

Part A. PERSONAL INFORMATION		CV date	17/08/2020
First and Family name	Marcelo E. Domine		
Social Security, Passport, ID number	X2486170P	Age	51
Researcher numbers	Researcher ID		
	Orcid code	0000-0002-1111-2855	

A.1. Current position

Name of University/Institution	Consejo Superior de Investigaciones Científicas - CSIC		
Department	Instituto de Tecnología Química, ITQ (UPV – CSIC)		
Address and Country	Avda. Los Naranjos S/N – 46022 – Valencia - ESPAÑA		
Phone number	963879696	E-mail	mdomine@itq.upv.es
Current position	Científico Titular del CSIC	From	11/09/2009
Espec. cód. UNESCO	Química-Física 2307, Catálisis 221001		
Palabras clave	Catálisis heterogénea, materiales nano-estructurados, procesos ácido/base y redox, transformación de biomasa		

A.2. Education

PhD	University	Year
Doctorate in Chemistry	Universidad Politécnica de Valencia (España)	2003

A.3. JCR articles, h Index, thesis supervised...

Six-year periods positively evaluated: **3** (three) – Latest conceded six-year period in **2017**.

Number of PhD thesis supervised (finished): **3** (three)

- 1- Design of new heterogeneous catalysts for the valorization of biomass-derived compounds (Marvin Chávez Sifontes – September 2017)
- 2- Catalytic transformations of oxygenated compounds derived from biomass aqueous effluents into high-added value products (Alberto Fernández-Arroyo – September 2018)
- 3- Revalorización de glicerol empleando zeolitas micro/mesoporosas modificadas con metales nobles (Eliana Diguilio – March 2020)

Number of PhD thesis supervised (ongoing): **2** (two)

Jaime Mazarío (From 2016); Zaher Raad (From 2016)

Number of Master thesis supervised: **6** (six)

Number of JCR articles: **52**

Total Cites: **≈2400**

Average number of cites per year (last 5 years): **>170**

Number of Q1 publications: **44** (≈85% de todas las publicaciones)

Índice h: **21**

Total number of patent applications: **30** (4 exploited and 14 licensed to industry)

Part B. CV SUMMARY (max. 3500 characters, including spaces)

Marcelo E. Domine obtained his Bachelor (1992) and Master (1996) degrees in Chemistry from the National University of Córdoba (Argentina). He completed his PhD at the Universidad Politécnica de Valencia (Spain) in 2003 under the guidance of Prof. A. Corma. Then, he carried out postdoctoral research at the Institute des Recherches sur la Catalyse et l'Environnement de Lyon (IRCELYON-CNRS, France 2005-07). In 2008, he re-joined Prof. A. Corma's group as a Ramon y Cajal researcher of CSIC. Since 2009, he has developed his work as Tenured Scientist of CSIC at Instituto de Tecnología Química (UPV-CSIC), Spain. His current research involves the synthesis and characterization of molecular sieves and nano-structured materials based on supported metal nano-particles and metallic mixed oxides, and their application as heterogeneous catalysts in acid–base and redox reactions; mainly focusing on the development of novel and sustainable chemical processes for the transformation of renewable raw materials (i.e. biomass and its derivatives, municipal wastes, etc.) into valuable chemical products. In the first years of his work (1998-2005) at the ITQ with Prof. A. Corma, he developed new catalytic materials by incorporation of transition

metals in zeolites (Ti-Beta, Sn-Beta) and delaminated zeolites (Ti-ITQ-2, Ti-ITQ-6), which were active and selective in different organic reactions, such as epoxidations, sulfoxidations, and MPV-O processes. These achievements were reflected in high impact publications in scientific journals as *Angew. Chem.*, *JACS*, *Chem. Commun.*, and *J. Catal.*, among others. In addition, several national and international patents were applied, most of them being licensed to industry (UOP, REPSOL, RHODIA, ENI, etc.). During and after his post-doctoral stay at IRCELYON-CNRS (2006-2014), his research activity focused on the development of MOF-type materials, and the design of nano-structured materials based on metal nanoparticles (Au, Pd, Pt) supported onto metallic oxides and mixed oxides able to catalyze consecutive and/or cascade-type organic reactions. In the last 5 years, he consolidated his research group mainly working on novel catalysts and catalytic processes for the valorization of biomass and its derivatives for obtaining high-added value bio-compounds (i.e. bio-fuels and bio-chemicals). These last feats allowed excellent scientific publications in high impact journals, such as *J. Catal.*, *Catal. Sci. & Tech.*, *Green Chem.*, and *Catal. Today*, among others. Remarkably, more than 10 patents (national and international) were applied in this period, most of them being licensed to industry (ABENGOA, UPM, SUMITOMO).

M.E. Domine is co-author of 52 scientific publications appearing in high-cited index journals and of 30 patent applications. He has presented his work in more than 80 (national and international) congresses and has given 26 invited conferences. In addition, he has participated in 33 public funded projects being the principal researcher of 13 of them. One important part of his research work is centered in the development of catalytic processes with industrial application in collaboration with private companies, participating in 26 contracts with industry. Because of these collaborative works, 30 patents were applied (>10 in the last 5 years), this evidencing the growing interest of industry for the implementation of more sustainable heterogeneous catalytic processes, particularly continuous flow type processes allowing the efficient synthesis of new bio-products from biomass and its derivatives.

Part C. RELEVANT MERITS (Selected data of the last 5 years)

C.1. Publications (including books)

- 1- J. Ortiz-Bustos, S. Gómez-Ruiz, J. Mazarío, M.E. Domine, I. del Hierro, Y. Pérez. **2020**. Copper and sulphur co-doped titanium oxide nanoparticles with enhanced catalytic and photocatalytic properties. *Catalysis Science & Technology* (DOI:[10.1039/d0cy01041c](https://doi.org/10.1039/d0cy01041c)).
- 2- M. Ventura, A. Marinas, M.E. Domine. **2020**. Catalytic processes for biomass-derived platform molecules valorisation. *Topics in Catalysis* (DOI:[10.1007/s11244-020-01309-9](https://doi.org/10.1007/s11244-020-01309-9)).
- 3- A. Gala, M. Guerrero, B. Guirao, M.E. Domine, J.M. Serra. **2020**. Characterization and Distillation of Pyrolysis Liquids Coming From Polyolefins Segregated of MSW for their Use as Automotive Diesel Fuel. *Energy & Fuel*, 34, 5969-5982.
- 4- J. Mazarío, M. Ventura, P. Concepción, M.E. Domine. **2020**. Continuous catalytic process for the selective dehydration of glycerol over Cu-based mixed oxide. *Journal of Catalysis*, 385, 160-175.
- 5- E. Diguilio, E. Galarza, M.E. Domine, L. Pierella, M. Renzini. **2020**. Tuning products selectivity in the catalytic oxidation of glycerol employing Metal-ZSM-11 materials. *New Journal of Chemistry*, 44, 4363-4375.
- 6- M. Ventura, J.A. Cecilia, E. Rodríguez-Castellón, M.E. Domine. **2020**. Tuning Ca-Al-based catalysts composition to isomerize or epimerize glucose and other sugars. *Green Chemistry*, 22, 1393-1405.
- 7- J. Mazarío, M. Parreño Romero, M. Chávez-Sifontes, P. Concepción, R. Spanevello, M.B. Comba, A.G. Suárez, M.E. Domine. **2019**. Tuning Zirconia-Supported Metal Catalysts for Selective One-Step Hydrogenation of Levoglucosenone. *Green Chemistry*, 21(17), 4769-4785.
- 8- D. Delgado, A. Fernandez-Arroyo, N. La Salvia, M. Domine, J.M. Lopez Nieto. **2019**. Reflux-synthesized bulk and supported W-Nb-O mixed oxide bronzes for the valorization of short-chain oxygenates aqueous mixtures. *Chinesse Journal of Catalysis*, 40, 1778-1787.
- 9- B. Ledesma, J. Juárez, J. Mazarío, M.E. Domine, A. Beltramone. **2019**. Bimetallic platinum/iridium modified mesoporous catalysts applied in the hydrogenation of HMF. *Catalysis Today* (DOI: [10.1016/j.cattod.2019.06.037](https://doi.org/10.1016/j.cattod.2019.06.037)).

- 10- A. Pinheiro Pires, J. Arauzo, I. Fonts, M.E. Domine, A. Fernandez Arroyo, M. García-Pérez, J. Montoya, F. Chejne, P. Pfromm, M. Garcia-Perez. **2019**. Challenges and Opportunities for Bio-oil Refining: A Review. *Energy & Fuel*, 33(6), 4683-4720.

C.2. Research projects and grants

- 1- Title: Lignin as a feedstock for renewable marine fuels - IDEALFUEL (Ref. GA 883573). Funding entity: EU HORIZON 2020. Participants: Technische Universiteit Eindhoven (TUE, Coordinator) and ITQ (UPV-CSIC) and 9 EU partners. Duration: 2020 - 2023. Budget: 576000,00 Euros. Principal researcher (IP): M.E. Domine.
- 2- Title: Diseño de catalizadores sólidos mesoporosos para la producción sostenible de compuestos aromáticos de interés industrial a partir de derivados furánicos obtenidos de la biomasa (COOPB20415). Funding entity: CSIC – MINCIU (Spain). Participants: ITQ (UPV-CSIC), CITeQ (CONICET-UTN, Argentine) and CINDECA (CONICET-UNLP, Argentine). Duration: 2020 - 2021. Budget: 24000,00 Euros. Principal researcher (IP): M.E. Domine. Researchers: Griselda Eimer (CITeQ) and Mónica Casella (CINDECA).
- 3- Title: Red de Excelencia en Biorefinerías Sostenibles en España (RED2018-102623-T). Funding entity: MINCIU (Spain). Participants: Escuela Universitaria Politécnica (Univ. País Vasco), ITQ (UPV-CSIC) and others. Duration: 2020 - 2021. Budget: 20000,00 Euros. Principal researcher (IP): Antonio Chica. Participation type: team's researcher.
- 4- Title: Mejora del concepto de biorrefinería mediante implementación de nuevos procesos catalíticos sobre catalizadores sólidos de metales no nobles para la producción de biocompuestos (PGC2018-097277-B-I00) Funding entity: MINCIU (Spain). Participants: ITQ (UPV-CSIC). Duration: 2019 - 2021. Budget: 130600,00 Euros. Principal researcher (IP1): S. Iborra, (IP2): M.E. Domine.
- 5- Title: Intensificación de reactores catalíticos para la obtención altamente eficiente de combustible (PROMETEO/2018/006) Funding entity: MINECO (Spain). Participants: ITQ (UPV-CSIC). Duration: 2018 - 2021. Budget: 225260,80 Euros. Principal researcher (IP): J.M. Serra. Participation type: team's researcher.
- 6- Title: Integrated Catalytic Recycling of Plastic Residues into Added-Value Chemicals - iCAREPLAST (GA820770). Funding entity: CE-SPIRE-10-2018 - H2020-EU. Participants: ITQ (UPV-CSIC) and 9 EU partners. Duration: 2018 - 2021. Budget: 973090,00 Euros. Coordinator: J.M. Serra. Participation type: Technical Manager.
- 7- Title: From waste to sustainability: Application of Phosphogypsum as heterogeneous catalysts and useful material (CSIC-OPE0142). Funding entity: PhosAgro / UNESCO / IUPAC International Partnership. Participants: ITQ (UPV-CSIC). Duration: 2018 - 2019. Budget: 28298,00 Euros. Principal researcher (IP): M.E. Domine. Conceded.
- 8- Title: Red de Excelencia en Biorefinerías Sostenibles en España (CTQ2016-81848-REDT). Funding entity: MINECO (España). Participants: Escuela Universitaria Politécnica (Univ. País Vasco, Donostia, San Sebastián), ITQ (UPV-CSIC), and others. Duration: 2017 - 2018. Budget: 20000,00 Euros. Principal researcher (IP): A. Chica. Participation type: team's researcher. Conceded.
- 9- Title: Valorización de compuestos oxigenados presentes en fracciones acuosas derivadas de la biomasa en combustibles y productos químicos (CTQ2015-67592). Funding entity: MINECO (España). Participants: ITQ (UPV-CSIC). Duration: 2016 - 2018. Budget: 127400,00 Euros. Principal researcher (IP): S. Iborra. Participation type: team's researcher. Conceded.

C.3. Contracts

- 1- Title: Estudio y desarrollo de catalizadores heterogéneos para procesos de petroquímica. Private company: ERCROS S.A., Tarragona, SPAIN. Principal researcher (IP): J.M. López-Nieto, ITQ (UPV-CSIC). Participation type: team's researcher. Duration: 2020 - 2021. Budget: 100.000,00 Euros.
- 2- Title: Catalizadores sólidos para biorefinería (Proyecto CDTI - 2020). Private company: CATALYXX, S.A., Sevilla, SPAIN. Principal researcher (IP): A. Corma, ITQ (UPV-CSIC). Participation type: team's researcher. Duration: 2020 - 2021. Budget: 146.000,00 Euros.
- 3- Title: Economía circular para la valorización de los residuos plásticos urbanos (CEUS - Proyecto CIEN - CDTI - 2019). Private company: URBASER, S.A., Madrid, SPAIN. Principal researcher (IP): M.E. Domine, ITQ (UPV-CSIC). Duration: 2019 - 2021. Budget: 150.000,00 Euros.



- 4- Title: Disminución de acidez en bio-diesel. Private company: COPISA INDUSTRIAL S.A, Barcelona, SPAIN. Principal researcher (IP): M.E. Domine, ITQ (UPV-CSIC). Duration: 2018. Budget: 36.000,00 Euros.
- 5- Title: Estudio y desarrollo de catalizadores heterogéneos para procesos de petroquímica. Private company: ERCROS S.A., Tarragona, ESPAÑA. Principal researcher (IP): J.M. López-Nieto, ITQ (UPV-CSIC). Participation type: team's researcher. Duration: 2016 - 2019. Budget: 300.000,00 Euros.
- 6- Title: Caracterización de Biogas proveniente de digestión de residuos urbanos y desarrollo de un proceso para la producción de hidrógeno purificado a partir de biogás (3R2020+ - Proyecto CIEN 2015). Private company: URBASER, S.A., Madrid, ESPAÑA. Principal researcher (IP): M.E. Domine, ITQ (UPV-CSIC). Duration: 2016 – 2018. Budget: 120.000,00 Euros.
- 7- Title: Nano-partículas Biocidas. Private company: Laboratorios JAER, Barcelona, ESPAÑA. Principal researcher (IP): M.E. Domine, ITQ (UPV-CSIC). Duration: 2015 - 2016. Budget: 40.000,00 Euros.

C.4. Patents

- 1- M.E. Domine, A. Fernández-Arroyo, J.M. López-Nieto. Proceso catalítico para la producción de hidrocarburos y compuestos aromáticos a partir de compuestos oxigenados presentes en mezclas acuosas. WO 201924412 A1 (PCT Int. Appl.). 2019. [Assigned to CSIC - UPV].
- 2- M.E. Domine, M. Chávez-Sifontes, A. Gutiérrez. Catalyst composition. WO 2018015609 A1 (PCT Int. Appl.). 2018. [Assigned to UPM-Kymene Corporation., FINLAND].
- 3- M.E. Domine, M. Chávez-Sifontes, A. Gutiérrez, K. Vilonen, T. Strengell, P. Jokela, I. Eilos. Simple process for converting lignocellulosic materials. WO 2018015610 A1 (PCT Int. Appl.). 2018. [Assigned to UPM-Kymene Corporation., FINLAND].
- 4- M.E. Domine, M. Chávez-Sifontes, A. Gutiérrez, K. Vilonen, T. Strengell, P. Jokela, I. Eilos. Process for converting lignocellulosic materials. WO 2018015608 A1 (PCT Int. Appl.). 2018. [Assigned to UPM-Kymene Corporation., FINLAND].
- 5- A. Corma, M. E. Domine, J.L. Yaguee, F.A. Ladrón de Guevara. Method for producing 1-octanol from ethanol and n-hexanol and corresponding catalysts. WO 2017203089 A1 (PCT Int. Appl. ES 2647963). 2017. [Assigned to ABENGOA, SPAIN].
- 6- A. Corma, M.E. Domine, J.L. Yagüe, F.A. Ladrón de Guevara. Method for producing 1-octanol. EP 3219385 A1. 2017. [Assigned to ABENGOA, SPAIN].
- 7- A. Corma, M.E. Domine, J.L. Yagüe, F.A. Ladrón de Guevara. Procedimiento de obtención de 1-octanol. WO 2016075353 A1 (PCT Int. Appl. ES 2014-31672). 2016. [Assigned to ABENGOA, SPAIN].

C.5. Awards

M.E. Domine has been awarded with the “SECAT-Tesis Doctoral 2003”, SECAT, Madrid, Spain (2003), the “Estímulo a la Labor Universitaria 1995”, Córdoba, Argentine (1995).

C.6. (e. g., Institutional responsibilities, memberships of scientific societies...)

Currently, he is Editorial Board Member of Current Catalysis journal and Main Guest Editor of Nanomaterials journal. He has also participated as Managing Guest Editor of Catalysis Today journal (2013-2015). In addition, he has acted in Editorial Committees as Reviewer of more than 60 scientific journals, such as: RSC Advances, Green Chemistry, Chemical Communications, Angewandte Chemie Int. Ed., ChemSusChem, ChemCatChem, ACS Catalysis, ACS Sustainable Chemistry & Engineering, Journal of Catalysis, Applied Catalysis A: Gral., Applied Catalysis B: Environ., Catalysis Today, Catalysis Science & Technology, etc.

C.7. Others

Official Evaluator of ANEP (since 2009), external evaluator of research projects of the Junta de Andalucía and of PICT projects from Argentina (since 2012). Member of the evaluation committees of Marie Curie Fellowships – EU Program (2014 and 2015), and Advisory Board Member of Got Energy Talent Fellowships – EU Program (since 2019). Since 2015 is the CSIC representative in the EERA Program (JP-Bioenergy) and the UPV representative in the Bio-Based Industries (BIC Partnership) both of the EU.