

CURRICULUM VITAE - Joaquín García Álvarez – January 2017

Personal Details

Name: Joaquín García Álvarez
Nationality: Spanish
Date of birth: 12th March 1978

Current Professional Status

Institution: University of Oviedo
Faculty: Faculty of Chemistry
Department: Organic and Inorganic Chemistry
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Professional Category: Assistant Professor of Inorganic Chemistry (since January 2017)

Research Interests

Organometallic Compounds, Iminophosphorane Ligands, Homogeneous Catalysis, Deep Eutectic Solvents (DESs), Water, Glycerol, Ionic Liquids.

Education, Qualifications, Research Experience

2001 B. S. in Chemistry (Inorganic Chemistry). University of Oviedo (Spain).
2002 Honours Degree Thesis under the supervision of Prof. José Gimeno and Dr. V. Cadierno. University of Oviedo (Spain).
2005 Ph. D. in Organometallic Chemistry (Cum Laude) under the supervision of Prof. José Gimeno and Dr. V. Cadierno. University of Oviedo (Spain).
2005-2007 Postdoctoral Fellowship (EPSRC, GR/T27228/01, UK) under the supervision of Prof. Robert E. Mulvey, University of Strathclyde, Glasgow, UK.
November 2007 Postdoctoral Fellow "Clarín" awarded by the Government of the Principado de Asturias.
May 2009 Postdoctoral Fellow of the national programme "Juan de la Cierva" awarded by the Spanish Government.
January 2012 Postdoctoral Fellow of the national programme "Ramón y Cajal" awarded by the Spanish Government.
January 2017 Assistant Professor of Inorganic Chemistry. University of Oviedo (Spain)

List of papers

- 1.-"NEUTRAL AND CATIONIC (η^6 -ARENE)-RUTHENIUM(II) COMPLEXES CONTAINING THE IMINOPHOSPHORANE-PHOSPHINE LIGAND $\text{Ph}_2\text{PCH}_2\text{P}(=\text{N}-P-\text{C}_5\text{F}_4\text{N})\text{Ph}_2$: INFLUENCE OF THE ARENE RING IN CATALYTIC TRANSFER HYDROGENATION OF CYCLOHEXANONE". V. Cadierno, P. Crochet, J. García-Álvarez, S.-E. García-Garrido, J. Gimeno, *J. Organomet. Chem.*, **2002**, 663, 32-39.
- 2.-"RUTHENIUM(II) AND RUTHENIUM(IV) COMPLEXES CONTAINING κ^1 -P-, κ^2 -P,O-, κ^3 -P,N,O- IMINOPHOSPHORANE-PHOSPHINE LIGANDS $\text{Ph}_2\text{PCH}_2\text{P}(=\text{N}(=\text{O})(\text{OR})_2)\text{Ph}_2$ (R = Et, Ph): SYNTHESIS, REACTIVITY, THEORETICAL STUDIES AND CATALYTIC ACTIVITY IN TRANSFER HYDROGENATION OF CYCLOHEXANONE". V. Cadierno, P. Crochet, J. Díez, J. García-Álvarez, S.-E. García-Garrido, J. Gimeno, S. García-Granda, M.-A. Rodríguez, *Inorg. Chem.*, **2003**, 42, 3293-3307.
- 3.-"SYNTHESIS, REACTIVITY AND CATALYTIC ACTIVITY IN TRANSFER HYDROGENATION OF KETONES OF RUTHENIUM(II) AND RUTHENIUM(IV) COMPLEXES CONTAINING THE NOVEL N-THIOPHOSPHORYLATED IMINOPHOSPHORANE-PHOSPHINE LIGANDS $\text{Ph}_2\text{PCH}_2\text{P}(=\text{N}(=\text{S})(\text{OR})_2)\text{Ph}_2$ (R = Et, Ph)". V. Cadierno, P. Crochet, J. Díez, J. García-Álvarez, S.-E. García-Garrido, J. Gimeno, S. García-Granda, M.-A. Rodríguez, *Dalton Trans.*, **2003**, 3240- 3249.
- 4.-"A NEW CLASS OF TETHERED-ARENE RUTHENIUM(II) COMPLEXES WITH PENDANT P AND C DONOR ATOMS: SYNTHESIS OF $\eta^6:\eta^1:\eta^1$ PHOSPHONIO-AZABUTADIENYL RUTHENABICYCLES VIA ALLENYLIDENE INTERMEDIATES". V. Cadierno, J. Díez, J. García-Álvarez, J. Gimeno, *Chem. Commun.*, **2004**, 1820-1821.
- 5.-"BIS(IMINOPHOSPHORANO)METHANE DERIVATIVES AS PRECURSORS OF UNUSUAL RUTHENIUM-CARBENE COMPLEXES: A SYNTHETIC AND DFT STUDY". V. Cadierno, J. Díez, J. García-Álvarez, J. Gimeno, M.-J. Calhorda, L.-F. Veiros, *Organometallics*, **2004**, 23, 2421- 2433.
- 6.-"BASE-ASSISTED CYCLOMETALATION AND PHOSPHORUS-CARBON BOND CLEAVAGE IN (ARENE)RUTHENIUM(II) COMPLEXES CONTAINING FUNCTIONALIZED IMINOPHOSPHORANE-PHOSPHINE LIGANDS $\text{Ph}_2\text{PCH}_2\text{P}(=\text{N}(=\text{X})(\text{OR})_2)\text{Ph}_2$ (X = O, S; R = Et, Ph)". V. Cadierno, J. Díez, J. García-Álvarez, J. Gimeno, *Organometallics*, **2004**, 23, 3425-3436.
- 7.-"NOVEL (η^6 -ARENE)-RUTHENIUM(II) COMPLEXES CONTAINING BIS(IMINOPHOSPHORANE) METHANIDE AND METHANDIIDE LIGANDS". V. Cadierno, J. Díez, J. García-Álvarez, J. Gimeno, *J. Organomet. Chem.*, **2005**, 690, 2087- 2096.
- 8.-"IMINOPHOSPHORANE-BASED NUCLEOPHILIC RUTHENIUM(II) CARBENE COMPLEX: UNUSUAL C-C COUPLING AND C-H ACTIVATION PROMOTED BY THE ADDITION OF ALKYNES TO THE $\text{Ru}=\text{C}$ BOND". V. Cadierno, J. Díez, J. García-Álvarez, J. Gimeno, *Organometallics*, **2005**, 24, 2801-2810.
- 9.-"REACTION OF ISOCYANIDES WITH IMINOPHOSPHORANE-BASED CARBENE LIGANDS: SYNTHESIS OF UNPRECEDENTED KETENIMINE-RUTHENIUM COMPLEXES". V. Cadierno, J. García-Álvarez, J. Gimeno, J. Rubio-García, *J. Organomet. Chem.*, **2005**, 690, 5856-5862.

- 10.-"NEW REACTIVITY AND STRUCTURAL INSIGHTS OF ALKALI-METAL-MEDIATED ALUMINATION IN DIRECTED ORTHO-ALUMINATION OF A TERTIARY AROMATIC AMIDE". J. García-Álvarez, D. V. Graham, A. R. Kennedy, R. E. Mulvey, S. Weatherstone, *Chem. Commun.*, **2006**, 3208-3210.
- 11.-"SYNTHESIS AND REACTIVITY STUDIES OF PALLADIUM(II) COMPLEXES CONTAINING THE *N*-PHOSPHORYLATED IMINOPHOSPHORANE-PHOSPHINE LIGANDS $\text{Ph}_2\text{PCH}_2\text{P}\{\text{=NP(=O)(OR)}_2\}\text{Ph}_2$ (R = Et, Ph): APPLICATION TO THE CATALYTIC SYNTHESIS OF 2,3-DIMETHYLFURAN". V. Cadierno, J. García-Álvarez, J. Gimeno, N. Nebra, J. Rubio-García, *Dalton Trans.*, **2006**, 5593-5604.
- 12.-"ALKALI-METAL-MEDIATED MANGANATION: A METHOD FOR DIRECTLY ATTACHING MANGANESE(II) CENTERS TO AROMATIC FRAMEWORKS". J. García-Álvarez, A. R. Kennedy, J. Klett, R. E. Mulvey, *Angew. Chem. Int. Ed.*, **2007**, 46, 1105-1108.
- 13.-"LEWIS BASE STABILIZED LITHIUM TMP-ALUMINATES: AN UNEXPECTED FRAGMENTATION AND CAPTURE REACTION INVOLVING CYCLIC ETHER 1,4-DIOXANE". J. García-Álvarez, E. Hevia, A. R. Kennedy, J. Klett, R. E. Mulvey, *Chem. Commun.*, **2007**, 2402-2404.
- 14.-"ISOLATION AND STRUCTURAL ELUCIDATION OF A KEY ALUMINOAROMATIC INTERMEDIATE AND EVIDENCE FOR DISMUTATION PHENOMENA IN TMP-ALUMINATION CHEMISTRY". B. Conway, E. Hevia, J. García-Álvarez, D. V. Graham, A. R. Kennedy, R. E. Mulvey, *Chem. Commun.*, **2007**, 5241-5243.
- 15.-"SILVER(I) COMPLEXES OF *N*-THIOPHOSPHORYLATED BIS(IMINOPHOSPHORANE) LIGANDS: FROM MONOMERS TO POLYMERS" V. Cadierno, J. Díez, J. García-Álvarez, J. Gimeno, *Dalton Trans.*, **2007**, 2760-2769.
- 16.-"TRANSAMINATION CHEMISTRY OF SODIUM TMP-ZINCATE: SYNTHESIS AND CRYSTAL STRUCTURE OF A CHIRAL AMIDOZINCATE". D. R. Armstrong, W. Clegg, S. H. Dale, J. García-Álvarez, R. W. Harrington, E. Hevia, G. W. Honeyman, A. R. Kennedy, R. E. Mulvey, C. T. O'Hara, *Chem. Commun.*, **2008**, 187-189.
- 17.-"SYNTHESIS AND CHARACTERISATION OF NEW BIMETALLIC ALKALI METAL-MAGNESIUM MIXED DIISOPROPYLAMIDE-ACETYLIDES: STRUCTURAL VARIATIONS IN BIMETALLIC LITHIUM- AND SODIUM-HETEROLEPTIC MAGNESIATES". J. García-Álvarez, D. V. Graham, E. Hevia, A. R. Kennedy, R. E. Mulvey, *Dalton Trans.*, **2008**, 1481-1487.
- 18.-" η^6 -ARENE)-RUTHENIUM(II) COMPLEXES CONTAINING METHANIDE AND METHANIDE ANIONS OF $\text{Ph}_2\text{P(=S)CH}_2\text{P(=NR)Ph}_2$: UNPRECEDENTED INSERTION OF ISOCYANIDE INTO A RUTHENIUM-CARBENE BOND". V. Cadierno, J. Díez, J. García-Álvarez, J. Gimeno, *Organometallics*, **2008**, 27, 1809-1822.
- 19.-"SYNTHESIS, STRUCTURAL AUTHENTICATION, AND STRUCTURALLY DEFINED METALLATION REACTIONS OF LITHIUM AND SODIUM DA-ZINCATES (DA = DIISOPROPYLAMIDE) WITH PHENYACETYLENE". W. Clegg, J. García-Álvarez, P. García-Álvarez, D. V. Graham, R. W. Harrington, E. Hevia, A. R. Kennedy, R. E. Mulvey, L. Russo, *Organometallics*, **2008**, 27, 2654-2663.
- 20.-"NOVEL RUTHENIUM(II) COMPLEXES CONTAINING THE *N*-PHOSPHORYLATED IMINOPHOSPHORANE-PHOSPHINE LIGAND $\text{Ph}_2\text{PCH}_2\text{P}\{\text{=NP(=O)(OEt)}_2\}\text{Ph}_2$: A NEW COORDINATION MODE OF ITS METHANIDE ANION". V. Cadierno, J. Díez, J. García-Álvarez, J. Gimeno, J. Rubio-García, *Dalton Trans.*, **2008**, 5737-5748

- 21.-"SYNTHETIC AND STRUCTURAL INSIGHTS INTO THE ZINCATION OF TOLUENE: DIRECT SYNERGIC RING METALATION vs INDIRECT NONSYNERGIC LATERAL METALATIONS". D. Armstrong, J. García-Álvarez, D. V. Graham, G. W. Honeyman, E. Hevia, A. R. Kennedy, R. E. Mulvey, *Chem. Eur. J.* **2009**, *15*, 3800-3807.
- 22.-"CONTACTED ION-PAIR LITHIUM ALKYLAMIDOALUMINATES: INTRAMOLECULAR ALUMINATION (Al-H EXCHANGE) TRAPS FOR TMEDA AND PMDETA". B. Conway, J. García-Álvarez, E. Hevia, A. R. Kennedy, R. E. Mulvey, S. D. Robertson, *Organometallics*, **2009**, *28*, 6462-6468.
- 23.-"ACCESS TO THE FIRST (IMINOPHOSPHORANYL)(SELENOPHOSPHORANYL)METHANE LIGAND $\text{Ph}_2\text{P}(=\text{Se})\text{CH}_2\text{P}(=\text{NR})\text{Ph}_2$: COORDINATION OF THEIR METHANIDE AND METHANIDE ANIONS TO RUTHENIUM". V. Cadierno, J. Díez, J. García Álvarez, J. Gimeno, *Dalton Trans.*, **2010**, *39*, 941-956.
- 24.-"STRUCTURAL BASIS FOR REGIOISOMERIZATION IN THE ALKALI-METAL-MEDIATED ZINCATION (AMMzN) OF TRIFLUOROMETHYL BENZENE BY ISOLATION OF KINETIC AND THERMODYNAMIC INTERMEDIATES". D. Armstrong, V. L. Blair, W. Clegg, S. H. Dale, J. García-Álvarez, G. W. Honeyman, E. Hevia, R. E. Mulvey, L. Russo, *J. Am. Chem. Soc.*, **2010**, *132*, 9480-9487.
- 25.-"STRUCTURALLY STIMULATED DEPROTONATION/ALUMINATION OF THE TMP ANION". B. Conway, A. R. Kennedy, R. E. Mulvey, S. D. Robertson, J. García-Álvarez, *Angew. Chem. Int. Ed.*, **2010**, *49*, 3182-3184.
- 26.-"HIGHLY EFFICIENT COPPER(I) CATALYST FOR 1,3-DIPOLAR CYCLOADDITION OF AZIDES WITH TERMINAL AND 1-iodoalkynes IN WATER: REGIOSELECTIVE SYNTHESIS OF 1,4-DISUBSTITUTED AND 1,4,5-TRISUBSTITUTED 1,2,3-TRIAZOLES". J. García Álvarez, J. Díez, J. Gimeno, *Green Chem.*, **2010**, *12*, 2127-2130.
- 27.-"REDOX ISOMERISATION OF ALLYLIC ALCOHOLS INTO CARBONYL COMPOUNDS CATALYZED BY $[\text{Ru}(\eta^3\text{-C}_{10}\text{H}_{16})\text{Cl}(\kappa^2\text{-O, O-CH}_3\text{CO}_2)]$ IN WATER AND IONIC LIQUIDS: EFFICIENT TRANSFORMATIONS AND RECYCLABILITY IN GREEN SOLVENTS". J. García-Álvarez, J. Gimeno, F. J. Suárez, *Organometallics*, **2011**, *30*, 2893-2896.
- 28.-"NOVEL RHENIUM(I) CATALYSTS FOR THE ISOMERIZATION OF PROPARGYLIC ALCOHOLS INTO α,β -UNSATURATED CARBONYL COMPOUNDS: AN UNPRECEDENTED RECYCLABLE CATALYTIC SYSTEM IN IONIC LIQUIDS". J. García-Álvarez, J. Díez, J. Gimeno, C. M. Seifried, *Chem. Commun.*, **2011**, *47*, 6470-6472.
- 29.-"MICROWAVE-ASSISTED MEYER-SCHUSTER REARRANGEMENT OF PROPARGYLIC ALCOHOLS CATALYZED BY THE OXOVANADATE COMPLEX $[\text{V}(\text{O})\text{Cl}(\text{OEt})_2]$ ". A. Antiñolo, F. Carrillo-Hermosilla, V. Cadierno, J. García-Álvarez, A. Otero, *ChemCatChem*, **2012**, *4*, 123-128.
- 30.-"METAL-CATALYZED ISOMERIZATION OF ALLYLIC AND PROPARGYLIC ALCOHOLS IN AQUEOUS MEDIA." J. García-Álvarez, S. E. García-Garrido, P. Crochet, V. Cadierno, *Curr. Top. Catal.*, **2012**, *10*, 35-56 (Review article).
- 31.-"IMINOPHOSPHORANE-COPPER(I) COMPLEXES AS HIGHLY EFFICIENT CATALYSTS FOR 1,3-DIPOLAR CYCLOADDITION OF AZIDES WITH TERMINAL AND 1-iodoalkynes IN WATER: ONE-POT

- MULTI-COMPONENT REACTION FROM ALKYNES AND IN SITU GENERATED AZIDES". J. García-Álvarez, J. Díez, J. Gimeno, F. J. Suárez, C. Vicent, *Eur. J. Inorg. Chem.*, **2012**, 5854-5863.
- 32.-"Pd(II)-CATALYZED CYCLOISOMERIZATION OF γ -ALKYNOIC ACIDS AND ONE-POT TANDEM CYCLOISOMERIZATION/CuAAC REACTIONS IN WATER". J. García-Álvarez, J. Díez, C. Vidal, *Green. Chem.*, **2012**, *14*, 3190-3196.
- 33.-"SYNTHESIS AND REACTIVITY OF NEW RHENIUM(I) COMPLEXES CONTAINING IMINOPHOSPHORANE-PHOSPHINE LIGANDS: APPLICATION TO THE CATALYTIC ISOMERIZATION OF PROPARGYLIC ALCOHOLS IN IONIC LIQUIDS". J. García-Álvarez, J. Díez, J. Gimeno, C. M. Seifried, C. Vidal, *Inorg. Chem.*, **2013**, *52*, 5428-5437.
- 34.-"NEW Ag(I)-IMINOPHOSPHORANE COORDINATION POLYMERS AS EFFICIENT CATALYSTS PRECURSORS FOR THE MW ASSISTED MEYER-SCHUSTER REARRANGEMENT OF PROPARGYLIC ALCOHOLS IN WATER". J. García-Álvarez, C. Vidal, C. Vicent, *Inorg. Chem.*, **2013**, *52*, 6533-6542.
- 35.-"ALKALI-METAL-MEDIATED ZINCATION (AMMZn) MEETS *N*-HETEROCYCLIC CARBENE (NHC) CHEMISTRY: Zn-H EXCHANGE REACTIONS AND STRUCTURAL AUTHENTICATION OF DINUCLEAR Au(I) COMPLEX WITH NHC ANION". D. R. Armstrong, S. E. Baillie, V. L. Blair, N. G. Chabloz, J. Díez, J. García-Álvarez, A. R. Kennedy, S. D. Robertson, E. Hevia, *Chem. Sci.*, **2013**, *4*, 4259-4266.
- 36.-"DONOR-ACTIVATED LITHIATION AND SODIATION OF TRIFLUOROMETHYLBENZENE: STRUCTURAL, SPECTROSCOPY AND THEORETICAL INSIGHTS". J. A. Garden, D. R. Armstrong, W. Clegg, J. García-Álvarez, E. Hevia, A. R. Kennedy, R. E. Mulvey, S. D. Robertson, L. Russo, *Organometallics*, **2013**, *32*, 5481-5490.
- 37.-"DEEP EUTECTIC SOLVENTS (DES) AS GREEN REACTION MEDIA FOR THE REDOX ISOMERIZATION OF ALLYLIC ALCOHOLS INTO CARBONYL COMPOUNDS CATALYZED BY THE RUTHENIUM COMPLEX [Ru(η^3 : η^3 -C₁₀H₁₆)Cl₂(BENZIMIDAZOLE)]". C. Vidal, F. J. Suárez, J. García-Álvarez, *Catal. Commun.*, **2014**, *44*, 76-79.
- 38.-"REDOX ISOMERIZATION OF ALLYLIC ALCOHOLS INTO CARBONYL COMPOUNDS CATALYZED BY RUTHENIUM(IV) COMPLEXES CONTAINING *N*-HETEROCYCLIC LIGANDS IN IONIC LIQUIDS". F. J. Suárez, C. Vidal, J. García-Álvarez, *Curr. Green Chem.*, **2014**, *1*, 121-127.
- 39.-"IMINOPHOSPHORANE-PHOSPHINES: VERSATILE LIGANDS FOR HOMOGENEOUS CATALYSIS". J. García-Álvarez, S.-E. García-Garrido, V. Cadierno, *J. Organomet. Chem.*, **2014**, *751*, 792-808 (Review article).
- 40.-"INTRODUCING DEEP EUTECTIC SOLVENTS TO POLAR ORGANOMETALLIC CHEMISTRY: CHEMOSELECTIVE ADDITION OF ORGANOLITHIUM AND GRIGNARD REAGENTS TO KETONES IN AIR". C. Vidal, J. García-Álvarez, Alberto Hernán-Gómez, A. R. Kennedy, E. Hevia, *Angew. Chem. Int. Ed.*, **2014**, *53*, 5969-5973.
- 41.-"GLYCEROL: A BIORENEWABLE SOLVENT FOR BASE-FREE Cu(I)-CATALYZED 1,3-DIPOLAR CYCLOADDITION OF AZIDES WITH TERMINAL AND 1-iodoalkynes. HIGHLY EFFICIENT TRANSFORMATIONS AND CATALYST RECYCLING". C. Vidal, J. García-Álvarez, *Green Chem.*, **2014**, *16*, 3515-3521.

42.-"INTRODUCING DEEP EUTECTIC SOLVENTS AS BIORENEWABLE MEDIA FOR Au(I)-CATALYSED CYCLOISOMERISATION OF γ -ALKYNOIC ACIDS: AN UNPRECEDENTED CATALYTIC SYSTEM". M. J. Rodríguez-Álvarez, C. Vidal, J. Díez, J. García-Álvarez, *Chem. Commun.*, **2014**, 50, 12927-12929.

43.-"DEEP EUTECTIC SOLVENTS: BIORENEWABLE REACTION MEDIA FOR Au(I)-CATALYSED CYCLOISOMERISATIONS AND ONE-POT TANDEM CYCLOISOMERISATION/DIELS-ALDER REACTIONS". C. Vidal, L. Merz, J. García-Álvarez, *Green Chem.*, **2015**, 17, 3870-3878.

44.-"CHEMOENZYMATIC ONE-POT SYNTHESIS IN AQUEOUS MEDIUM: COMBINATION OF METAL-CATALYSED ALLYLIC ALCOHOL ISOMERIZATION-ASYMMETRIC BIOAMINATION". N. Ríos-Lombardía, C. Vidal, M. Cocina, F. Morís, J. García-Álvarez, J. González-Sabín, *Chem. Commun.*, **2015**, 51, 10937-10940.

45.-"REACTIVITY OF POLAR ORGANOMETALLIC COMPOUNDS IN UNCONVENTIONAL REACTION MEDIA: CHALLENGES AND OPPORTUNITIES". J. García-Álvarez, E. Hevia, V. Capriati, *Eur. J. Org. Chem.*, **2015**, 6779-6799 (Review article).

46.-"DEEP EUTECTIC MIXTURES: PROMISING SUSTAINABLE SOLVENTS FOR METAL-CATALYSED AND METAL-MEDIATED ORGANIC REACTIONS". J. García-Álvarez, *Eur. J. Inorg. Chem.*, **2015**, 5147-5157 (Review article).

47.-"ORGANIC REACTIONS IN GREEN SOLVENTS". J. Sperry, J. García-Álvarez, *Molecules*, **2016**, 21,1527-1529 (Editorial article).

48.-"FROM A SEQUENTIAL TO A CONCURRENT REACTION IN AQUEOUS MEDIUM: RUTHENIUM-CATALYZED ALLYLIC ALCOHOL ISOMERIZATION AND ASYMMETRIC BIOREDUCTION". N. Ríos-Lombardía, C. Vidal, E. Liardo, F. Morís, J. García-Álvarez, J. González-Sabín, *Angew. Chem. Int. Ed.*, **2016**, 55, 8691-8695.

49.-"EXPLOITING DEEP EUTECTIC SOLVENTS AND ORGANOLITHIUM REAGENT PARTNERSHIPS: CHEMOSELECTIVE ULTRAFast ADDITION TO IMINES AND QUINOLINES UNDER AEROBIC AMBIENT TEMPERATURE CONDITIONS". C. Vidal, J. García-Álvarez, A. Hernán-Gómez, A. R. Kennedy, E. Hevia, *Angew. Chem. Int. Ed.*, **2016**, 55, 16145-16148.

50.-"WATER-TOLERANT BIS(ALLYL)-RUTHENIUM(IV) CATALYSTS: AN ACCOUNT OF THEIR APPLICATIONS". J. Francos, S. E. García-Garrido, J. García-Álvarez, P. Crochet, J. Gimeno, V. Cadierno, *Inorg. Chim. Acta*, **2017**, 455, 398-414.

51.-"NEW IMINOPHOSPHORANE-Au(I) COMPLEXES AS EFFICIENT CATALYSTS FOR THE CYCLOISOMERIZATION OF ALKYNYL AMIDES UNDER AIR, ROOM TEMPERATURE AND IN AQUEOUS OR EUTECTIC MIXTURE SOLUTIONS". M. J. Rodríguez-Álvarez, C. Vidal, S. Schumacher, J. Borge, J. García-Álvarez, *Chem. Eur. J.*, **2017**, DOI: 10.1002/chem.201605303.

Book chapters

1.-"RUTHENIUM COMPLEXES CONTAINING IMINOPHOSPHORANE LIGANDS: SYNTHESIS, STRUCTURE, REACTIVITY AND APPLICATIONS", published in the book "*Ruthenium: Properties, Production and Applications*", V. Cadierno, J. García-Álvarez; (Ed. D. B. Watson); Nova Science Publishers; **2011**.

2.-"CATALYTIC REARRANGEMENTS AND ALLYLATION REACTIONS IN WATER", published in the book "*Metal-catalyzed Reactions in Water*", V. Cadierno, J. García-Álvarez, S. E. García-Garrido; (Eds. P. Dixneuf, V. Cadierno); Wiley-VCH Verlag GmbH & Co. KgaA; **2013**.

3.-"NANOCATALYSTS FOR REARRANGEMENT REACTIONS", published in the book "*Nanocatalysis: Synthesis and Applications*", V. Cadierno, J. García-Álvarez, S. E. García-Garrido; (Eds. V. Polshettiwar, T. Asefa); Wiley-Blackwell, John Wiley&Sons; **2013**.

4.-"CLICK COPPER CATALYZED AZIDE-ALKYNE CYCLOADDITION (CuAAC) IN AQUEOUS MEDIUM", published in the book "*Advances in Organometallic Chemistry: the Silver/Gold Jubilee International Conference on Organometallic Chemistry Celebratory Book*", J. García-Álvarez, J. Gimeno; (Ed. A. J. L. Pombeiro); John Wiley and Sons; **2014**.

5.-"DEEP EUTECTIC SOLVENTS AND THEIR APPLICATIONS AS NEW GREEN AND BIORENEWABLE REACTION MEDIA", published in the book "*Handbook of Solvents, Volume 2, Second Edition: Use, Health, and Environment*", J. García-Álvarez, (Ed. G. Wypych); ChemTec Publishing; **2014**.

6.-"RUTHENIUM-CATALYZED ISOMERIZATION OF ALLYLIC AND PROPARGYLIC ALCOHOLS IN NON-CONVENTIONAL SOLVENTS", published in the book "*Ruthenium: Synthesis, Physicochemical Properties and Applications*", N. Nebra, J. García-Álvarez, (Ed. G. P. Keeler); Nova Science Publishers; **2014**.

7.-"DEEP EUTECTIC SOLVENTS: ENVIRONMENTALLY-FRIENDLY MEDIA FOR METAL-CATALYZED ORGANIC REACTIONS", published in the book "*Green Technologies for the Environment*", J. García-Álvarez, (Eds. R. Luque, S. O. Obare); ACS Books; **2015**.

8.-"PHOSPHORUS YLIDES AND RELATED COMPOUNDS", published in the book "*Organophosphorous Chemistry: From Molecules to Applications*", M. A. Presa-Soto, J. García-Álvarez, (Ed. V. Iaroshenko); John Wiley and Sons; **2017**.

Invited Lectures

1.-"METAL-CATALYZED ISOMERISATION OF PROPARGYLIC ALCOHOLS AND [3+2] AZIDE-ALKYNE CYCLOADDITION (CLICK CHEMISTRY) IN ENVIRONMENTALLY FRIENDLY SOLVENTS (WATER AND IONIC LIQUIDS)" within the "*Inorganic Colloquia*", organized by the Department of Pure and Applied Chemistry of the University of Strathclyde (26/01/**2011**), Glasgow, UK.

2.-"DEEP EUTECTIC SOLVENTS (DESSs) AS NEW GREEN AND BIO-RENEWABLE REACTION MEDIA FOR METAL-CATALYZED ORGANIC REACTIONS" within the "*IV Workshop in Sustainable Chemistry*" organized by the University Jaume I (May **2015**), Castellón de la Plana, Spain.

3.-"DEEP EUTECTIC SOLVENTS (DESSs): NEW BIORENEWABLE REACTION MEDIA FOR METAL-CATALYZED ORGANIC TRANSFORMATIONS" within the "*III One Day of Organometallic Chemistry*" organized by the research group "COMORCA" and the RSEQ to celebrate the award of the "Premio Hispano-Húngaro Gamboa-Winkler" to Prof. F. Joó (4/09/**2015**), Oviedo, Spain.

4.-"DEEP EUTECTIC MIXTURES: PROMISING SUSTAINABLE SOLVENTS FOR METAL-CATALYSED AND METAL-MEDIATED ORGANIC REACTIONS" within the "*II Jornadas de Divulgación del ISO: Respuestas de la Química Organometálica a los problemas medioambientales del Siglo XXI*" organized by the Instituto de Síntesis Orgánica, Departamento de Química Orgánica, Universidad de Alicante (12/07/2016), Alicante, Spain.

5.-"DEEP EUTECTIC MIXTURES: PROMISING SUSTAINABLE SOLVENTS FOR METAL-CATALYSED AND METAL-MEDIATED ORGANIC REACTIONS" organized by the Institut de Química Computacional i Catàlisi (IQCC), Departament de Química, Universitat de Girona, (20/07/2016), Girona, Spain.

Oral presentations in national and international meetings

1.-"COMPLEJOS RUTENIO(II)-ARENO CONTENIENDO ANIONES METANURO Y METANDIURO DEL LIGANDO $\text{Ph}_2\text{PCH}_2\text{P}(=\text{NR})\text{Ph}_2$: INSERCIÓN DE ISOCIANUROS EN EL ENLACE $\text{Ru}=\text{C}$ " J. García-Álvarez, V. Cadierno, J. Díez, J. Gimeno, in the "*I Reunión Grupo Orfeo Consolider-Ingenio*" from the 1st till the 3rd of July (2008), Ciudad Real (Spain).

2.-"REARRANGEMENTS OF PROPARGYLIC ALCOHOLS INTO α,β -UNSATURATED CARBONYL COMPOUNDS CATALYZED BY IMINOPHOSPHORANE Re(I) COMPLEXES" J. García-Álvarez, J. Díez, J. Gimeno, C. M. Seifried in the "*III Reunión Grupo Orfeo Consolider-Ingenio*" from the 5th till the 7th of July (2010) Oviedo (Spain).

3.-"HIGHLY EFFICIENT COPPER(I) CATALYST FOR 1,3-DIPOLAR CYCLOADDITION OF AZIDES WITH TERMINAL AND 1-iodoalkynes in water: regioselective synthesis of 1,4-disubstituted and 1,4,5-trisubstituted 1,2,3-triazoles" J. García-Álvarez, J. Díez, J. Gimeno, in the "*241st National Meeting of the American Chemistry Society*", March (2012) Anaheim, California (USA), Division of Inorganic Chemistry (Paper ID 11739), page 596.

4.-"CICLOISOMERIZACIÓN DE ÁCIDOS γ -ALQUINOICOS CATALIZADA POR COMPLEJOS IMINOFOSFORANO-PALADIO(II) EN MEDIO ACUOSO" Joaquín García-Álvarez, Josefina Díez, José Gimeno, Cristian Vidal in the "*XXX Reunión del Grupo Especializado en Química Organometálica*", Universitat Jaume I (Castellón, Spain), from the 12th till the 14th of June (2012).

5.-"Pd(II)-CATALYZED CYCLOISOMERIZATION OF ALKYNIC ACIDS IN WATER. NEW ONE-POT TANDEM CYCLOISOMERIZATION/CLICK CHEMISTRY REACTIONS" Joaquín García-Álvarez, Josefina Díez, José Gimeno, Cristian Vidal, in the "*V Reunión Grupo Orfeo Consolider-Ingenio*" from the 2nd till the 4th of July (2012) (Jaca, Aragón, Spain).

6.-"Pd(II)-CATALYZED CYCLOISOMERIZATION OF ALKYNIC ACIDS IN WATER. NEW ONE-POT TANDEM CYCLOISOMERIZATION/CLICK CHEMISTRY REACTIONS" Joaquín García-Álvarez, Josefina Díez, José Gimeno, Cristian Vidal, in the "*244th National Meeting of the American Chemistry Society*", August (2012) Philadelphia, Pennsylvania (USA), Division of Environmental Chemistry, (Paper ID 13328), page 93.

7.-"Pd(II)-CATALYZED CYCLOISOMERIZATION OF ALKYNIC ACIDS IN WATER. NEW ONE-POT TANDEM CYCLOISOMERIZATION/CLICK CHEMISTRY REACTIONS" Joaquín García-Álvarez, Josefina Díez, José Gimeno, Cristian Vidal, in the "*40th International Conference of Inorganic Chemistry*", September (2012) (Valencia, Spain).

8.-“DEEP EUTECTIC SOLVENTS (DES) AS NEW GREEN AND BIO-RENEWABLE SOLVENTS FOR METAL-MEDIATED HOMOGENEOUS CATALYSIS” Joaquín García-Álvarez, Cristian Vidal, in the “245th National Meeting of the American Chemistry Society”, April (2013) New Orleans, LA (USA). Division of Environmental Chemistry, (Paper ID 14052), page 223.

9.-“DEEP EUTECTIC SOLVENTS (DES) AS NEW GREEN AND BIO-RENEWABLE MEDIA FOR METAL-CATALYZED ORGANIC REACTIONS” Joaquín García-Álvarez, Cristian Vidal, in the “10th Green Chemistry Conference”, November (2013) (Barcelona, Spain).

10.-“DEEP EUTECTIC SOLVENTS (DESSs): GREEN AND BIORENEWABLE REACTION MEDIA FOR METAL-CATALYZED ORGANIC REACTIONS”, Joaquín García-Álvarez, Cristian Vidal, María J. Rodríguez-Álvarez, in the “VII International School on Organometallic Chemistry Marcial Moreno Mañas”, June (2014) (Barcelona, Spain).

11.-“DEEP EUTECTIC SOLVENTS (DESSs): GREEN AND BIORENEWABLE REACTION MEDIA FOR METAL-CATALYZED ORGANIC REACTIONS”, Joaquín García-Álvarez, Cristian Vidal, María J. Rodríguez-Álvarez, in the “XI Simposio de Investigadores Jóvenes”, November (2014) (Bilbao, Spain).

12.-“NEW SYNTHETIC APPLICATIONS FOR DEEP EUTECTIC SOLVENTS: GREEN REACTION MEDIA FOR Au(I)-CATALYZED CYCLOISOMERIZATIONS”, Joaquín García-Álvarez, Cristian Vidal, L. Merz, in the “XXXV Reunión Bienal de la RSEQ”, July (2015) (La Coruña, Spain).

13.-“BUILDING NEW BRIDGES BETWEEN METAL- AND BIO-CATALYSIS: UNPRECEDENTED CONCURRENT CASCADE APPROACH TO CHIRAL ALCOHOLS IN AQUEOUS MEDIA”, Joaquín García-Álvarez, C. Vidal, N. Ríos-Lombardía, E. Liardo, F. Morís, J. González-Sabín, in the “XXXIV Reunión del Grupo Especializado en Química Organometálica”, September (2016) (Girona, Spain).