., Hernando H., Fermoso J., Cozza D., Giglio E., Migliori M. Pizarro P., Giordano G., Serrano D.P. ZSM-5 zeolites performance assessment in catalytic pyrolysis of PVC-containing real WEEE plastic wastes, Catal. Today 390-391 (2022) 210 -220.
3. Gutiérrez-Rubio S., Berenguer A., Přech J., Opanasenko M., Ochoa-Hernández C., Pizarro P., Čejka J., Serrano D.P., Coronado J.M, Moreno I. Guaiacol hydrodeoxygenation over Ni_2P supported on 2D-zeolites. Catal. Today 345 (2020) 48–58.

4. Hernando H., Puértolas B., Pizarro B., Fermoso J., Pérez-Ramírez J., Serrano D.P. Cascade Deoxygenation Process Integrating Acid and Base Catalysts for the Efficient Production of Second-Generation Biofuels. ACS Sustainable Chem. Eng. 7 (2019) 18027–18037.
5. Prech J.; Pizarro P.; Serrano D.P., Cejka J.. From 3D to 2D zeolite catalytic materials. Chemical Society Reviews. 47 (22), (2018) 8263 – 8306.
6. Serrano D.P., Melero J.A., Morales G., Iglesias J., Pizarro P. Progress in the design of zeolite catalysts for biomass conversion into biofuels and bio-based chemicals. Catalysis Reviews-Sci. Eng., 60 (2018) 1-70.
7. Sankaranarayanan T.M., Kreider M., Berenguer A., Gutiérrez-Rubio S., Moreno I., Pizarro P., Coronado J.M., Serrano D.P. Cross-reactivity of Guaiacol and Propionic Acid Blends during Hydrodeoxygenation over Ni-Supported Catalysts. Fuel 214 (2018) 187-195.
8. A. Berenguer; T.M. Sankaranarayanan; G. Gómez; I. Moreno; J.M. Coronado; P. Pizarro; D.P. Serrano. Evaluation of transition metal phosphides supported on ordered mesoporous materials as catalysts for phenol hydrodeoxygenation. Green Chemistry 18(7) pp. 1938-195 (2016).
9. Yang Y., Ochoa-Hernández C., de la Peña O´Shea V.A., Pizarro P., Coronado J.M., Serrano D.P. Effect of metal-support interaction on the selective hydrodeoxygenation of anisole to aromatics over Ni-based catalysts. Applied Catalysis B: Environmental 145 (2014) 91-100
10. Serrano D.P., Escola J.M., Pizarro P. Synthesis strategies in the search for hierarchical zeolites, Chemical Society Reviews. 42 (9) (2013) 4004 – 4035.

C.2. Congress

1. P. Pizarro. “Materiales mesoporosos ordenados: síntesis y propiedades (Ordered mesoporous materials: synthesis and applications”. Type: Lecture. Congress: III Escuela de Materials Zeolíticos (III School of zeolitic materials). Venue: El Toboso (Spain). Year: 2023.
2. P. Pizarro. “Convirtiendo los residuos en recursos (Turning wastes into resources)”. Type: Lecture. Congress: Mujer y Ciencia (Women and Science). Venue: Móstoles (Spain). Year: 2023.
3. F. Artillo, H. Hernando, P. Pizarro, D.P. Serrano. “Boosting the deoxygenation and aromatization activity of ZSM-5 zeolite via pressurized catalytic pyrolysis”. Type: Oral. Congress: IZC 2022. Venue: Valencia (Spain). Year: 2022.
4. P. Pizarro. “Hierarchical zeolites: synthesis strategies and singular properties”. Type: Invited talk. Congress: Workshop on zeolites. Venue: Liblice (Czech Republic). Year: 2021.
5. A. Lago, M. Sanz, J.M. Gordón, I. Moreno, J. Fermoso, D.P. Serrano, P. Pizarro. Evaluating the suitability of co-processing gardening residues and the organic fraction of municipal solid wastes via thermal and catalytic pyrolysis. Type: Oral. Congress: 8th International Conference on Sustainable Solid Waste Management. Venue: On-line. Year: 2021.
6. E.K.L. Morais; S. Jiménez-Sánchez; H. Hernando; P. Pizarro; A.S. Araujo; D.P. Serrano. “Thermochemical valorization of polyethylene and lignocellulose mixtures via catalytic co-pyrolysis over HBeta zeolite”. Type: Oral. Congress: 10TH International Symposium on Feedstock Recycling of Polymeric Materials. Venue: Budapest (Hungría). Year: 2019.
7. S. Jiménez, A. Peral, P. Pizarro, D.P. Serrano. “Ex-situ Fast Co-pyrolysis of Eucalyptus Woodchips and Low Density Polyethylene with Zeolites and Mesoporous Catalysts for Bio-fuel Production”. Type: Oral. Congress: 4º Congreso Iberoamericano sobre Biorrefinerias. Venue: Budapest (Hungry). Year: 2018
8. P. Pizarro. Zeolites with hierarchical porosity. Type: Lecture. Congress: School on zeolites: New trends and future challenges. Venue: Móstoles (Spain). Year: 2017.

C.3. Research projects

1. Title: Synergetic integration of BIOteChnology and thermochemical CaTalysis for the cAscade coNvErsion of organic waste to jet-fuel (BIOCTANE). Ref. 101084336. Funding entity: European Commission HORIZON-CL5-2021-D3-03. Total amount 2,951,958.00 €. Coordinator: Patricia Pizarro. Entities: IMDEA Energy, TUHH, INRAE, URJC, PSI, AIREG . Duration: 2022-2025
2. Title: Circularity of end-of-life vehicles plastic wastes: Chemical recycling (CIRPLACAR). Ref. 101084336. Funding entity: Ministerio de Ciencia e Innovación. Proyectos Estratégicos Orientados a la Transición Ecológica y a la Transición Digital". Total amount 172,500.00 €. Coordinator: Patricia Pizarro. Entities: IMDEA Energy. Duration: 2022-2024
3. Title: Renewable hydrogen from wastes: a circular solution for regions without land availability (HYWARE). Ref. PID2021-124705OB-I00. Funding entity: "Ministerio de Ciencia e Innovación. Proyectos de Generación de Conocimiento 2021".Total amount 181,500.00 €. PI: Javier Dufour/Patricia Pizarro. Entity: IMDEA Energy. Duration: 2022-2024.
4. Title: Redefining the waste-energy nexus: a new concept of regional refinery within the framework of the circular economy (REDEFINERY). Ref: RTI2018-097227-B-I00. Funding entity: "Ministerio de Ciencia, Innovación y Universidades. Programa Estatal de I+D+i Orientada a los Retos de la Sociedad (Retos Investigación 2018)". Total amount: 181.500,00 € PI: Javier Dufour / Patricia Pizarro. Entity: IMDEA Energy. Duration: 2019-2022.
5. Title: CAScade deoxygenation process using tailored nanoCATalysts for the production of BiofuELs from lignocellullosic biomass (CASCATBEL). Ref: NMP4-LA-2013-6043 07. Funding entity: European Commission. Seventh Framework Programme (FP7). Large-Scale Integrating Collaborative Project. Amount: 6.380.115,95 euros. PI: David P. Serrano. Entity: IMDEA Energy. Contribution: Researcher and WP leader. Duration: 2013-2017.

Part D. TEACHING AND ACADEMIC ACTIVITIES

- Co-supervision of 4 doctoral thesis and other 3 in progress.
- Supervision of more than 60 final works in different Degrees (chemical engineering, energy engineering, environmental engineering).
- Teaching at the International School of Doctorate at URJC, providing the PhD students with specific skills for their research work.
- Teaching in different Degrees (Chemical Engineering, Energy Engineering, Environmental Engineering, Industrial Engineering, etc.) and Masters (Chemical Engineering, Industrial Engineering, Energy Resources and Technologies).
- Member of the jury of 15 PhD Thesis and of Final Works for different Degrees and Masters.
- Director of the Master in Industrial Engineering at URJC (2017/18 to 2020/21).
- Coordinator of the last academic courses (4º or 5º) of Chemical Engineering program at URJC (2005/06 to 2016/17).