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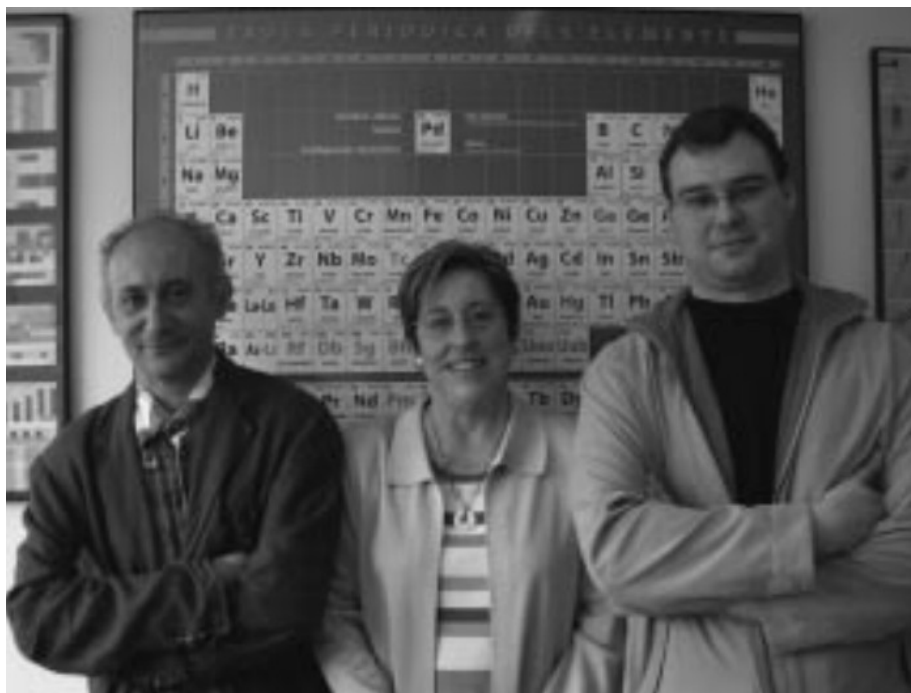
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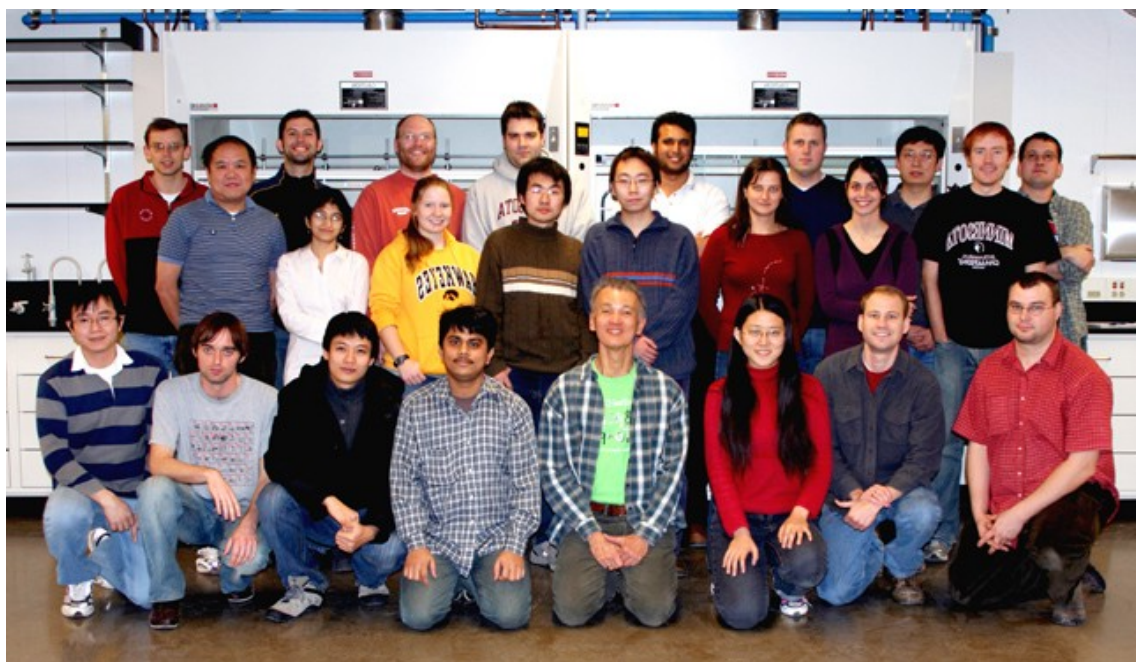
Biographical Remarks

I was born in Barcelona the October 1st of 1975. In the middle of 1998 I finished my degree in Chemistry at the Autonomous University of Barcelona (UAB) with an average mark of 8.01. From 1998 until the beginning of 2004 I did my doctoral thesis in the department of Inorganic Chemistry of the same university under the supervision of the professors Agustí Lledós and Pilar González. The final valuation of the PhD thesis was "Cum Laude" and that deserved the extraordinary prize of doctorate awarded by the Chemistry Department of the UAB. In particular, during my doctoral work, the structure and reactivity of the compounds of general formula $[L_4Pt_2S_2]$ were studied using a wide variety of experimental techniques (NMR, ESI-MS, MALDI -TOF-MS X-ray diffraction, cyclic voltammetry) And theoretical calculations. The role of these compounds as metallo-ligands as nucleophiles in activation of C-X bonds (X = Cl, F) was described and their reactivity with hydrides was described to give rise to a series of reactions related to hydrodesulfurization processes. Of these studies and subsequent works, in which I participated, 12 research articles were published.



Frome left to right: Prof. Agustí Lledós, Prof. Pilar Gonzalez Duarte and Rubén Mas-Ballesté as appeared in *Eur. J. Inorg. Chem* **2004**, 3585.

The good results obtained during my pre-doctoral period allowed me to obtain a MEC / Fullbright scholarship to undertake a postdoctoral stay in the Chemistry department of the University of Minnesota under the supervision of Prof. Lawrence Que Jr during the period 05/2004 -11/2007. The professor Que is a recognized eminence in the area of Bioinorganic Chemistry, as evidenced by the numerous awards he has received, among which are the prizes awarded by the ACS in 2008 (Bioinorganic Chemistry) and 2017 (Inorganic Chemistry). My work contributed to the establishment of the principles governing bio-inspired catalytic processes using non-heme iron complexes as active species. My approach was to establish the reaction mechanisms that follow different systems. Therefore, during this period I had the opportunity to familiarize myself with several additional spectroscopic techniques (such as Raman resonance, Mossbauer, XPS, EXAFS or NMR of paramagnetic compounds) as well as experimental techniques to work at low temperature in order to trap metastable intermediates. This stage was also very productive in terms of results and publications, since from this period 14 research articles have been published.



Lawrence Que's research group. Picture taken the December 1st of 2006. Prof Que in the central position of lower row. Ruben Mas-Balleste first from right in the lower row.

The trajectory until that moment, was worth to me to gain a place as a "Ramón y Cajal" researcher during the period 2008-2012 in the Autonomous University of Madrid (UAM) in the department of Inorganic Chemistry. During that time, in close collaboration with Prof. Felix Zamora, I dedicated my efforts to the investigation of new nanomaterials based on graphene or graphene oxide, carbon nanotubes or on two-dimensional covalent polymers. I also investigated metallo-supramolecular structures containing Pt or Au as well as the reactivity of Ni or Pt species with respect to the activation of O-O and S-S bonds. A good number of articles were published in international journals. From these investigations I obtained a good training and experience in the area of materials chemistry and the study of nanostructures, which has been very valuable in the implementation of the lines of research in which I am currently working



From left to right: Prof. Julio Gómez, Prof. Felix Zamora and Rubén Mas-Ballesté as appeared in *Chem Soc. Rev.* **2010**, 39, 4220

From January 2013, I have occupied a permanent position as a "profesor contratado doctor" within the I3 stabilization program (from which I obtained a positive evaluation at the end of the fourth year of the "Ramón y Cajal" contract) at the Autonomous University of Madrid. From January 2015 I have worked in the FRONTCAT group of which I am co-founder together with Dr. José Alemán, Dr. Alberto Fraile and Dr. Silvia Cabrera, studying various catalytic processes from a multidisciplinary perspective. We are currently initiating several lines of research whose results suggest that the use of porous organic materials could result in more efficient catalytic processes.



FRONTCAT research group. Picture taken in December of 2016. 1: Dr. José Alemán, 2: Alberto Fraile, 3: Dr. Silvia Cabrera, 4: Ruben Mas-Balleste.

In the last years I have been PI of two research projects funded by MINNECO within the State Plan for Scientific and Technical Research and Innovation and two others financed by the UAM. So far (up to May 2017), the overall career has resulted in a scientific production that includes more than 70 publications (4 patents, 3 book chapters and articles in international journals among which I appear on 15 occasions as the main author) with high impact = 22, more than 1700 citations), which is remarkable for a researcher of my age (Date of birth: 01/10/1975; Thesis reading year: 2004).

The profile acquired during my career includes a wide range of interests, as well as a vast experience accumulated in various areas. On the other hand, my passion for science and its transmission has been reflected in a teaching work in which I accumulate more than 1300 hours of experience in theoretical and practical teaching in the fields of general chemistry, inorganic chemistry, and materials science. Not only that, I have also collaborated in activities of dissemination of science such as the non-profit platform "Nanomadrid" which has as social work the dissemination of science with which I have collaborated since its foundation by making visits to schools performing science demonstrations.



Ruben Mas-Ballesté visiting a primary schools performing a science demonstration.

Current Research interests

Protein-like synthetic nanostructures as transporters and catalytic materials

Supramolecular interactions in coordination chemistry,

Molecular and nanostructured catalytic systems for activation/formation of inert bonds.

Papers in international journals

- 1) Rubén Mas-Ballesté, Mercè Capdevila, Paul A. Champkin, William Clegg, Robert A. Coxall, Agustí Lledós, Claire Mégret, Pilar González-Duarte: **Inorganic Chemistry** **2002**, 41, 3218-3229
- 2) Gabriel Aullón, Mercè Capdevila, William Clegg, Pilar González-Duarte, Agustí Lledós, Rubén Mas-Ballesté **Angewandte Chemie International Edition in English** **2002**, 41, 2776-278.
- 3) Rubén Mas-Ballesté, Gabriel Aullón, Paul A. Champkin, William Clegg, Claire Mégret, Pilar González-Duarte, Agustí Lledós, **Chemistry, a European Journal** **2003**, 9, 5023-5035.
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- 5) Rubén Mas-Ballesté, Paul A. Champkin, William Clegg, Agustí Lledós, Pilar González-Duarte Gregori Ujaque, **Organometallics** **2004**, 23, 2522-2532.
- 6) Rubén Mas-Ballesté, William Clegg, Agustí Lledós, Pilar González-Duarte, **European Journal of Inorganic Chemistry**, 2004, 3223-3227.
- 7) Pilar Gonzalez-Duarte, Agustí Lledós, Ruben Mas-Ballesté **European Journal of Inorganic Chemistry** **2004**, 3585-3599
- 8) Fernando Novio, Rubén Mas-Ballesté, Iluminada Gallardo, Pilar González-Duarte, Agustí Lledós, Neus Vila, **Dalton Transactions**, 2005, 2742-2753.
- 9) Autores: David Quiñero, Keiji Morokuma, Djamaladdin. G Musaev, Rubén Mas-Ballesté, Lawrence Que Jr., **Journal of the American Chemical Society** **2005**, 127, 6548-6549.
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- 12) Ainara Nova, Pilar González-Duarte, Agustí Lledós, Ruben Mas-Ballesté, Gregori Ujaque **Inorganica Chimica Acta** **2006**, 359(11), 3736-3744 (Full paper, special issue, Protagonists in Chemistry: Professor D.M.P. Mingos)
- 13) Rubén Mas-Ballesté and Lawrence Que, Jr.: **Science** **2006**, 312, 1885-1886 (perspective)
- 14) Rubén Mas-Ballesté, Miquel Costas, Tieme van den Berg, Lawrence Que, Jr., **Chemistry, a European Journal** **2006**, 12, 7489-7500.
- 15) Rubén Mas-Ballesté, Megumi Fujita, Carla Hemmila and Lawrence Que, Jr., **Journal of Molecular Catalysis A: Chemical** **2006**, 251, (1-2) 49-53 (Full paper, special issue: The 9th International Symposium on Activation of Dioxide and Homogeneous Catalytic Oxidation).
- 16) Fernando Novio, Pilar González-Duarte, Agustí Lledós, Rubén Mas-Ballesté, **Chemistry, a European Journal** **2007**, 13, 1047-1063.
- 17) Katie L. Klotz, Luke M. Slominski, Anthony V. Hull, Victoria M. Gottsacker, Rubén Mas-Ballesté, Lawrence Que, Jr., Jason A. Halfen, **Chemical Communications** **2007**, 2063-2065.
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- 21) Yuming Zhou, Xiaopeng Shan, Rubén Mas-Ballesté, Michael R. Bukowski, Audria Stubna, Mrinmoy Chakrabarti, Luke Slominski, Jason A. Halfen, Eckard Münck and Lawrence Que, Jr, **Angewandte Chemie International Edition in English** **2008**, 47, 1896–1899.
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- 31) Rubén Mas-Ballesté , Julio Gómez-Herrero and Félix Zamora, **Chemical Society Reviews** **2010**, 39, 4220–4233.
- 32) Rubén Mas-Ballesté, Cristina Gómez-Navarro, Julio Gómez-Herrero and Félix Zamora, **Nanoscale** **2011**, 3, 20-30.
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- 49) Cecilia Martín-Santos, Carlos Jarava-Barrera, Sandra del Pozo, Alejandro Parra, Sergio Díaz-Tendero, Rubén Mas-Ballesté; Silvia Cabrera, Jose Aleman, **Angewandte Chemie International Edition in English** **2014**, 53, 8184-8189.
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- 52) Emiliano Martínez-Periñán, Marcello Gennari, Mónica Revenga-Parra, José M. Abad, Eva Mateo-Martí, Félix Pariente, Oscar Castillo, Rubén Mas-Ballesté, Félix Zamora, Encarnación Lorenzo, **Journal of Catalysis**, **2015**, 329,
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- 56) Javier Luis-Barrera, Rubén Mas-Ballesté, José Alemán, **ChemPlusChem**, **2015**, 80, 1595-1600
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- 58) Emiliano Martínez-Periñán, Mónica Revenga-Parra, Marcello Gennari, Félix Pariente, Rubén Mas-Ballesté, Félix Zamora, Encarnación Lorenzo, **Sensors and Actuators B** **222 (2016)** 331–338 CLAVE: A
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- 61) Leyre Marzo, Javier Luis-Barrera, Rubén Mas-Ballesté, José Luis García Ruano and José Alemán, **Chemistry a European Journal** **2016**, 22, (46), 16467–16477
- 62) : Andrea Gini, Julia Bamberger, Javier Luis-Barrera, Mercedes Zurro, Rubén Mas-Ballesté, José Alemán and Olga García Mancheño, **Advanced Synthesis & Catalysis**, **2016**, 358, (24), 4049–4056
- 63) María Frias, Rubén Mas-Ballesté, Saira Arias, Cuauhtemoc Alvarado and José Alemán, **Journal of American Chemical Society** **2017**, 139, (2), 672–679
- 64) Jorge Romero, David Rodríguez-San-Miguel, Antonio Ribera, Rubén Mas-Ballesté, Toribio F. Otero, Ilse Manet, Fabiola Licio, Gonzalo Abellán, Felix Zamora and Eugenio Coronado, **Journal of Materials Chemistry A**, **2017**, 5, 4343–4351
- 65) Antonio Casado-Sánchez, Cecilia Martín-Santos, José M. Padrón, Rubén Mas-Ballesté, Carmen Navarro-Ranninger, José Alemán,, Silvia Cabrera, **Journal of Inorganic Biochemistry**, **2017** *accepted*
- 66) Javier Luis-Barrera, Víctor Laina-Martín, Thomas Rigotti, Francesca Peccati, Xavier Solans-Monfort, Mariona Sodupe, Rubén Mas-Ballesté, José Alemán **Angewandte Chemie International Edition in English** **2017** *Accepted*

Book Chapters

- 1) AUTHORS Paul D. Oldenburg, Ruben Mas-Balleste, Lawrence Que, Jr,
- TITLE : Bioinspired Iron-Catalyzed Olefin Oxidations: Epoxidation vs cis-Dihydroxylation”
- REF. BOOK: Chapter 18 of the book Mechanism in Homogenous Catalytic Epoxidation (528 pages)
- Editor: S. T Oyama, Editorial: Elsevier
- ISBN-13:978-0-444-53188-9
- Publication date: 07/2008.
-
- 2) AUTHORS Rubén Mas-Ballesté, Félix Zamora
- TITLE : Metal-Ligand systems for the construction of 1D-nanostructures”
 - REF. BOOK: Chapter 2 of the book One-Dimensional Nanostructures: Principles and Applications., Editors: YAO Jiannian and Tianyou Zhai
- Editorial: John Wiley & Sons, Inc
- ISBN:9781118071915
- Publication date: 09/2012
-
- 3) AUTHORS :Rubén Mas-Ballesté, Agustí Lledós
- TITLE : “H-H Bond Activation”
- REF. BOOK: Chapter 31 of Volume 9 of the enciclopedia “Comprehensive Inorganic Chemistry II”.
- Editor: Santiago Alvarez Editorial: Elsevier
- ISBN:978-0-08-096529-1
- Publication date:09/2013.

Patents

- 1) PRESENTER INSTITUTION: IMDEA/UAM/Universidad Complutense
AUTHORS: Félix Zamora, Rubén Mas, David Rodriguez, José Luis Segura, Alejandro de la Peña
TITLE: “Method for the synthesis of Covalent Organic Frameworks”.
REFERENCE: 13382313.8-1306. PCT/ES2014/070621
YEAR: 2013
- 2) PRESENTER INSTITUTION: IMDEA/UAM/Abengoa Research
AUTHORS: Rodolfo Miranda, Félix Zamora, Rubén Mas-Ballesté, Mohammad-Reza Azani, Verónica Carcelén, Manuel Doblaré.
TITLE: “Graphene dried powder and method for its preparation”.
REFERENCE: 13382313.8-1355. PCT/EP2014/066316.
YEAR: 2013
- 3) PRESENTER INSTITUTION: IMDEA/UAM/ICMol
AUTHORS: E. Coronado, A. R., G. Abellan, F. Zamora, R. Mas-Ballesté, D. Rodríguez.
TITLE: Synthesis of corrugated and porous graphene from a COF for its use in supercapacitors
REFERENCE: 201200188 (PCT presentada).
YEAR:2013
- 4) PRESENTER INSTITUTION: UAM
AUTHORS: R. Mas-Ballesté, J.Alemán, Octavio Gonzales del Moral
TITLE: Procedimiento electroquímico para la generación de hidrógeno
REFERENCE: 201631657 (presened in the OEPM).
YEAR: 2016

Teaching Subjects:

General Chemistry

Inorganic Chemistry

Bioinorganic Chemistry

Materials Science
