

CV date	30/5/2023
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Part A. PERSONAL INFORMATION

First name	Xavier		
Family name	Gamisans Noguera		
e-mail	xavier.gamisans@upc.edu		
Open Researcher and Contributor ID (ORCID)	0000-0003-1856-8692		

A.1. Current position

Position	Full Professor		
Initial date	21/7/2002		
Institution	Universitat Politècnica de Catalunya		
Department/Center	Mining, Industrial and ICT Engineering	Manresa School of Engineering	
Country	Spain	Teleph. number	34938777234
Key words	Bioreactors, biofiltration, mass transfer, mathematic modeling, biofilms, GHG valorization, biogas upgrading		

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Chemical Engineering	Universitat Politècnica de Catalunya	2001
Grad. in Chemistry (Engineering)	Universitat Autònoma de Barcelona	1992

Part B. CV SUMMARY

Dr Xavier Gamisans, born in Manresa (1968), is Professor at the Polytechnic University of Catalonia (UPC-BarcelonaTech), in the area of knowledge of Chemical Engineering. He currently teaches at the Polytechnic School of Engineering of Manresa (EPSEM). PhD in chemical engineering (UPC, 2001), he has done several stays abroad, highlighting the predoctoral studies at the University of Nottingham (UK, 2000) and postdoctoral studies at Duke University (USA, 2009-2010) and at the Autonomous Metropolitan University (Mexico, 2012). The international networking activity includes currently scientific collaborations with researchers from Greece, Netherlands, Chile, USA, Germany, Italy, Mexico and Ireland among others.

He has published 76 articles in international journals (indexed in the Journal Citation Reports), the majority (> 75%) within the first quartile. In the last 5 years he has been a reviewer for magazines with a high impact index, with an average of 20 reviews per year. The index of Hirsch is $h = 27$. He has presented more than 130 contributions in conferences and workshops, most of which are oral communications. In this sense, he assiduously participates in the most relevant international conferences in his field of research (Biotechniques for Air Pollution Control Conference, IWA Conference on Odour and VOCs, DUKE-UAM Biofiltration Conference, NOSE, etc). He has organized several scientific meetings at a national and international level (conferences, workshops, seminars...). He has published 25 books and book chapters related to teaching activities, research and knowledge transfer. He has been Principal Investigator in 9 competitive projects, and 8 more with companies and administrations. Collaborator in 6 more competitive projects. A summary of Dr Gamisans scientific activity can be checked at "FUTUR" the website for the scientific production of UPC researchers (<https://futur.upc.edu/XavierGamisansNoguera>).

His areas of expertise are included in the research line of Environmental Chemical Engineering and Biotechnology, specifically in the use of biological systems for the treatment of gaseous pollutants and odors. He also has extensive experience in the study of interfacial gas-liquid transport phenomena and in the use of advanced modelling tools. In recent years he has specialized in the use of biological systems for the application of the circular economy concept. This is a change in the research paradigm at considering gaseous emissions from wastes to potential resources. Also, he has deep knowledge regarding the use of biotechnologies for recovery of valuable metals from electronic and electric wastes. From the research activity, Dr Gamisans has gained international recognition as specialist in circular bioeconomy applied to waste gaseous emissions. The culmination of this was the recent granting of the LIFE BIOGASNET project (<https://biogasnet.eu/>), in which Dr. Gamisans is Project Coordinator.

His commitment with technology transfer is strong. This is confirmed by different indicators such as the granting of 3 patents, the participation in 9 projects directly funded by companies, and the foundation of the spin-off AERIS Tecnologías Ambientales S.L. (<http://aeris.es/>).

He has supervised 11 doctoral theses related to the biological treatment of gaseous pollutants and the use of low cost adsorbents for water decontamination. Currently he is co-supervising 2 PhD theses. He has also supervised more than 90 final degree projects and master's theses on different areas of chemical, environmental and biotechnology engineering. Some of his graduated PhD's are occupying relevant positions at academia (UPC, UdG), industry and research centers (EURECAT, BETA). Dr Gamisans is coordinator since 2006 of the research group BIOGAP, acknowledged as Consolidated Research Group for the Catalan Regional Government. He is also reviewer for the Agencia Nacional de Evaluación de la Calidad y Acreditación (ANECA) and the Agencia Española de Investigación (AEI).

He has held the following management positions: Director (2006) and Deputy Director of Research (2000-2006) of the Department of Mining Engineering and Natural Resources of the UPC, Deputy Director of Research and Innovation (2014-2020) of the Polytechnic School of Engineering of Manresa (EPSEM-UPC). From 2018 he is also coordinator of the new Specific Research Center of the UPC "Smart and Sustainable Resources (SSR-UPC)" (<https://smartresources.upc.edu/es>), a research center located and the EPSEM-UPC with more than 30 investigators. The Research center SSR-UPC is part of the TECNIO network of the Catalan Government. ACCIÓ (Catalan Government), under the TECNIO label, has identified the developers of the most innovative technologies in the Catalan R&D system with different technological capacities and with the capacity to transfer them to the market. Dr Gamisans has the accreditation of university full professor by ANECA from 2019.

Part C. SOME RELEVANT MERITS (last 10 years)

C.1. Publications

- 1) Zhou, X.; Fernandez-Palacios, E.; Dorado, A. D.; **Gamisans, X.**; Gabriel, D. (2022) Assessing main process mechanism and rates of sulfate reduction by granular biomass fed with glycerol under sulfidogenic conditions. *Chemosphere*, Vol. 286, p.131649.
- 2) Guimera, X.; Mora, M.; Dorado, A.D.; Bonsfills, A.; Gabriel, D.; **Gamisans, X.** (2021) Optimization of SO₂ and NO_x sequential wet absorption in a two-stage bioscrubber for elemental sulphur valorisation. *Environmental science and pollution research*, Vol. 28, p.24605-24617.
- 3) Guimera, X.; Mora, M.; Lopez, L.; Gabriel, G.; Dorado, A.D.; Lafuente, F.J.; **Gamisans, X.**; Gabriel, D. (2020) Coupling dissolved oxygen microsenors measurements and heterogeneous respirometry for monitoring and modeling microbial activity within sulfide-oxidizing biofilms. *Chemical engineering journal* Vol. 400, num. 125846.
- 4) Prades, L.; Fabbri, S.; Dorado, A.D.; **Gamisans, X.**; Stoodley, P.; Picioreanu, C. (2020) Computational and experimental investigation of biofilm disruption dynamics induced by high-velocity gas jet impingement. *mBio*, Vol 11, num.1.
- 5) Guimera, X.; Dorado, A.D.; Bonsfills, A.; Gabriel, G.; Gabriel, D.; **Gamisans, X.** (2016) Dynamic characterization of external and internal mass transport in heterotrophic biofilms from microsenors measurements. *Water research*, Vol. 102, p. 551-560.

- 6) Prades, L.; Dorado, A.D.; Climent, J.; Guimera, X.; Chiva, S.; **Gamisans, X.** (2016) CFD modeling of a fixed-bed biofilm reactor coupling hydrodynamics and biokinetics. *Chemical engineering journal* Vol. 313, p. 680-692.
- 7) Montebello, A.M.; Mora, M.; Lopez, L.; Bezerra, T.; **Gamisans, X.**; Lafuente F.J.; Baeza, M.; Gabriel, D. (2014) Aerobic desulfurization of biogas by acidic biotrickling filtration in a randomly packed reactor. *Journal of hazardous materials*, Vol. 280, p. 200-208
- 8) Lopez, L.; Dorado, A.D.; Mora, M.; **Gamisans, X.**; Lafuente Sancho, F.J.; Gabriel, D. (2016) Modeling an aerobic biotrickling filter for biogas desulfurization through a multi-step oxidation mechanism. *Chemical engineering journal*, Vol. 294, p. 447-457.
- 9) Moya A.; Guimerá, X.; del Campo, F.J.; Prats-Alfonso, E.; Dorado, A.D.; Baeza, M.; Villa, R.; Gabriel, D.; **Gamisans X.**; Gabriel, G. (2015) Profiling of oxygen in biofilms using individually addressable disk microelectrodes on a microfabricated needle. *Microchimica Acta*, Vol. 182, p. 985-993.
- 10) Mora, M.; Lopez, L.; **Gamisans, X.**; Gabriel, D. (2014) Coupling respirometry and titrimetry for the characterization of the biological activity of a SO-NR consortium. *Chemical engineering journal*, Vol. 251, p. 111-115.

C.2. Congress

A list of conference contributions can be found in:

<https://futur.upc.edu/180168/as/cHJlc2VudGFjaW90cmViYWxschJlc2VudGF0ZW5jb25ncmVz#produccio>

C.3. Research projects

Title of the project: LIFE BIOGASNET, sustainable purification system in landfills and municipal solid wastes treatment plants.

Funding entity: European **Ref:** LIFE18ENV/ES/000426
Comission-LIFE Program

Amount: 1.239.957 €

Duration 2019-2023

Principal Investigator: Javier Gamisans

Title of the project: Improvement of combustion gases (NOx) treatment through bioreactors with enhanced mass transfer and the use of advanced biofilm analysis tools

Funding entity: Agencia Española **Ref.:** RTI2018-099362-B-C22
de Investigación (AEI)

Amount: 72.000 €

Duration 2019-2022

Principal Investigator: Xavier Gamisans

Title of the project: Development of a process of selective SOx and NOx absorption of combustion gases and biofilm monitoring of the biological process for its recovery.

Funding entity: MINECO **Ref.:** CTQ2015-69802-C2-2-R

Amount: 116.000 €

Duration 2016-2018

Principal Investigator: Xavier Gamisans

Title of the project: Monitoring, modeling and control for the optimization of anoxic and aerobic desulfuration biotrickling filters.

Funding entity: CICYT **Ref.:** CTM2012-37927-C03-02

Amount: 123.000 €

Duration 2013-2015

Principal Investigator: Xavier Gamisans

Title of the project: DESULFURATION OF ENERGY-RICH GASES THROUGH BIOTRICKLING FILTERS: DEVELOPMENT AND OPTIMIZATION OF THE PROCESS IN ANOXIC AND AEROBIC CONDITIONS.

Funding entity: CICYT **Ref.:** CTM2009-14338-C03-03.

Amount: 123.000 €

Duration 2010-2012

Principal Investigator: Xavier Gamisans

C.4. Contracts, technological or transfer merits

C.4.1. Contracts

Title of the project: Membrane Technology for the treatment of gaseous pollutants.	
Funding entity: ECOTEC SL	
Amount: 4.300 €	
Duration 2014-2015	Principal Investigator: Xavier Gamisans
Title of the project: Conversion of chemical scrubbers into biotrickling filters for the treatment of gaseous effluents.	
Funding entity: ECOTEC SL	
Amount: 74.354 €	
Duration 2010-2012	Principal Investigator: Xavier Gamisans/David Gabriel
Title of the project: New formulations for obtaining blue ultramarine pigment.	
Funding entity: Grupo FERRO-NUBIOLA	
Amount: 24.805 €	
Duration 2015-2016	Principal Investigator: Xavier Gamisans/David Gabriel
Title of the project: Elimination of high loads of ammonia in gaseous effluents through optimized biological technologies.	
Funding entity: ECOTEC SL	
Amount: 64.407 €	
Duration 2018-2020	Principal Investigator: Xavier Gamisans/A.D. Dorado

C.4.2. Patents

- 1. Inventors:** Cubides, D.; Jubany, I.; Gamisans, X.; Guimerà, X.
Title: A process for the nitric oxide abatement through biological treatments
Núm. de sol·licitud: P6053EP00 **Priority country:** European Union
Year: 2022
Entity: Universitat Politècnica de Catalunya/EURECAT
- 2. Inventors:** Dorado, AD.; Gamisans, X.; Solé, M.; Lao, C.; Benzal, E.
Title: Method for the biological recovery of metals in electronic waste
Núm. de sol·licitud: WO2019206755-A1 **Priority country:** European Union
Year: 2019
Entity: Universitat Politècnica de Catalunya
- 3. Inventors:** Casals, P.; Ortega, C.; Lafuente, F.J.; Gabriel, D.; Gamisans, X.
Title: Biological procedure for H₂S removal from a gas
Núm. de sol·licitud: EP20070025170 **Priority country:** Unión Europea
Year: 2013
Entity: Casals Cardona Industrial S.A.