MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE (CVA)

CV date	Nov 21st, 22

Part A. PERSONAL INFORMATION

First name	Javier		
Family name	Dufour Andía		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	javier.dufour@urjc.es	URL Web	
Open Researcher and Contributor ID (ORCID)		0000-0003-2497-7310	

A.1. Current position

Position	Full professor / Research Professor and Head of Unit		
Initial date	Dec. 29th, 2017 / Apr. 12th, 2010		
Institution	Rey Juan Carlos University / Fundación IMDEA Energía		
Department/Center	Dep. Chemical, Energy and Mechanical Technology / Systems Analysis Unit		
Country	Spain	Tel. number	917371117
Key words	Energy systems analysis. Life cycle Assessment. Process design, simulation and optimization. Hydrogen. Bioenergy		

A.2. Previous positions (research activity interruptions, art. 14.2.b))

1990	Grantfellow /Dep. Chem. Engineering. Complutense Univ. Madrid/ Spain
1991	Grantfellow/National Centre for Metallurgical Research/Spain
1991-1996	Assistant Professor (Ayud. Escuela Univ. /Dep. Chem. Engineering. Complutense Univ. Madrid/ Spain
1996-1997	Postdoctoral Fellow/Materials Technology Division. TNO Institute of Industrial TechnologyTNO/The Netherlands
1996-2002	Lecturer (Profesor Asociado Tipo II T. C.) /Dep. Chem. Engineering. Complutense Univ. Madrid/ Spain
2002-2003	Lecturer (Profesor Asociado Tipo III T. C.) /Dep. Chem. Engineering. Complutense Univ. Madrid/ Spain
2003-2005	Lecturer with tenure track (Profesor Contratado Doctor)/Dep. Chem. Environ. Tech. Rey Juan Carlos Univ./Spain
2005-2007	Deputy Associate Prof. (Prof. Titular de Universidad Interino)/Dep. Chem. Environ. Tech. Rey Juan Carlos Univ./Spain
2007-2017	Associate Prof. (Prof. Titular de Universidad)/Dep. Chemical and Energy Tech. Rey Juan Carlos Univ./Spain

A.3. Education

BSc in Chemical Sciences	Complutense University of Madrid	1990
PhD in Chemical Sciences	Complutense University of Madrid	1995

Part B. CV SUMMARY

Javier Dufour is currently Research Professor and Head of the Systems Analysis Unit at the Institute IMDEA Energy as well as Full Professor in the Department of Chemical, Energy and Mechanical Technology of the Rey Juan Carlos University. He joined the Institute IMDEA Energy in April 2010 by agreement with the Rey Juan Carlos University in which it was decided to share his time in a 50% basis. In his incorporation, he was in charge of creating the Systems Analysis Unit that has headed since then.

This Unit has experienced a continuous growth and, now, is formed by a team of 12 researchers. Its research lines are the analysis of energy systems, design, simulation and optimization of processes, sustainability assessment and design of energy models.

His main scientific contributions in the last 10 years have been related to the development of sustainability assessment tools. His team has developed harmonization protocols for avoiding subjectivity and easing comparability among environmental life cycle analyses of hydrogen- and microalgae-based systems. They are also developing the integration of economic and environmental life cycle analysis in simulation software to get a sustainable process design from both perspectives. As well, the team is pioneering the eco-efficiency study in the energy sector. Moreover, they are also at the forefront of the development of social life cycle assessment and life cycle sustainability assessment in the energy field, with a high emphasis in hydrogen. Actually, the team has authored some of the first publications on these topics for hydrogen and solar fuels. He is also coordinating the first European project on the eco-design of hydrogen systems.

As main scientific indicators, Prof. Dufour has co-authored 129 papers published in JCR indexed journals (86 in Q1) and 7 in dissemination journals, as well as 1 book, 10 book chapters, 3 patents and more than 190 communications in international and domestic conferences (including 4 plenary, 4 invited ones and 4 keynotes). The scientific papers have received an average annual number of 450 citations during the last 5 years for a h-index of 36 (Scopus id. 7102155508). He was ranked in *World's top 2% of Scientists List* performed by the Stanford University and Elsevier. He is or has coordinated 5 European projects (3 as full coordinator), 8 domestic ones and 35 contracts. He has also participated in 8 more European projects, 11 domestic ones and 17 contracts. The total funding received from these projects overpass 8 M€. Very recently, the Sun-to-liquid project where he participated was awarded with the 22nd Energy Globe World Award in the "Fire" category. As a result of his activities, Prof Dufour has 5 "sexenios de investigación" (research "six-years term" complements).

Currently, he is Deputy Leader of the Cross-Cutting Technical Committee of Hydrogen Europe Research. Formerly, he was Operating Agent of Task 36 "Life Cycle Sustainability Assessment of Hydrogen Energy Systems" for IEA Hydrogen TCP (01/01/15-31/12/17), Chair of the Spanish Network on Life Cycle Assessment (05/11/12-20/06/18) and Vicechair of Cross-Cutting Research Activities of Hydrogen Europe Research (01/07/16-02/07/20).

Regarding dissemination, Prof Dufour has coordinated the Blog Energy and Sustainability for more than 9 years that was recognized with the Educa.net award (2014) to the Best Educative Blog in Renewable Energy. In the ResearchGate network, his works have received 32,540 reads (Dec. 11th, 2021) for an RG Score of 41.65. The SH2E, eGHOST (both coordinated by Prof Dufour) and HYTECHCYCLING (coordinator of the IMDEA team) were awarded as the Best Success Story, along with three other projects, during the European Hydrogen Week 2021. This prize was awarded by popular voting, having received a 58% of the total votes. In innovation and transference, he led 35 contracts and participated in other 17 with companies. 3 patents were result of these collaborations. Prof Dufour holds a transference "six-years term" complement.

In terms of young researchers training, he has supervised 10 PhD theses, and 113 MSc or BSc theses. He was in charge of the creation of the System Analysis Unit in IMDEA Energy whose research team is currently composed by 4 predoc students, 2 postdoc and 2 senior researchers. Other 6 predocs and 3 postdocs along with several international researchers have passed by the Unit. He is member of the Expanded Editorial Board of the Journal of Cleaner Production. He was the chairman of the organizing committee of the HYPOTHESIS XI conference held in Toledo in Sept. 6th-9th, 2015. On the other hand, he has acted as evaluator of research projects for funding bodies in different countries: Spain (AEI, CYTED, Community of Madrid), USA (Standford and Missouri Universities), Austria, Croatia, South Africa, and Chile.

Part C. RELEVANT MERITS

C.1. Publications (10 papers selected out of 81 since 2012 till 2022)

1. A.Valente, D. Iribarren, J. Dufour (2021). Comparative life cycle sustainability assessment of renewable and conventional hydrogen. Sci. Total Environ. 756: 144132 (2021)
2. I.R. Istrate, D. Iribarren, J.L. Gálvez-Martos, J. Dufour (2020). Review of life-cycle environmental consequences of waste-to-energy solutions on the municipal solid waste management system. Resour. Conserv. Recycl.157: 104778

3. I.R. Istrate, D. García-Gusano, D. Iribarren, J. Dufour (2019). Long-term opportunities for electricity production through municipal solid waste incineration when internalising external costs. J. Cleaner Prod. 215: 870-877
4. A. Valente, D. Iribarren, J. L. Gálvez-Martos, J. Dufour (2019). Robust eco-efficiency assessment of hydrogen from biomass gasification as an alternative to conventional hydrogen: A life-cycle study with and without external costs. Sci. Total Environ. 650: 1465–1475
5. M. Martín-Gamboa, D. Iribarren, D. García-Gusano, J. Dufour (2017). A review of life-cycle approaches coupled with data envelopment analysis within multi-criteria decision analysis for sustainability assessment of energy systems. J. Cleaner Prod. 150: 164-174.
6. A. Valente, D. Iribarren, J. Dufour (2017). Harmonised life-cycle global warming impact of renewable hydrogen. J. Cleaner Prod. 149: 762-772.
7. M. Martín-Gamboa, D. Iribarren, A. Susmozas, J. Dufour (2016). Delving into sensible measures to enhance the environmental performance of biohydrogen: A quantitative approach based on process simulation, life cycle assessment and data envelopment analysis. Bioresour. Technol. 214: 376-385.
8. J. F. Peters, D. Iribarren, J. Dufour (2015). Biomass Pyrolysis for Biochar or Energy Applications? A Life Cycle Assessment. Environ. Sci. Technol. 49 (8): 5195-5202.
9. D. Iribarren, A. Susmozas, F. Petrakopoulou, J. Dufour (2014). Environmental and exergetic evaluation of hydrogen production via lignocellulosic biomass gasification. J. Cleaner Prod. 69: 165-175.
10. J. Dufour, D. P. Serrano, J. L. Gálvez, A. González, E. Soria, J. L. G. Fierro (2012). Life cycle assessment of alternatives for hydrogen production from renewable and fossil sources. Int. J. Hydrogen Energy 37: 1173-1183.

C.2. Congress (7 contributions selected out of 109 since 2012 till 2022)

1. J. Dufour (2021). New developments on life cycle sustainability assessment of hydrogen systems. XXI International Congress of the Mexican Hydrogen Society. Online, 20-24 September 2021. Plenary conference.
2. D. Candelaresi, A. Valente, E. Bargiacchi, D. Iribarren, J. Dufour and G. Spazzafumo (2021). Cycle Assessment of hydrogen passenger cars and sensitivity to technical parameters. 12th International Conference on Hydrogen Production (ICH2P-2021). Online, 19-23 September 2021. Oral communication. Alessandro Stassi Memorial Award to the Most Innovative Oral contribution
3. I. R. Istrate, J. L. Galvez-Martos, J. Dufour (2021). Municipal solid waste management pathways to achieve economic and climate benefits. International Conference on Resource Sustainability. Online, 19-23 julio 2021. Oral communication. Best presentation award
4. J. Dufour, M. Maroño, F. Palacín (2019). Fuel Cells & Hydrogen Research in Europe. 1er Congreso Iberoamericano de Ingeniería Química II International Congress of Chemical Engineering of ANQUE. Santander, 19-21 June 2019. Keynote
5. I. R. Istrate, J. L. Galvez-Martos, J. Dufour (2019). Development of a municipal solid waste management planning tool for local and regional administrations: methodological approach and preliminary application to Madrid City. 9th International Conference on Life Cycle Management. Poznan (Poland), 1-4 September 2019
6. A. Valente, D. Iribarren, J. Dufour (2018). Life cycle sustainability assessment of hydrogen from biomass gasification: a comparison with conventional hydrogen. HYPOTHESIS XIII. Singapore, 24-27 July 2018. Oral communication
7. A. Valente, D. Iribarren, J. Dufour (2017). Bringing together LCAs. Towards harmonized Life Cycle Assessment of microalgal energy systems: an application to the global warming impact of biodiesel. The 7th International Conference on Algal Biomass, Biofuels and Bioproducts. Miami (USA), 18-21 June 2017. Invited conference

C.3. Research projects (10 projects selected out of 18 since 2012 till 2022)

1. **Ref.**: 101007163. **Title:** Sustainability Assessment of Harmonised Hydrogen Energy Systems: Guidelines for Life Cycle Sustainability Assessment and Prospective Benchmarking s. **PR**: Javier Dufour. **Funded by**: Horizon 2020 (H2020-JTI-FCH-2020-1). **Budget**: 544,763 €. **Dates**: 01/01/2021 - 30/06/2024. **Role**: Coordinator of the consortium
2. **Ref.**: 101007166. **Title:** Establishing Eco-design Guidelines for Hydrogen Systems and Technologies. **PR**: Javier Dufour. **Funded by**: Horizon 2020 (H2020-JTI-FCH-2020-1). **Budget**: 275,890 €. **Dates**: 01/01/2021 - 31/12/2023. **Role**: Coordinator of the consortium.
3. **Ref.**: RTI2018-097227-B-I00. **Title:** Redefiniendo el nexo residuos-energía: un nuevo concepto de refinería regional en el marco de la economía circular. **PR**: Javier Dufour, Patricia Pizarro. **Funded**

by: Agencia Estatal de Investigación. **Budget**: 181.500 €. **Dates**: 01/01/2019- 31/12/2021. **Role**: Principal researcher.

4. **Ref.**: 101017928. **Title:** A hybrid reactor for solar CO_2 and N_2 conversion coupled to wastewater treatment. **PR**: Víctor de la Peña (IMDEA Energy). **Funded by**: Horizon 2020 (FETPROACT-EIC-07-2020). **Budget**: 380.220 €. **Dates**: 01/01/2021 - 31/12/2023. **Role**: Researcher.
5. **Ref.**: 654.408. **Title:** Integrated solar-thermochemical synthesis of liquid hydrocarbon fuels. **PR**: Andreas Sizmann (Bauhaus Luftfahrt E.V.). **Funded by**: Horizon 2020 (H2020-LCE-2015-1). **Budget**: 380.220 €. **Dates**: 01/01/2016 - 31/12/2019. **Role**: Researcher.
6. **Ref.**: 700.190. **Title:** New technologies and strategies for fuel cells and hydrogen technologies in the phase of recycling and dismantling. **PR**: Ana Férriz (FHa). **Funded by**: FCHJU-H2020. **Budget**: 93.012 €. **Dates**: 01/05/2016 - 30/04/2019. **Role**: Principal researcher of IMDEA Energy team.
7. **Ref.**: CTQ2014-52907-R. **Title**: Advanced catalytic systems for the sustainable transformation of cellulosic biomass into high-added value bioproducts. **PR**: Juan Antonio Melero Hernández and Javier Dufour Andía (Rey Juan Carlos University). **Funded by**: Ministerio de Economía y Competitividad. **Budget**: 134.000 €. **Dates**: 01/01/2015-30/06/2018. **Role**: Principal researcher
8. **Ref.:** 604.307. **Title:** Cascade deoxygenation process using tailored nanocatalysts for the production of biofuels from lignocellulosic biomass. **PR**: David Serrano (IMDEA Energy). **Funded by**: European Commission (FP7). **Budget**: 850.340 €. **Dates**: 01/11/2013 - 30/10/2017. **Role**: Researcher
9. **Ref.:** 006-ABEL-CM-2014A. **Title:** Checking the actual sustainability of renewables. Developing of new tools. **PR**: Javier Dufour. **Funded by**: European Economic Area (EEA) Agreement: Iceland, Liechtenstein and Norway. **Budget**: 19.250 €. **Dates**: 01/08/2014 - 30/11/2015. **Role** Coordinator of the consortium
10. **Ref.:** CTQ2011-28216-C02-02. **Title:** Análisis de las rutas de obtención de biocarburantes de elevada densidad energética a partir de biomasa lignocelulósica vía la síntesis de moléculas base. **PR**: Javier Dufour Andía. **Funded by**: Ministerio de Ciencia e Innovación. **Budget**: 71.390 €. **Dates**: 01/01/2012 - 31/12/2014. **Role** Principal researcher

C.4. Contracts, technological or transfer merits (10 contracts selected out of 39 since 2012 till 2022)

1. Estudio prospectivo de la producción, logística y demanda de hidrógeno renovable en España. **PR**: Javier Dufour. **Funded by:** Fundación para el Desarrollo Nuevas Tecnologías del Hidrógeno Aragón (FHa) e IDAE. **Budget**: 31.680 €. **Dates:** 15/06/2021- 14/06/2022.
2. Análisis del ciclo de vida del proceso de destilación de Perseo Biotechnology para la producción de bioetanol a partir de FORSU. **PR**: Javier Dufour. **Funded by:** Perseo Biotechnology S.L. **Budget**: 8.900 €. **Dates:** 01/10/2021-15/01/2022.
3. Estudio de viabilidad técnico, económico y ambiental de tecnologías existentes para la reducción de la huella de carbono en la planta de secado térmico de lodos de Loeches. **PR**: Javier Dufour. **Funded by:** Canal de Isabel II Gestión, S.A. **Budget**: 14.250 €. **Dates:** 24/05/2021- 23/11/2021.
4. Metastudy on LCA Analysis Applied to the Maritime Sector. **PR**: Javier Dufour. **Funded by:** JRC Petten. **Budget**: 14.500 €. **Dates:** 05/06/2020-04/12/2020.
5. Estudio tecno-económico de sistemas de producción, transporte y almacenamiento de hidrógeno. **PR**: Javier Dufour. **Funded by:** Rivadesar. **Budget**: 10.500 €. **Dates:** 17/01/2020-31/05/2020.
6. Simulation of Perseo Process. Inventory of environmental impacts and minimization measurements of the Perseo Process. **PR**: Javier Dufour. **Funded by:** IMECAL and KIC Innoenergy **Budget**: 17.456 €. **Dates:** 30/06/2015-31/12/2015 and 01/04/2016-30/04/2016.
7. H2R2. **PR**: Javier Dufour. **Funded by**: Repsol S.A. **Budget:** 46.825€. **Dates**: 01/05/2014 - 30/10/2014.
8. Waste to Biofuel**.** **PR**: Javier Dufour. **Funded by**: BEFESA and Abengoa Bioenergy New Technologies. **Budget:** 33.082€. **Dates**: 01/11/2012 - 01/11/2013.
9. Techno-economic evaluation of transformation processes of lignocellulosic biomass. **PR**: Javier Dufour. **Funded by**: Repsol S.A. **Budget**: 110.000 €. **Dates:** 19/09/2012 - 18/05/2013.
10. Development of photo-catalysts for the obtaining of marketable products through CO_2 valorization. **PR**: Javier Dufour, Juan Manuel Coronado and Víctor de la Peña. **Funded by**: Repsol S.A. **Budget**: 110.613 €. **Dates**: 03/09/2012-11/11/2013.