MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

CURRICULUM VITAE

Part A. PERSONAL INFORMATION

CV date	12/06/2019

First and Family name	Iñaki Gandarias Goikoetxea		
Social Security, Passport, ID number	78907118-Y	Age	35
Researcher numbers	Researcher ID	H-1943-2015	
	Orcid code	0000-0002-4082-5352	

A.1. Current position

Name of University/Institution	Bilbao School of Engineering - University of the Basque Country (EHU/UPV)		
Department	Chemical and Environmental Engineering Department		
Address and Country	Plaza Ingeniero Torres Quevedo nº1, 48013, Bilbao		
Phone number	+34946017373	E-mail	inaki_gandarias@ehu.eus
Current position	Assistant Professor	From	12/01/2015
Espec. cód. UNESCO	2210, 3303, 3308, 3310, 3312		
Palabras clave	Chemical Engineering, biofuels, biorefinery, process engineering, catalysts, hydrogenolysis, oxidation reactions		

A.2. Education

PhD	University	Year
Chemical Engineering	- University of the Basque Country (EHU/UPV)	2007
Master in Advanced Materials	- University of the Basque Country (EHU/UPV)	2009
PhD in Advanced Materials	- University of the Basque Country (EHU/UPV)	2012

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

I have supervised two PhD thesis. Dr. Sara García-Fernández defended the first one in the year 2016 with the title "Development of advanced catalytic systems for the selective hydrogenolysis of biomass-derived polyols". The second one, titled "Levulinic acid conversion to 2-methyltetrahydrofuran over Ni-Cu/Al_2O_3 catalysts" was defended in February 2017 by the Dr. Iker Obregon Bengoa. The following figures summarizes my research publications:

- Total number of JCR articles: 29
- First Quartile: 23
- Total number of citations: 1240
- Average number of citation in the last 5 years: 196
- h factor: 18

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

To date, the focus of my research have been the study of **catalytic processes** for the selective transformation of biomass-derived building blocks into high added-value chemicals and biofuels. My PhD thesis, carried out at the School of Engineering of Bilbao under the supervision of Prof. Pedro Luis Arias, dealt with the study of **hydrogenolysis** reaction for the selective transformation of glycerol into propanediols. A special interest was placed on the use of **hydrogen donor** molecules that could reduce the requirements for molecular hydrogen. The PhD research experience was enriched with a rewarding 6-month research stay at the *Leibniz Institute for Catalysis* (Rostock, Germany) under the supervision of Dr. habil. Andreas Martin. The PhD thesis work lead to the publication of 5 JRC articles in international leading journals. As an example of the high impact of this research, the article title "*Hydrogenolysis of glycerol to propanediols over a Pt/ASA catalyst: The role of acid and metal sites on product selectivity and the reaction mechanism*", was awarded as "*Top Cited Paper*" by the prestigious "*Applied Catalysis B: Environmental*" journal in the years 2010 and 2011.

As a postdoctoral researcher, I broadened the topics of my research to other processes relevant in the biorefinery concept, as the **aqueous phase reforming** of glycerol and the production of **furfural** from the hydrolysis of lignocellulosic biomass. In 2013, I became part of the group of Prof. Mark Mascal at the University of California, Davis (USA). During the research

period at Davis we developed a process for the production of gasoline (**biogasoline**) from biomass derived levulinic acid. Besides the patent license, the results were publish in *Angewandte Chemie International Edition*. In January 2014, I joined the research group of Prof. Graham Hutchings at the Cardiff Catalysis Institute (Cardiff, United Kingdom) for a 12 months research stay. My research focused on the study of the **bio-alcohols oxidation reactions** using catalysts with supported Au, Pd and Pt nanoparticles. Since January 2015, I am assistant professor at the School of Engineering of Bilbao and member of the SuPrEn research group. My current research is focused on the **valorization of biomass** derived levulinic acid and furfural using heterogeneous catalysts that are active, selective and stable in aqueous phase. I have also carried out **process intensification** studies for the development of the biorefinery concept.
I would like to highlight my broad International experience that turned into a high number of international collaborations with renowned scientist in the different fields of catalysis. Thanks to this, I gain significant experience in the catalyst synthesis and characterization, in the study of reaction mechanisms and kinetics, and in the process engineering. All these are, indeed, relevant aspects for the development of biorefinery processes.

Part C. RELEVANT MERITS

C.1. Selected Publications

1. "Gas reactions under intrapore condensation regime within tailored metal–organic framework catalysts", I. Agirrezabal-Telleria, I. Luz, M. A. Ortuño, M. Oregui-Bengoechea, **I. Gandarias**, N. López, M. A. Lail, M. Soukri. *Nature Communications*, **2019**, 10, 2076.
2. "Production of 2-methylfuran from biomass through an integrated biorefinery approach", **I. Gandarias**, S. García-Fernández, I. Obregón, I. Agirrezabal-Telleria, P.L. Arias. *Fuel Process. Technol*. **2018**, 178, 336-343.
3. *"Selective Oxidation of n-Butanol Using Gold-Palladium Supported Nanoparticles Under Base-Free Conditions"*. **I. Gandarias**, P. J. Miedziak, E. Nowicka, M. Douthwaite, D. J. Morgan, G. J. Hutchings, S. H. Taylor. *ChemSusChem*. **2015,** 8, 473-480.
4. "*New approaches to the Pt/WOx/Al_2O_3 catalytic system behaviour for the selective glycerol hydrogenolysis to 1,3-propanediol*". S. García-Fernández, **I. Gandarias**, J. Requies, M.B. Güemez, S. Bennici, A. Auroux, P.L. Arias. *J. Catal.* ***2015****, 323, 65-75.*
5. "*Hydrodeoxygenation of the Angelica Lactone Dimer, a Cellulose-Based Feedstock: Simple, High-Yield Synthesis of Branched C7–C10*". M. Mascal, S. Dutta, **I. Gandarias**. *Angew. Chem. Int. Ed.* **2014**, 53, 1854-1857.
6. "*Heterogeneous acid-catalysts for the production of furan-derived compounds(furfural and hydroxymethylfurfural) from renewable carbohydrates: a review*". I. Agirrezabal-Telleria, **I. Gandarias**, P.L. Arias. *Cat. Today*. **2014**, 234, 42-58.
7. "*A comparison of sol-gel and impregnated Pt or/and Ni based γ-alumina catalysts for bioglycerol aqueous phase reforming*". M. El Doukkali, A. Iriondo, P.L. Arias, J. Requies, **I. Gandarias**, L. Jalowiecki-Duhamel, F. Dumeignil. *Appl. Catal. B: Environ.* **2012**, 125, 516-529.
8. "*Liquid phase glycerol hydrogenolysis by formic acid over Ni-Cu/Al_2O_3 catalysts".* **I. Gandarias**, J. Requies, P.L. Arias, U. Armbruster and A. Martin. *J. Catal.*, **2012,** 290, 79-89.
9. *"Liquid-phase glycerol hydrogenolysis to 1,2-propanediol under nitrogen pressure using 2-propanol as hydrogen source".* **I. Gandarias**, P.L. Arias, J. Requies, M. El Doukkali, M.B. Güemez. *J. Catal.*, **2011**, 282, 237-247.
10. "*Hydrogenolysis of glycerol to propanediols over a Pt/ASA catalyst: The role of acid and metal sites on product selectivity and the reaction mechanism*". **I. Gandarias**, P.L. Arias, J. Requies, M.B. Güemez, J.L.G. Fierro. *Appl. Catal. B: Environ.*, **2010**, 97, 248-256.

C.2. Research projects and grants

Project Title: Tecnologías catalíticas avanzadas para la transformación de residuos biomásicos en biocombustibles y productos renovables
Funding Entity: Ministerio de economía y competitividad (MINECO).
Duration: January 2016-December 2018 **Funding:** 156.000,00 €
Principal Investigator: Dr. Jesús Mª Requies and Dr. Pedro Luis Arias
Participation: Researcher

Project Title: Nuevos procesos catalíticos en bio-refinerías: transformación de carbohidratos en bioproductos de interés (CTQ2012-38204-C03-03)
Funding Entity: Ministerio de economía y competitividad (MINECO)
Duration: December 2013-December 2015 **Funding:** 90.000,00 €
Principal Investigator: Dr. María Belén Güemez
Participation: Researcher

Project Title: Valorización energética de la glicerina mediante el uso de sistemas intensivos microprocesadores (VALMICRO) (S-PE12UN072)
Funding Entity: Basque Government
Duration: January 2012-December 2013 **Funding:** 25.654,15 €
Principal Investigator: Dr. Victoria Laura Barrio Cagigal
Participation: Researcher

Project Title: Generación limpia de hidrogeno: procesos de tri-reformado de biogás (US11/04)
Funding Entity: Basque Government
Duration: November 2011 - October 2013. **Funding:** 54.000,00€
Principal Investigator: Dr. Victoria Laura Barrio Cagigal.
Participation: Researcher

Project Title: Nuevos materiales catalíticos para procesos sostenibles en biorefineria (BIOSOCAT)
Funding Entity: Ministerio de Ciencia e Investigación
Duration: January 2010 - December 2011 **Funding:** 145.200,00 €
Principal Investigator: Dr. María Belén Güemez
Participation: Researcher

Project Title: Investigación y desarrollo de tecnologías para el aumento de eficiencia energética, captura y valorización de CO_2 (VALCAPEF).
Funding Entity: Gobierno Vasco, Etortek Program 2009
Duration: January 2009 – Decemer 2010 **Funding:** 156.073,00 €
Principal Investigator: Dr. Jose Francisco Cambra Ibañez
Participation: Researcher

C.4. Patents

Title: "Gasoline prepared from Biomass-derived levulinic acid".
Authors: M. Mascal, S. Dutta, **I. Gandarias**
Reference: WO 2015/073889 **International Publication Date:** 21/05/2015
Applicant: The Regents of the University of California.
Designated States: International patent

C.5 Research periods in institutions outside from Spain

1. Cardiff Catalysis Institute (Post-doctoral)
City: Cardiff (United Kingdom) **Director:** Prof. Stuart Taylor
Funding entity: Basque Government **Duration:** 26/01/2014-31/12/2014 (12 months)

2. University of California Davis (Post-doctoral)
City: Davis (USA) **Director:** Prof. Marc Mascal
Funding entity: Basque Government **Duration:** 15/04/2013-31/12/2013 (9 months)

3. Leibniz Institute for Catalysis (Pre-doctoral)
City: Rostock (Germany) **Director:** Dr. habil. Andreas Martin
Funding entity: Basque Government **Duration:** 11/03/2011-11/09/2011 (6 months)

C.6 PhD Thesis Supervised

1. **PhD Candidate:** Iker Obregón Bengoa

Title: Levulinic acid conversion to 2-methyltetrahydrofuran over Ni-Cu/Al_2O_3 catalysts
Starting Date: 01/01/2014 **Thesis defense date:** 17/02/2017
Number of publications: 6

2. **PhD Candidate:** Sara García Fernandez

Title: Development of advanced catalytic systems for the selective hydrogenolysis of biomass-derived polyols
Starting Date: 01/01/2012 **Thesis defense date:** 16/05/2016
Number of publications: 6

C.7 Awards

- 2015 Nominated finalist in the "*Young Researcher Award*" given in the "*International Symposium of Green Chemistry"*, La Rochele, France.
- 2013 *"**Top Cited Papers**"* in the years 2010 y 2011 by the *Applied Catalysis B: Environmental* journal for the article: "*Hydrogenolysis of glycerol to propanediols over a Pt/ASA catalyst: The role of acid and metal sites on product selectivity and the reaction mechanism*".
- 2011 Third price in the *"GERG (The European Gas Research Group) Academic Network Prize".* Copenhague, Denmark.