

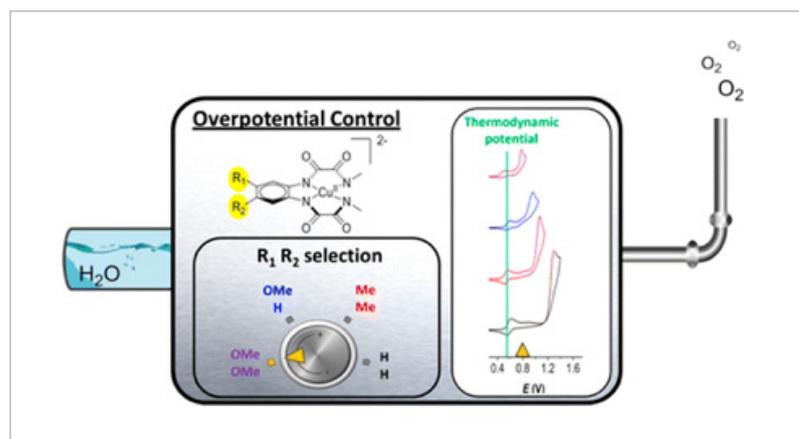
Redox Non-innocent Ligand Controls Water Oxidation Overpotential in a New Family of Mononuclear Cu-Based Efficient Catalysts

P. Garrido-Barros, I. Funez-Ardoiz, S. Drouet, J. Benet-Buchholz, F. Maseras, A. Llobet

J. Am. Chem. Soc., **2015**, *137*, 6758-6761

The development of a real alternative to fossil fuels is one of the most important challenges that scientists are facing at present. In this sense, particular attention is being paid to molecular water oxidation catalysis by transition metal complexes due to its implications in new energy conversion schemes based on splitting water with sunlight.

In this work, the researchers have prepared and studied a new family of Cu(II) complexes containing a tetradentate amidate acyclic ligand that are capable of oxidizing water to dioxygen and whose rate-determining step involves the redox activity of the ligand. The interplay between electrons being removed from the metal and/or the ligands opens up new avenues for molecular water oxidation catalyst design.



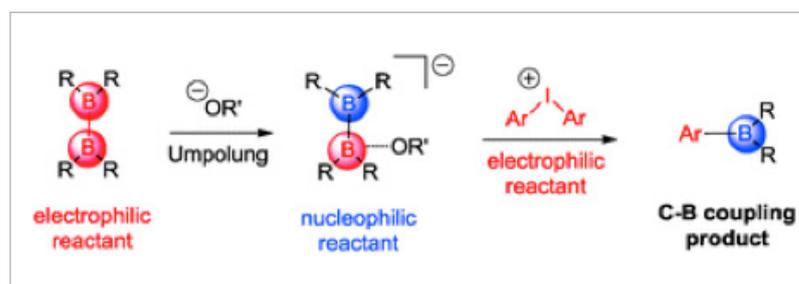
A Mild Carbon-Boron Bond Formation from Diaryliodonium Salts

N. Miralles, R. M. Romero, E. Fernández, K. Muñiz

Chem. Commun., **2015**, *51*, 14068

Arylboronic acids and esters are key components for modern cross-coupling reactions and advanced synthetic transformations. Common approaches to this type of reagents employ transition metal complexes as catalysts.

In this paper, the researchers report the unprecedented direct formation of aryl boronic esters in methanol solution through an effective coupling between diaryliodonium salts and a diboron reagent. The reaction is selective, proceeds under mild conditions and does not require any metal reagent or other promoter. It opens a new methodological venue for the use of hypervalent diaryliodonium reagents in carbon-heteroatom bond formation.



■ Interview with Prof. Pedro J. Pérez

Full Professor of Inorganic Chemistry, Universidad de Huelva.



What field of research do you bring to the Intecat network?

My research group is focused on homogeneous catalysis. We're centred on the development of soluble metal catalysts for activation reactions of C-H bonds. We provide 20 years' experience in a field that is still of extraordinary interest in chemistry.

How has being part of the Intecat network impacted on your research?

Thanks to the Intecat project, we started collaborations with the Pericàs, Maseras and Echavarren groups at ICIQ. We have also worked with the Albeniz group from the Universidad de Valladolid. These collaborations represent an extraordinary added value to our research. We all get inputs from each other.

How would you describe your research group?

My group is still young, dynamic and eager to improve its performance. We are always looking ahead. We've learnt from the obstacles we have encountered in this unfavourable environment we're working in.

Which is your greatest achievement in your career so far?

Achieving one of the goals most craved by the pioneers in organometallic chemistry: the catalytic functionalization of methane.

Which is your favourite chemical element and why?

Copper. It's the key element in our group. Only a few groups worked with this metal 20 years ago. Nowadays copper is one of the most used elements in catalysis. We had the good sense to start working with copper before the "copper-boom."

If you had not been a chemist, what would you have been?

A teacher. I'm sure of that. Like my parents and my grandparents. They were school teachers shaped by the needs of the post-war years but truly devoted to teaching. In the first day of class I always remind my students that I'm here to teach not to give a class.

If you had to choose a scientific discovery, what would it be?

There's something new every day. But now having these electronic Swiss army knives (phones) is absolutely great. I still remember being in a phone booth putting in coins when we were in congresses...

What book should any future scientist read?

The Foundation series by Isaac Asimov. Science fiction is to believe in what it doesn't yet exist. Isn't that what we do when we're doing research?

Science is... my life.

■ Interview with Marta Moya

Marta Moya took over the coordination of the Red Intecat in April 2015.



"They needed someone to help with the organisation and logistics of the group meetings. I'm also in charge of justifying expenses," says Marta.

Before being appointed as the Red Intecat coordinator, Marta held different positions at ICIQ: Assistant to Professor Piet van Leeuwen, Assistant to the ICIQ Manager and Assistant to the ICIQ Director while covering maternity leave. "I joined ICIQ in 2009 and I have experience in almost everything related to financial justifications, agenda management and travel arrangements. I hope someone else will take care of the scientific and technical report of the project," adds Marta with a smile in her face.

The forthcoming Red Intecat meeting is taking place in Huelva, on June 13-14. "I'm gathering information about the topics the groups would like to discuss and of course, I'm arranging the accommodation and flights. It's important to have everything tight and clear so the groups can make the most of the meeting," explains Marta. The last meeting of the Red Intecat project will be held by October-November.

In Huelva we'll see the results of the project in terms of scientific collaborations among the Red Intecat groups. "I'm confident the groups will show good results. I have to say that on my side I enjoyed dealing with the researchers. They are much more friendly and natural than they seem in the formal e-mails we exchange," says Marta. "I'm not sure if I should say this but I have an issue with flight reservations... something unexpected always happens. But don't worry, I always solve the unexpected!" adds Marta.