

Part A. PERSONAL INFORMATION		CV date	26/02/2020
First and Family name	Gonzalo Guirado López		
Social Security, Passport, ID number		Age	45
Researcher numbers	Researcher ID	D-7505-2014	
	Orcid code	https://orcid.org/0000-0003-2128-7007	

A.1. Current position

Name of University/Institution	Universidad Autónoma de Barcelona		
Department	Facultad de Ciencias - Departamento de Química		
Address and Country	Edificio C/n – Campus UAB, Bellaterra, Barcelona, Spain		
Phone number	935814882	E-mail	gonzalo.guirado@uab.es
Current position	Associate Professor ("Profesor Titular de Universidad")	From	01/12/2010
Espec. cód. UNESCO	221005-Electrochemistry		
Palabras clave	Electron transfer, Green Chemistry, Ionic Liquids, Smart Molecular Devices, Electrochromism		

A.2. Education

PhD	University	Year
BSc in Chemistry	Universidad Autónoma de Barcelona	1996
PhD in Chemistry	Universidad Autónoma de Barcelona	2002

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

6-year periods of research activity ("sexenios"): 3 (last period evaluated 2010-2015).

PhD Thesis supervised in the last 10 years: 11 (6 in progress) Patents: 3

Publications in Q1 journals Q1: 62 / 72 h-index: 20

Number of Citations: 1085 (15.5 citation/publication) Citation/year (2013-2017): 83,4

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

I obtained my PhD in Chemistry in 2002 in the area of physical organic chemistry (molecular electrochemistry), under the supervision of Professors I. Gallardo and J. Marquet. The thesis received the UAB PhD Thesis Excellence Award-2002. After that, I worked with professor J. P. Dinnocenzo, as a post-doctoral researcher on molecular photochemistry, at the Chemistry Department and the Center for Photoinduced Charge Transfer of the University of Rochester (NY, US) for 11 months. After this first postdoctoral period, I joined for one year the CEMES-CNRS NanoSciences Group (Toulouse, France) working on the design, synthesis and characterization of electrochromic and photochromic molecular switches with professors J. P. Launay and C. Coudret. In 2005, I returned to the UAB and joined the Photochemistry, Electrochemistry and Organic Reactivity Group – Molecular Electrochemistry Division at the UAB, as a tenure-track lecturer. Two years later, I was awarded with the CIDETEC Young Researcher in Electrochemistry Award 2007. In 2010, I was promoted to Associate Professor (Profesor Titular de Universidad) at the same university. I was also appointed as a visiting professor in the University Paul Sabatier Toulouse III (France) in 2012. Finally, I was the PhD Coordinator of Chemistry Studies in the UAB and the Coordinator of the Master of Experimental Chemistry from 2011 to 2015.

Since 2010, I launched two new research lines at the UAB. The first one is based on combining three Green Chemistry key concepts, Green Solvents-CO₂-Electrochemistry, being pioneer in Spain in performing electrochemistry in Ionic Liquids and their development of electrochemically promoted carboxylation reactions using CO₂ as a building-block for synthesizing molecular organic compounds. Those studies received the UAB Aposta Award in the Environmental Category in 2011. The second research line is devoted to study the design

of new smart switchable molecular systems, paying special attention to electrochromic systems, for making green devices and self-powered electrochromic wearables.

Up to now, I have advised 11 Ph.D. Theses (6 in progress), 26 Master Theses, 11 BSc Theses, published over 70 scientific articles in international journals (being the 90% of them in the first quartile), 3 covers, 3 patents and 3 book chapters. I have also either coordinated or participated in more than 16 national projects funded by public national, regional and university agencies (3 as principal investigator (PI)), two international projects of the National Science Foundation (NSF) projects and 7 industrial research projects (being PI in 3) involving the following companies: Henkel, Afinitica, BASF, Air Products, Leitat, Inkzar, Arista S.G., Montajes Serigráficos S.L. Paymser, and Bioiberica. In summary, in the last decade I have acted as a corresponding author in more than 65% of the publications, received different personal awards and grants from competitive calls and research contracts with industrial is close to ~250 000 € as a PI (and ~1 500 000 as a researcher), built a stable (inter)national research and industry network, and shown team working skills, initiative, and creativity.

Part C. RELEVANT MERITS

C.1. Publications (including books)

During the last decade I have published 40 articles (34 in Q1 journals), being corresponding author in 29 of them, 3 covers and 2 book chapters. The articles were published in the following areas: *Science* (1 *Nature Comm.*) *Multidisciplinary Chemistry* (1 *J. Am. Chem. Soc.*, 2 *Chem. Sci.*, 1 *Chem. Commun.*, 1 *Green Chem.*, 5 *Chem. Eur. J.*, 3 *RSC Advances*, 5 *New J. Chem.*, 1 *Molecules*, 1 *J. Chem. Edu.*), *Electrochemistry* (1 *Electrochim. Acta*, 1 *Batteries & Supercaps*, 1 *Chem. Electro. Chem.*, 1 *Electroanal.*, 1 *Sensors & Actuators: B*) *Physical Chemistry* (4 *Phys. Chem. Chem. Phys.*, 1 *J. Phys. Chem. A*), *Organic Chemistry* (3 *J. Org. Chem.*, 1 *Eur. J. Org. Chem.*, 1 *Tetrahedron Lett.*), *Inorganic Chemistry* (1 *Inorg. Chem.*, 1 *Catalyst*), *Materials Science* (1 *J. Phys. Chem. C*, 1 *ACS App. Mat. Interfaces*), *Applied Chemistry* (1 *Dyes & Pigm.*, 1 *Macromolecules*, 1 *Proceedings*). The more relevant publications over this period are the following ones:

1) Title: An all-photonic full color RGB system based on molecular photoswitches Naren, G.; Hsu, C-W; Li, S.; Morimoto, M.; Tang, S.; Hernando, J.; Guirado, G.; Irie, M.; Raymo, F.M.; Sundén, H.; Andréasson, J. *from Nature Comm.* (2019), 10, 3996. (Category: Chemistry - General Chemistry, Q1, rang 13 / 371, percentile 97%).

2) Title: Electrocarboxylation of halobenzonitriles: An environmentally friendly synthesis of phthalate derivatives *by* Reche, I.; Mena, S.; Gallardo, I.; Guirado, G. *from Electrochimica Acta* (2019), 320, 13475. (Category: Chemistry - Electrochemistry, Q1, rang 3/31, percentile 91%).

3) Title: Multistimuli-Responsive Fluorescent Switches Based on Spirocyclic Meisenheimer Compounds: Smart Molecules for the Design of Optical Probes and Electrochromic Materials *by* Villabona, M.; Benet, M.; Mena, S.; Al-Kaysi, R.O.; Hernando, J.; Guirado, G. *from Journal of Organic Chemistry* (2018), 83(16), 9166-9177. (Category: Chemistry- Organic Chemistry, Q1, rang 17 / 177, percentile 90%).

4) Title: A multi-stimuli responsive switch as a fluorescent molecular analogue of transistors *by* Gallardo, I.; Guirado, G.; Hernando, J.; Morais, S.; Prats, G. *from Chemical Science* (2016), 7(3), 1819-1825. Category: Chemistry -General Chemistry, Q1, rang 19/371, percentile 95%).

5) Title: Color-Tunable White-Light-Emitting Materials Based on Liquid-Filled Capsules and Thermally Responsive Dyes *by* Vazquez-Mera, N.; Otaegui, J.R.; Sanchez, R.S.; Prats, G.; Guirado, G.; Ruiz-Molina, D.; Roscini, C.; Hernando, J. *from ACS Applied Materials & Interfaces* (2019), 11(19), 17751-17758. (Category: Materials Science - General Materials Science, Q1, rang 24 / 439, percentile 94%).

6) Title: Bidirectional Redox Molecular Switches: Electron-induced Cyclization and Cycloreversion Processes in Metacyclophanes *by* Gallardo, I.; Guirado, G.; Moreno, M.; Prats,

G.; Takeshita, M. *from* Chemistry - A European Journal (2012), 18(32), 9807-9812. (Category: Chemistry - Organic Chemistry, Q1, rang 14 / 177, percentile 92%).

7) Title: Light- and Redox-Controlled Fluorescent Switch Based on a Perylenediimide-Dithienylethene Dyad *by* Sanchez, R. S.; Gras-Charles, R.; Bourdelande, J. L.; Guirado, G.; Hernando, J. *from* Journal of Physical Chemistry C (2012), 116(12), 7164-7172. (Category: Materials Science - Surfaces, Coatings and Films, Q1, rang 12 / 116, percentile 90%).

8) Title: Electrochemically promoted nucleophilic aromatic substitution in room temperature ionic liquids-an environmentally benign way to functionalize nitroaromatic compounds *by* Cruz, H.; Gallardo, I.; Guirado, G. *from* Green Chemistry (2011), 13(9), 2531-2542. (Category: Environmental Science - Environmental Chemistry, Q1, rang 3 / 100, percentile 97%).

9) Title: Reexamination of the Rehm-Weller Data Set Reveals Electron Transfer Quenching That Follows a Sandros-Boltzmann Dependence on Free Energy *by* Farid, S.; Dinnocenzo, J. P.; Merkel, P. B.; Young, R. H.; Shukla, D.; Guirado, G. *from* Journal of the American Chemical Society (2011), 133(30), 11580-11587. (Category: Chemistry - General Chemistry, Q1, rang 7 / 371, percentile 98%).

C.2. Research projects and grants

During the last 10 years the total funding received as a researcher was c.a. 800 000 € (125 000 € as a PI). I have participated 6 research projects from international (1 National Science Foundation project), national (2 "Plan Nacional de I+D+i", 1 Network of Excellence and 1 "Acción Integrada Hispano-Francesa"), regional (1 SGR project) and university (1 "APOSTA" project) agencies. The 7 most relevant projects of this period are listed below:

1) Title: Network of Excellence "Environmental and Energy Applications of the Electrochemical Technology" (CTQ2017-90659-REDT)
Funding source: Ministerio de Ciencia, Innovación y Universidades.
Role of the G. Guirado responsible of the Adhered Group "Electrochemistry and Green Chemistry Group". (PI of the project- Network of Excellence: M. A. Rodrigo (UCLM))
Period: 1/07/2018 – 31/06/2020 *Amount:* 20.000 €

2) Title: Nuevos métodos y materiales sostenibles basados en procesos fotoquímicos y electroquímicos (Reference CTQ2015-65439)
Funding source: Entidad financiadora y referencia: Ministerio de Economía y Competitividad
Role of the G. Guirado as investigator: PI (PIs of the project: G. Guirado – J. Hernando)
Period: 1/1/2016 – 31/09/2019 *Amount:* 88 330 €

3) Title: "Grup d'Electroquímica i Química Verda" – "Grupo de Investigación Reconocido por la Generalitat de Cataluña" (2017 SGR 690)
Funding source: Agaur. Generalitat de Cataluña
Role of the G. Guirado as investigator: PI . *Period:* 2017 - 2019

4) Title: Transferencia electrónica en química molecular y en nanotecnología molecular
Funding source: Entidad financiadora y referencia: Ministerio de Economía y Competitividad (Reference CTQ2012-30853)
Role of the G. Guirado as investigator: Researcher (PI of the project: I. Gallardo)
Period: 1/1/2013 – 31/12/2015 *Amount:* 134 550 €

5) Title: Reactivities and Mechanisms for Group 14 Cation Radical Fragmentation Reactions Transferencia (Reference NSF-1057615)
Founding Source: National Science Foundation (US)
Role of the G. Guirado as investigator: Researcher (PI of the project: J. P. Dinnocenzo, University of Rochester)
Period: 15/9/2011 – 31/08/2015 *Amount:* 530 020 \$

6) *Title:* Electrochemical sustainable strategies for reducing the impact of carbon dioxide using ionic liquids (ECO-IONIC)

Funding Source: Universidad Autónoma de Barcelona

Role of the G. Guirado as investigator: **PI**

Period: 12/12/2011 – 11/12/2013 Amount: 25 000 €

C.3. Contracts

Since 2008, I have participated in 5 contracts with industrial companies, two of the most relevant are listed below, with a total amount of ~ 350 000 € (~ 108 000 € as PI). Moreover, I have currently 5-years research agreements and advisory services with Henkel (2019-2024, advisory services: 6000 €/year), Afinitica, Gomà-Camps Grup SL. and Leitat:

1) *Title:* SEAMLESS: a non-invasive lactate sweat monitor

Funding Source: Generalitat de Catalunya (Departament d'Empresa i Coneixement, Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR), Secretaria d'Universitats i Recerca.

Role of the G. Guirado as investigator: **PI** (PIs of the project: G. Guirado (UAB) – J. del Campo (CNM-CSIC). *Period:* 30/9/2017 – 30/06/2019 Amount: 100 000 €

2) *Title:* CENIT LIQUION: Investigación en tecnologías de LIQUIDOS IÓNICOS para aplicaciones industriales.

Funding Source and Company: BASF and CDTI

Role of the G. Guirado as investigator: Researcher (PI of the project: I. Gallardo (UAB))

Period: 1/10/2010 – 30/09/2013 Amount: 101 000 €

C.4. Patents Licensed

1) *Title:* Luminescent composites with polythiourethane matrices containing nanocrystals and their uses *by* Goethel, F.; Carreras, P.; Minnaar, J. L.; Torres, E.; Salhi, F.; Estruga, M.; Carrete, A.; Rodriguez, D.; Smith, D.; Marquet, J.; Sebastián, R. M.; Guirado, G. *from* PCT Int. Appl. (2017), WO 2017140490 A1 20170824.

2) *Title:* "Process for the preparation of 10-cyano-9,10-dihydro-9-anthracenecarboxylate compounds as useful intermediates for the synthesis of SPAN derivatives via electrocarboxylation" *by* Osso, J. O.; Vega, M. L.; Gallardo, I.; Guirado, G.; Gomez, A. B.; Reche, I. *from* Eur. Pat. Appl. (2013), EP 2607349 A1 20130626

C.5, C.6, C.7... (e. g., Institutional responsibilities, memberships of scientific societies...)

- *Four individual research fellowships:* 1) 2005 Juan de la Cierva fellowship (Ministry of Education and Science) 2) 2004 – 2005 Ministry of Education and Science Postdoctoral Fellowship, CEMES/CNRS Nanoscience Group, Toulouse, France (Advisor: Prof. Jean Pierre Launay); 3) 2003 – 2004 Center for Photoinduced Charge Transfer Postdoctoral Fellowship and Ministry of Education and Science Postdoctoral Fellowship, University of Rochester, NY, United States (Advisor: Prof. Joseph P. Dinnocenzo); 4) 1998-2001 Ministry of Technology and Science of Spain Ph.D. Research Fellowship; Advisors: Prof. Iluminada Gallardo and Prof. Jordi Marquet.
- *7 oral invited communications* in national and international meetings since 2009.
- *Commissions of trust:* 1) From 2011, Scientific Advisory Board of "Programme Blanc SIMI 8 2012" and JCJC SIMI 8 2011 of the "Agence Nationale de la Recherche (ANR)", France; 2) From 2012, Scientific Advisory Board of "Plan Nacional de I+D+I" ANEP 2012, MINECO, Spain; 3) From 2006, Reviewer of the following journals: *Electrochim. Acta*, *Chem. Comm.*, *Phys. Chem. Chem. Phys.*, *J. Amer. Chem. Soc.*, among others.
- *Organisation of scientific meetings:* 2nd, 3rd and 4th Editions of "Jornades Doctorals" – Formation Activities of PhD Chemistry Program with the attendance of three Nobel Prizes (Prof. J.M. Lehn (1987), E. Negishi (2010) and V. Ramakrishnan (2009)) .