



UNIVERSIDADE
NOVA
DE LISBOA

MARIE SKŁODOWSKA-CURIE INDIVIDUAL FELLOWSHIPS 2018

EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

Instituto de Tecnologia Química e Biológica António Xavier (ITQB-NOVA) | MOSTMICRO Research Unit

RESEARCH GROUP AND URL

Organometallic Catalysis Laboratory

<http://www.itqb.unl.pt/research/chemistry/organometallic-catalysis>

SUPERVISOR (NAME AND E-MAIL)

Beatriz Royo

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SHORT CV OF THE SUPERVISOR

Beatriz Royo graduated in Chemistry at University of Alcalá (Madrid, Spain) and received her PhD degree in chemistry from the University of Sussex (Brighton, UK) in 1993 working with Prof. M. F. Lappert. After her PhD, she moved to University of Alcalá as Assistant Professor (1993-94), and later as a Researcher Professor. In 1997, she joined the group of C. Romão in ITQB NOVA (Lisbon, Portugal). Since 2004, she is Head of the Organometallic Catalysis group at ITQB NOVA (<http://www.itqb.unl.pt/research/chemistry/organometallic-catalysis>). She has been involved for years in organometallic chemistry research, working with main group, early and late transition metals. Her group focuses its current research program on the design and synthesis of bio-relevant metal-based compounds with specific properties for their use in catalytic and biological applications. Currently, she is Head of the Chemistry Division at ITQB NOVA.

5 SELECTED PUBLICATIONS

- F. Franco, M. F. Pinto, B. Royo, J. Lloret-Fillol (2018). Highly Active N-heterocyclic Carbene Mn(I) Electrocatalysts for CO₂ Reduction, *Angew Chem Int. Ed.* DOI: 10.1002/anie.201800705.
- M. F. Pinto, S. Friães, F. Franco, J. Lloret-Fillol, B. Royo (2018). Manganese N-Heterocyclic Carbene Complexes for Catalytic Reduction of Ketones with Silanes, *ChemCatChem* DOI: 10.1002/cctc.201800241.
- Fernandes, B. Royo (2017). Water-soluble Iridium N-heterocyclic Carbene Complexes for Alkylation of Amines with Alcohols, *ChemCatChem*, 9: 3912-3917.
- L. Postigo, M. Ventura, T. Cuenca, G. Jimenez, B. Royo (2015). Selective Sulfoxidation with Hydrogen Peroxide Catalysed by a Titanium Catalyst. *Catal. Sci. Technol.* 5:320-324.
- J.M.S. Cardoso, B. Royo (2012). Unprecedented synthesis of iron NHC complexes by C-H activation of imidazolium salts: Mild catalysts for reduction of sulfoxides. *Chem Commun.* 48:4944.



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PROJECT TITLE AND DESCRIPTION

Small molecule activation mediated by bio-relevant metals

The project aims at developing highly selective and efficient catalytic systems based on organometallic complexes for the reduction of carbon dioxide and for water oxidation. This project will exploit the use of multifunctional and switchable N-heterocyclic carbene ligands for the preparation of a new generation of manganese and iron based catalysts for small molecule activation. Scientific requirements: experience in synthetic chemistry and/or organometallic chemistry. Topics: Carbon dioxide reduction; Water oxidation; Catalysis; N-heterocyclic carbene complexes.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST

Chemistry (CHE)