



Laboratoire de
Chimie de Coordination



Centre National
de la Recherche
Scientifique

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Education

2008: 'Habilitation à Diriger les Recherches', University of Paul-Sabatier, Toulouse

1996: PhD in Chemistry, University of Paul-Sabatier, Toulouse

1993: Master in Molecular Chemistry, University of Paul-Sabatier, Toulouse

Research experience

April 2006 – current:

LCC, CNRS UPR-8241, Toulouse, France

Nov. 2001 – March 2006:

Univ. of California Riverside/CNRS, USA

Oct. 1998 – Oct. 2001:

University of Paris XI, Orsay, France

Sept. 1997 – Sept. 1998:

Military service as Scientist, DGA, Paris, France

Jan. 1997 – August 1997:

Post-doctoral position, ETH, Zurich, Switzerland

Research interests

Main-group Chemistry, Phosphorus Chemistry, Stereochemistry, Synthetic Chemistry, Organometallic Chemistry, Coordination Chemistry, Homogeneous Catalysis

-> Research activities: Carbon/phosphorus-based ligands for fundamental purposes and applications

-> Key words: carbenes, cationic phosphines, cyclopropeniums, NHCs, phosphonium ylides

Scientific activity

-> **90** publications/patents/book chapters (including 2 Sciences, 9 ACIE, 9 JACS)

-> **1** book (Co-editor of a volume of 'Topics in Organomet. Chem.' **2010**, 30, 1-252)

-> *Guest Editor of a Special Issue of 'Molecules'* (Carbon Ligands: From Fundamental Aspects to Applications, **2020**)

-> **58** conferences/communications

-> *Selection of recent publications:*

- (1) 'NHC core phosphonium ylide-based palladium(II) pincer complexes: The second ylide extremity makes the difference'; *Inorg. Chem.* **2020**, *59*, 7082.
- (2) 'Manganese and rhenium-catalyzed selective reduction of esters to aldehydes with hydrosilanes' *Chem. Com.* **2020**, *56*, 11617.
- (3) 'NHC core pincer ligands exhibiting two anionic coordinating extremities'; *Molecules*, **2020**, *25*, 2231.
- (4) 'N-Cyclopropenio-imidazol-2-ylidene: An N-Heterocyclic Carbene bearing an N-cationic substituent'; *Chem. Com.* **2020**, *56*, 3305.
- (5) 'Bis[diphenylphosphino]methane and its bridge-substituted analogues as chemically non-innocent ligands for H₂ activation'; *Chem. Com.* **2020**, *56*, 2139.
- (6) 'Phosphine-NHC manganese hydrogenation catalyst exhibiting a non-classical metal-ligand cooperative H₂ activation mode'; *Angew. Chem. Int. Ed.* **2019**, *58*, 6727.
- (7) 'Reactivity vs stability of cyclopropenium substituted phosphonium salts'; *Eur. J. Inorg. Chem.* **2019**, 3982.
- (8) 'Rhenium catalyzed reduction of carboxylic acids with hydrosilanes'; *Org. Lett.* **2019**, *21*, 7713.
- (9) 'C-O and C-N functionalization of cationic NCN-type pincer complexes of trivalent Ni: Mechanism, selectivity and kinetic isotope effect'; *Inorg. Chem.* **2019**, *58*, 3861.
- (10) 'Palladium(II) pincer complexes of a C,C,C- NHC, diphosphonium bis(ylide) ligand'; *Dalton Trans* **2019**, *48*, 1709.
- (11) 'Bidentate iminophosphorane-NHC ligand derived from the imidazo[1,5-*a*]pyridin-3-ylidene scaffold'; *Organometallics* **2018**, *37*, 4726.
- (12) 'Pentacoordinated, square-pyramidal cationic PCP Ni(II) pincer complexes: ELF and QTAIM Topological Analyses of nickel-triflate Interactions'; *Theor. Chem. Acc.* **2018**, *137*, 141.
- (13) 'Carbeniophosphines vs. phosphoniocarbenes: the role of the positive charge' *Chem. Asian* **2018**, *13*, 1872.
- (14) 'A palladium(II) complex of a C₄-chelating bis(NHC), diphosphonium bis(ylide) ligand'; *Organometallics* **2018**, *37*, 673.
- (15) 'A convenient access to N-phosphonio-substituted NHC metal complexes'; *Dalton Trans* **2017**, *46*, 12293.
- (16) 'Classification of the electronic properties of chelating ligands in *cis*-[LL'Rh(CO)₂] complexes'; *Inorg. Chem.* **2017**, *56*, 667.
- (17) 'Phosphenium vs pro-phosphide character of P-*tert*-butyl-dicyclopropeniophosphine: zwitterionic palladate complexes of a dicationic phosphido ligand'; *Inorg. Chem.* **2016**, *55*, 11018.
- (18) 'Charge effects in PCP-pincer complexes of Ni(II) bearing phosphinite and imidazol(i)ophosphine coordinating jaws: from synthesis to catalysis through bonding analysis'; *Chem. Eur. J.* **2015**, *21*, 17403.
- (19) 'Comparative reactivity of different types of stable cyclic and acyclic mono- and diamino carbenes with simple organic substrates'; *J. Am. Chem. Soc.* **2014**, *136*, 5023.
- (20) 'Versatile Pd-catalyzed CH-oxidative cyclization of homoallylhydrazones to pyrazolines and tetrahydropyridazines'; *Chem. Cat. Chem.* **2013**, *5*, 3014.

- (21) 'P(CH)P pincer rhodium(I) complexes: the key role of electron-poor imidazoliophosphine extremities'; *Inorg. Chem.* **2013**, *52*, 48.
- (22) 'Carbene-stabilized phosphoniums oxides and sulfides'; *Chem. Eur. J.* **2012**, *18*, 16153.
- (23) 'Nickel(II) complexes of the new pincer-type unsymmetrical ligands'; *Chem. Commun.* **2012**, *48*, 10446.
- (24) 'On the P-coordinating limit of NHC-phosphonium cations towards Rh(I) centers'; *Chem. Eur. J.* **2012**, *18*, 7705.
- (25) 'Flexible diphosphine ligands with overall charges of 0, +1, +2: the critical role of the electrostatics in favoring trans over cis coordination'; *Inorg. Chem.* **2011**, *50*, 10810.
- (26) 'Towards the limit of atropochiral stability: H-MIOP, a NHC-precursor cationic analogue of the H-MOP ligand'; *Chem. Eur. J.* **2011**, *17*, 5110.
- (27) 'Imidazoliophosphines are true N-heterocyclic carbene (NHC)-phosphonium adducts'; *Chem. Eur. J.* **2010**, *16*, 13095.
- (28) 'NHC-derived bis(amidiniophosphine) ligands of Rh(I) complexes: versatile *cis-trans* chelation driving by an interplay of electrostatic and orbital effects'; *Inorg. Chem.* **2009**, *48*, 5562.
- (29) 'Diaminocarbene and Phosphonium Ylide Ligands: A Systematic Comparison of their Donor Character'; *J. Am. Chem. Soc.* **2008**, *130*, 8406.
- (30) 'A Diaminocarbene-phosphonium ylide: Direct access to C,C-chelating ligands'; *Angew. Chem. Int. Ed. Engl.* **2007**, *46*, 6313.
- (31) 'Intramolecular "Hydroiminiumation" of Alkenes: Application to the Synthesis of Conjugate Acids of Cyclic (Alkyl)(Amino)Carbenes (CAACs)'; *Angew. Chem. Int. Ed. Engl.* **2007**, *46*, 2899.
- (32) 'Cyclopropenylidenes: From interstellar space to an isolated derivative in the laboratory'; *Science* **2006**, *312*, 722.
- (33) 'Synthesis of transient and stable C-amino phosphorus ylides and their fragmentation into transient and stable carbenes'; *J. Am. Chem. Soc.* **2006**, *128*, 459.
- (34) 'Stable cyclic (alkyl)(amino)carbenes as rigid or flexible, bulky, electron rich ligands for transition metals catalysts: a quaternary carbon makes the difference!'; *Angew. Chem. Int. Ed. Engl.* **2005**, *44*, 5705.
- (35) 'Rigid cyclic (alkyl)(amino)carbene for the isolation of elusive low coordinate transition metal complexes'; *Angew. Chem. Int. Ed. Engl.* **2005**, *44*, 7236.

Other activities

- * Member of the organizing committee of international conferences (XIX EuCOMC, July 2011 – Toulouse, ISHC 18th, July 2012 – Toulouse, ISOS July 2021 – Toulouse)
- * Co-chair of the national conference 'GECOM-CONCOORD' (May 2014, Vers – France)
- * Member of the committee 'America Northern axis' (International Relations – University of Paul-Sabatier, Toulouse)
- * Treasurer of the board of the Division of Coordination Chemistry at the French Chemical Society (2013 – 2019)
- * Member of the Editorial Board of 'Molecules' (Inorganic Chemistry Section, since Nov. 2019)