Duboc Carole

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Current appointment and research interests

Carole Duboc is a senior researcher (DR1) at CNRS and has distinguished herself by her contributions in different fields of inorganic chemistry. Early in her independent career, she combined experiment and theory, to investigate the electronic structure of metal complexes for the rational design of molecules with specific magnetic properties. Since 2007, she has also been exploring the reactivity of bio-inspired transition metal complexes modeling the structure and function of enzymatic active sites, with the aim not only to understand their mechanisms of action, but also to design efficient and selective catalysts.

Education

Carole Duboc received her PhD from the University of Grenoble in 1998 under the supervision of Marc Fontecave and Stephane Menage, and her habilitation in 2005 from the University of Grenoble.

Career and employment

After her PhD, she did a postdoc at the University of Minnesota, with Bill Tolman, and then joined the High Magnetic Field Laboratory in Grenoble in 1999 for a second postdoc, where she obtained her position at CNRS in 2000. She joined the Department of Molecular Chemistry in 2007.

Responsibilities, panel membership, editorial activities

Amongst other activities, she is currently chair of ARCANE (LABex) devoted to bio-driven chemistry and chair of the master II chemistry for life sciences at Univ. Grenoble Alpes; she was chair of the French EPR federation, vice-chair of the European EPR federation and vice-chair of the COST Action “Explicit Control Over Spin-states in Technology and Biochemistry” (ECOSTBio). She will coordinate a local multidisciplinary project "CO2 challenge" starting in the fall of 2022. She is an associate editor of the journal JACS Au.

Awards and distinction

Carole Duboc received the CNRS Bronze Medal (2007) and awarded the SCF Physical Chemistry Division Prize as a young researcher (2007) and the SFC Coordination Chemistry Division Prize (2022) as a senior researcher.

Publications

M. Gennari, C. Duboc, *Bio-inspired, multifunctional metal–thiolate motif: from electron transfer to sulfur reactivity and small-molecule activation. Acc. Chem. Res.* **2020**, *53*, 2753.

M. E. Ahmed, S. Adam, D. Saha, J. Fize, V. Artero, A. Dey, C. Duboc, Repurposing a bio-inspired NiFe hydrogenase model for CO2 reduction with selective production of methane as the unique C-based product. *ACS Energy Lett.* **2020**, *5*, 3837.

L. Wang, M. Gennari, F.G. Cantú Reinhard, J. Gutiérrez, A. Morozan, C. Philouze, S. Demeshko, V. Artero, F. Meyer, S. P. de Visser, C. Duboc, A non-heme diiron complex for (electro)catalytic reduction of dioxygen: tuning the selectivity through electron delivery. *J. Am. Chem. Soc*. **2019**, *141*, 8244.

C. Duboc, Determination and prediction of the magnetic anisotropy of Mn ions. *Chem. Soc. Rev*. **2016**, *45*, 5834.

D. Brazzolotto, M. Gennari, N. Queyriaux, T. R. Simmons, J. Pécaut, S. Demeshko, F. Meyer, M. Orio, V. Artero, C. Duboc, Nickel-centred proton reduction catalysis in a model of [NiFe] hydrogenase. *Nature Chem*. **2016**, 8, 1054.