***CURRICULUM VITAE ABREVIADO (CVA)***

***IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.***

## Part A. PERSONAL INFORMATION

| | | | |
|---|---|---|---|
| First name | Joaquín | | |
| Family name | García Álvarez | | |
| Gender (*) | Male | Birth date (dd/mm/yyyy) | |
| Social Security, Passport, ID number | | | |
| e-mail | | URL Web: | |
| Open Researcher and Contributor ID (ORCID) (*) | | | |

### A.1. Current position

| | | | |
|---|---|---|---|
| Position | Profesor Titular de Universidad (Associate Professor) | | |
| Initial date | 20/08/2018 | | |
| Institution | Universidad de Oviedo | | |
| Department/Center | Departamento de Química Orgánica e Inorgánica | | |
| Country | Spain | Teleph. number | |
| Key words | Organometallic Chemistry, Homogeneous Catalysis, Green Chemistry, Deep Eutectic Solvents, Hybrid One-Pot Tandem Synthesis | | |

### A.2. Previous positions (research activity interuptions, indicate total months)

| Period | Position/Institution/Country/Interruption cause |
|---|---|
| 2001-2005 | PhD student/Universidad de Oviedo/Spain |
| 2005-2007 | PostDoctoral Researcher/University of Strathclyde/UK |
| 2005-2009 | Regional "Clarín" PostDoctoral Researcher/Universidad de Oviedo/Spain |
| 2009-2011 | "Juan de la Cierva" PostDoctoral Researcher/Universidad de Oviedo/Spain |
| 2012-2016 | "Ramón y Cajal" PostDoctoral Researcher/Universidad de Oviedo/Spain |
| 2017-2018 | Profesor Contratado Doctor (Assistant Professor)/Universidad de Oviedo/Spain |
| 2018- | Profesor Titular (Associate Professor)/Universidad de Oviedo/Spain |

### A.3. Education

| PhD, Licensed, Graduate | University/Country | Year |
|---|---|---|
| Licenciado en Química (Bsc in Chemistry) | Universidad de Oviedo/Spain | 2001 |
| Doctorado en Química (PhD in Chemistry) | Universidad de Oviedo/Spain | 2005 |

## Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

General indicators of quality of scientific production:

- 3 sexenios (six-year research periods, last one awarded 31/12/2019)
- Number of publications (WOS): 93 (publishing every year without exception since 2002). Number of Q1 publications: 64; Number of publications as corresponding author (*) 61; Total times cited: 3.039. Average times cited (2019-2023): 294,8 times cited/year. H index: 35
- I have been the only supervisor of 2 PhD Thesis (Cum Laude). I am currently supervising 2 PhD Thesis.
- 13 book chapters in Homogeneous Catalysis, Sustainable/Organometallic Chemistry.
- PI of international (1), national (4), regional (1) projects and 2 industrial contracts. 2 Patents
- 20 oral communications in national/international conferences, as well as 10 invited/plenary lectures.
- Organizer of the Symposium "*New strategies in Main-Group Chemistry: from stoichiometric to catalytic processes*" at the "*XXXIX Reunión Bienal RSEQ*, Zaragoza, 2023".

- Top 2% chemist in Spain according to the Stanford University Ranking (October 2023) https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/6
- Director of "Grupo De Investigación Química Sintetica Sostenible" of the University de Oviedo (AEI).
- Award of the prize "GEQO-Young scientist" from the GEQO group of the RSEQ in 2016.

I studied chemistry at the University of Oviedo, where I graduated in 2001. I got my PhD (April 2005), under the supervision of Drs. J. Gimeno and V. Cadierno, studying the coordination of iminophosphorane ligands in Ru(II) fragments. In May 2005, I joined the group of Dr. R. E. Mulvey (University of Strathclyde, Glasgow, UK) where I did a post-doctoral stay of 2.5 years, working in the field *s*-block organometallic compounds. In 2007, I returned to the University of Oviedo, as Postdoctoral Researcher thanks to the award of a "Clarín" Contract from a regional program (2007-2009), a Juan de la Cierva Contract (2009-2011), a Ramón y Cajal Contract (2012-2016), later as Profesor Contratado Doctor (2017-2018) and, finally, as Profesor Titular de Universidad (since 2018). Thanks to the award, as PI, of the following research projects: *i*) national project for young researchers (CTQ2008-00506/BQU); *ii*) 2 national projects (CTQ2016-75986-P; PID2020-113473GB-I00); *iii*) "*Leonardo Grant for Young Researchers and Cultural Creators 2017*" from the BBVA Foundation; and *iv*) an international project within the "*Green Chemistry Grant for Life*" program awarded by PhosAgro/UNESCO/IUPAC in 2018; I have been able to develop my own and independent scientific career, focusing my studies in the following research lines: *i*) study of the catalytic activity of organometallic complexes in organic synthesis in eutectic mixtures (*DESs*), water and glycerol; *ii*) development of synthetic organic processes mediated by RLi/RMgX reagents in *DESs*; and iii) design of hybrid one-pot tandem processes that combine metal-based catalysts, enzymes (in collaboration with Entrechem Biotechnology S.L.) and organocatalysts. I have been recognized with 3 sexenios and 4 five-year teaching periods (quinquenios de docencia). Since 2002, I have published a total of 93 scientific articles (every year without exception, 61 as the main author), both in general chemistry journals [ACIE, JACS, Chem. Sci., Chem. Eur. J., Chem Commun.], or specialized in different fields of Chemistry [ACS Catal., Green Chem., ACS Sustain. Chem. Ing., ChemSusChem, Curr. Opin. Green Sustain. Chem., Inorg. Chem., Dalton Trans, ChemCatChem, Adv. Organomet. Chem., Organometallics] and 13 book chapters in the Area of Homogeneous Catalysis/Sustainable Chemistry. My Hirsch index is 35 (WOS) or 36 (SCOPUS), with a total number of 3039 (WOS) or 3225 (SCOPUS) citations. I have 2 patents related with the synthesis of the drug Thenfadil under greener reactions conditions and 2 industrial contracts with Arcelor Mittal related with the study of the synthesis, magnetic properties and microstructure of 3D printed electrical steel. I have presented 20 oral communications to national/international conferences, as well as 8 invited/2 plenary lectures. Since 2012, I have directed a Bachelor Thesis, 4 Master's Thesis and 2 Doctoral Thesis. Since 2009, I am an expert evaluator of the following research agencies: *i*) ANEP; *ii*) Portuguese Foundation for Science and Technology; *iii*) National Research Council of the Romanian Government; *iv*) Andalusian Agency of Knowledge; *v*) National Science Center (Poland); *vi*) Agency for Science, Technology and research (A*STAR, Singapore); *vii*) Agence Nationale de la Recherche (France); and *viii*) Fondo Nacional de Desarrollo Científico, Tecnológico y de Innovación Tecnológica (Chile). I have guest-edited 3 special issues related with Sustainable Chemistry. Finally, I am the secretary of the: *i*) GEQO-specialized group of the RSEQ; and *ii*) "*Instituto Universitario de Química Organometálica Enrique Moles*" at the University of Oviedo and also the vocal of the "Grupo Especializado de Química Verde (GEQV)" of the RSEQ.

## Part C. RELEVANT MERITS *(sorted by typology)*

### C.1. Publications *(see instructions)*

Selection of most relevant scientific papers since 2016 [**I am main author (*) in all of them**)]:

**1.-** M. Ramos-Martín, N. Ríos-Lombardía, J. González-Sabín, S. E. García-Garrido, C. Concellón, A. Presa-Soto, J. García-Álvarez, **2023**, "$Fe^{III}$-Based Eutectic Mixtures as Multi-task and Reusable Reaction Media for Efficient and Selective Conversion of Alkynes into Carbonyl Compounds". *Chem. Eur. J.*, 29: e202301736. Selected as VIP paper and Front Cover of Issue 57 and Cover Profile (*Chem. Eur. J.* **2023**, *29*, e202302892).

**2.-** D. Elorriaga, B. Parra-Cadenas, A. Antiñolo, F. Carrillo-Hermosilla, J. García-Álvarez, **2022**, "Combination of air/moisture/ambient temperature compatible organolithium chemistry with sustainable solvents: selective and efficient synthesis of guanidines and amidines". *Green Chem.*, 24: 800-812 [Impact Factor: 9.8, Position 24/178 (Q1) in CHEMISTRY, MULTIDISCIPLINARY (Source: JCR)]

**3.-** D. Elorriaga, F. Carrillo-Hermosilla, B. Parra-Cadenas, A. Antiñolo, J. García-Álvarez, **2022**, "Aerobic/Room-Temperature-Compatible s-Block Organometallic Chemistry in Neat Conditions: A Missing Synthetic Tool for the Selective Conversion of Nitriles into Asymmetric Alcohols". *ChemSusChem*, 15: e202201348. [Impact Factor: 9.140, Position 30/179 (Q1) in CHEMISTRY, MULTIDISCIPLINARY (Source: JCR)].

**4.-** D. Elorriaga, F. de la Cruz-Martínez, M. J. Rodríguez-Álvarez, A. Lara-Sánchez, J. Antonio Castro-Osma, J. García-Álvarez, **2021**, "Fast Addition of s-Block Organometallic Reagents to $CO_2$-Derived Cyclic Carbonates at Room Temperature, Under Air, and in 2-Methyltetrahydrofuran". *ChemSusChem*, 14: 14, 2084–2092. [Impact Factor: 8.4, Position 32/178 (Q1) in CHEMISTRY, MULTIDISCIPLINARY (Source: JCR)].

**5.-** M. Ramos-Martín, R. Lecuna, L. Cicco, J. García-Álvarez* (AC; 10/10), **2021**, "A one-pot two-step synthesis of tertiary alcohols combining the biocatalytic laccase/TEMPO oxidation system with organolithium reagents in aerobic aqueous media at room temperature" *Chem. Commun*., 57: 13534–13537.

**6.-** F. F. Mulks, L. J. Bole, L. Davin, A. Hernán-Gómez, A. Kennedy, J. García-Álvarez, E. Hevia, **2020**, "Ambient moisture accelerates hydroamination reactions of vinylarenes with alkali-metal amides under air". *Angew. Chem. Int. Ed.*, 59: 19021-19026.

**7.-** D. Elorriaga, M. J. Rodríguez-Álvarez, N. Ríos-Lombardía, F. Morís, A. Presa Soto, J. González-Sabín, E. Hevia, J. García-Álvarez, **2020** "Combination of organocatalytic oxidation of alcohols and organolithium chemistry (RLi) in aqueous media, at room temperature and under aerobic conditions". *Chem. Commun.*, 56: 8932-8935.

**8.-** L. Quirós-Montes, G. A. Carriedo, J. García-Álvarez, A. Presa Soto, **2019**, "Deep Eutectic Solvents for Cu-catalysed ARGET ATRP under air atmosphere. A sustainable and efficient route to poly(methylmethacrylate) using recyclable Cu(II) metal organic framework". *Green Chem.*, 21: 5865-5875. [Impact Factor: 9.480, Position 20/179 (Q1) in CHEMISTRY, MULTIDISCIPLINARY (Source: JCR)]

**9.-** C. Vidal, J. García-Álvarez, A. Hernán-Gómez, A. R. Kennedy, E. Hevia, **2016**, "Exploiting Deep Eutectic Solvents and organolithium reagent partnerships: chemoselective ultrafast addition to imines and quinolines under aerobic ambient temperature conditions". *Angew. Chem. Int. Ed.*, 55: 16145-16148

**10.-** N. Ríos-Lombardía, C. Vidal, E. Liardo, F. Morís, J. García-Álvarez, J. González-Sabín, **2016**, "From a sequential to a concurrent reaction in aqueous medium: Ruthenium catalyzed allylic alcohol isomerization and asymmetric bioreduction". *Angew. Chem. Int. Ed.*, 55: 8691-8695

## C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

Selection of most relevant oral communications or invited/plenary lectures since 2017:

- "Design of hybrid one-pot tandem protocols by using transition-metal or *s*-block organometallic chemistry under greener reaction conditions". XIV International School of Organometallic Chemistry. ISOC 2023, University of Camerino, September 2023. Invited Plenary Lecture.
- "Design of Greener Synthetic Protocols in Transition-Metal-Catalysis, Main-Group Chemistry and Biocatalysis in Sustainable Solvents". Barluenga Lectureship Symposium (2022), Oviedo (Spain) 26-28 October 2022. Invited Plenary Lecture.
- "Design of Greener Synthetic Protocols in Transition-Metal-Catalysis, Main-Group Chemistry and Biocatalysis in Sustainable Solvents" in the "Colloquium for the Synthesis and Catalysis Section", University of Strathclyde, Glasgow (UK), 12/09/2022). Invited lecture.
- "Advancing the use of *s*-block polar organometallic reagents in sustainable solvents (water and DESs)" 24$^{th}$ Virtual Conference on Organometallic Chemistry (EuCOMC XXIV Virtual Conference) Universidad de Alcalá, Alcalá de Henares (Spain), 1-3 september 2021. Oral Presentation.
- "*DES*ign of transition-metal-catalyzed and one-pot tandem chemoenzymatic organic transformations in DESs", Mini Symposium on Reactions in Deep Eutectic Solvents. University of Bath, Bath (UK), 18/06/2021. Invited Lecture.
- "Diseño de procesos quimioenzimáticos y transformaciones orgánicas promovidas por metales de los gruposprincipales (RLi/RMgX) en agua o Disolventes Eutécticos Profundos (DESs)" in the "Foros de debate en química sostenible". Universidad de Alcalá, Alcalá de Henares (Spain) 03/03/2021. Invited Conference.

- “Design of chemoenzymatic and main-group-mediated (RLi) organic transformations in water and Deep Eutectic Solvents (DESs)” in the “Seminar Programme” organized by the Institut Català d’Investigació Química (ICIQ), Tarragona (Spain) 29/11/2019. Invited Conference.
- “Synergistic combination of metal-catalyzed organic reactions with enzymes or organolithium reagents (RLi) in water and Deep Eutectic Solvents (DESs)”. UK-Spain Organometallic Chemistry Symposium (USOCS2019), Alcalá de Henares (Spain), 17-19 September 2019. Oral Presentation.
- “Combination of metal- and bio-catalyzed organic reactions in Deep Eutectic Solvents and water”. International Symposium of Green Chemistry (ISGC2019), La Rochele, (France), 13-17 of May 2019. Oral Presentation.
- “Combination of transition metal-catalyzed organic reactions with biocatalysis in aqueous media: asymmetric construction of chiral compounds”, 2nd International Caparica Conference, Caparica (Portugal), 4-7 December 2017. Oral Presentation.

### C.3. Research projects.

Selection of most relevant research projects since 2014:

**1.-** “Diseño de procesos tándem metal/bio/organocatalizados para la transformación selectiva de moléculas orgánicas insaturadas en disolventes sostenibles [Mezclas Eutécticas, Agua]”; Ministerio de Ciencia e Innovación (MCI-21-PID2020-113473GB-I00); PIs: Joaquín García Álvarez and Alejandro Presa Soto; 01/09/2021 - 31/08/2024 (145.000,00 €).

**2.-** “Ayudas para el matenimiento de actividades de investigación de institutos universitarios de investigación y grupos de investigación reconocidos por la Universidad de Oviedo para el ejercicio 2021 (PAPI-21-QUIMSINSOS)” PIs: Joaquín García Álvarez and Alejandro Presa Soto (Universidad de Oviedo); 01/09/2018 – 26/11/2021 (2.600 €).

**3.-** “Metal- and Bio-catalyzed reactions in Deep Eutectic Solvents: Selective and sustainable tools for the conversion of lignin into high-added-value enantiopure molecules”; PhosAgro/UNESCO/IUPAC (Research Grant in Green Chemistry for Young Scientists 2017); PI: Joaquín García Álvarez (Universidad de Oviedo); 01/09/2018 – 31/08/2019 (25.000,00 US$).

**4.-** “Combinación sinérgica de Disolventes Eutécticos Profundos con la dupla metales de Transición/Grupos Principales: Reacciones sostenibles y selectivas a temperatura ambiente y en presencia de aire”; Fundación BBVA (Becas Leonardo a Investigadores y Creadores Culturales); PI: Joaquín García Álvarez (Universidad de Oviedo); 15/05/2017 - 14/05/2019 (40.000,00 €).

**5.-** “Transformaciones selectivas de moléculas orgánicas insaturadas: nuevos procesos catalíticos para la formación de intermedios de alto valor añadido”; Ministerio de Economía y Competitividad (MINECO-17-CTQ2016-75986-P); PIs: Victorio Cadierno and Joaquín García Álvarez; 30/12/2016 - 31/12/2019 (90.000,00 €).

**6.-** “European Network on Smart Inorganic Polymers (SIPS)” (COST ACTION CM1302); EU Framework Programme Horizon 2020; PI: Evamarie Hey-Hawkins (Universidad de Leipzig); 24/10/2013 - 23/10/2017. Member of the research team.

### C.4. Contracts, technological or transfer merits

- “Procedimento sostenibile per la sintesi di molecole ad attività antistaminica in solventi non convenzionali biodegradabili (Deep Eutectic Solvents).” A. F. Quivelli, V. Capriati, F. M. Perna, P. Vitale, F. V. Rossi, J. García-Álvarez. Domanda numero: 102021000031322 (14/12/2021). Italian Patent.
- "Sustainable process for the synthesis of molecules with antihistamine activity in unconventional biodegradable solvents (Deep Eutectic Solvents)". A. F. Quivelli, V. Capriati, F. M. Perna, P. Vitale, F. V. Rossi, J. García-Álvarez. EP22213255 (12/12/2022). European Patent.
- Industrial project with Arcelor Mittal. “Síntesis de materiales poliméricos para BinderJett” FUO-22-334. ARCELORMITTAL INNOVACIÓN PIs: Joaquín García Álvarez and Alejandro Presa Soto; 01/09/2022 - 30/06/2023 (40.000 €)
- Industrial project with Arcelor Mittal. “Estudio de recubrimientos en infiltraciones para BinderJett” FUO-23-291. ARCELORMITTAL INNOVACIÓN PIs: Joaquín García Álvarez and Alejandro Presa Soto; 12/09/2023 - 11/09/2024 (40.000 €)

### C.5. Awards

- In 2016, I received the “*GEQO Young Scientist Award*” from the GEQO group of the RSEQ.