

# Sandro Gambarotta

Transition Metal Chemistry and Catalysis

Home

Publications

Teaching ▾

[Home](#) » CV, Research & Publications

## CV, Research & Publications

CURRICULUM VITAE

Gambarotta Sandro, full professor, tenured.

Member of School of Graduate Studies and Research:

MSc, University of Pisa (Italy) 1975

PhD, University of Pisa (Italy) 1979

### EMPLOYMENT HISTORY:

1995-	Professor, University of Ottawa
1989-1995	Associate Professor, University of Ottawa
1986-1989	Associate Professor, University of Groningen, The Netherlands
1985-1986	Senior Research Associate, Columbia University, New York, USA
1983-1984	Assistant Professor (Ricercatore Confermato), University of Pisa, Italy
1981-1983	Research Associate, University of Pisa, Italy
1980	Postdoctoral fellow, University of Ottawa

### d) HONOURS:

CIC Alcan Award 1996

FCIC

G. Schloss Lecturer, University of Chicago Dec 2002

2012 Faculty of Science researcher of the Year

e) SCHOLARLY AND PROFESSIONAL ACTIVITIES:

Director X-Ray Core Facility (ended 2018)

NSERC GS Committee 24 2001-2003

NSERC RTI-GC 2015-2016

FRQ –GC 2016

Occupational H&S Committee 2013-2016

1999-2002 Member of the Editorial Board of Organometallics

Director OCCI 2002-2005

1992-1998 Member of the Editorial Board of Journal of Organometallic Chemistry

f) GRADUATE SUPERVISION

Career Number: 20 M.A., 14 Ph.D.

Completed: 17 M.A., 12 Ph.D.

In progress:

g) GRADUATE AND UNDERGRADUATE COURSES:

Transition Metal Chemistry, Catalysis. Organometallic chemistry (every second year)

CHM 1311 (General Chemistry), CHM 1321 (Organic Chemistry), CHM 4311 (Selected Topics inorganic chemistry). CHM 4380 (basic of X-ray crystallography), CHM 8302A-B (general organometallic chemistry)

h) RESEARCH FUNDING:

2015-2018 335,412 USD\$ (per year) SABIC Collaborative research on water splitting

2013-2015 40,000(per year) NSERC Accelerator Award

2013-2018	84,000(per year)	NSERC Discovery (per year)
2011-2012	148,800	NSERC RTI
2011-2013	98,000 (per year)	Dutch Polymer Institute (per year)
2010-2012	50,000	CFI-IOF (support to the X-ray Core facility)
2010-2012	25,000	University of Ottawa (Support to the Core facility)
2010	670,000	CFI -LOF (X-Ray diffractometer)
2008-2011	30,000	LyondellBasell (per year)
2007-2011	92,000	NSERC (research individual) (per year)
2009-2011	98,000	Dutch Polymer Institute (per year)
2007-2009	106,000	Dutch Polymer Institute (per year)
2004-2007	120,000	NSERC (strategic per year)

## Research Interest

Our research activity is directed towards both catalysis and low-valent metals for molecular activation. In catalysis our interest started with a study in vanadium chemistry by using a ligand system which has received substantial attention in the literature for its role in sustaining exceptional catalytic activity with late metals. Besides finding another potent catalyst, our paper in vanadium chemistry was the first insight into the direct involvement of the ligand system in the organometallic chemistry of the metal center (J. Am. Chem. Soc. 1999, 121, 9318). In an attempt to generalize these unique findings we have also tested middle metals and found what seemingly is an endless variety of transformations (J. Am. Chem. Soc. 2002, 124, 12268). Last but not least we also find that the ability of this ligand to work as electron storage allows a curious ambiguity in the metal oxidation state, which positively affects both catalytic performances and molecular activation (J. Am. Chem. Soc. 2005, 127, 13019). It is just in the last few months that we have made what we are convinced to be a major breakthrough. By designing a new type of hemilabile catalytic system, we are in the fortunate position of being able of preparing families of single component catalysts of extremely high polymerization activity (Angew. Chem. Int. Ed. 2007, 46, 6119). Still focusing on processes forming C-C bond from ethylene, we have started a project aimed at understanding the selective oligomerization. In search for working hypothesis, our research has initially focused on studying established catalytic systems and has yielded important insights into the factors promoting activity and selectivity (J. Am. Chem. Soc. 2006, 128, 9238, Angew. Chem. Int. Ed. Engl. 2006, 45, 7050, Angew. Chem. Int. Ed. Engl. 2008 in press).

In a separate line of research we pursue our interest for understanding activation of dinitrogen. Our recent work in f-block elements chemistry has provided evidences for the cooperative interaction of one-electron reductants on the same dinitrogen substrate, a feature somehow related to the behavior of the Fe cofactor of nitrogenase. Instead, by using a multi-electron reductant such as uranium and transient low-valent thorium synthons we have obtained the sole existing examples of dinitrogen cleavage and partial hydrogenation promoted by a f-block element (Angew. Chem. Int. Ed. Engl. 2002, 41, 3433, Angew. Chem. Int. Ed. Engl. 2003, 42, 4958, cited by C&En, Angew. Chem. Int. Ed. Engl. 2003, 42, 814. Cited by C&En).

Very recently we have turned our attention to CO<sub>2</sub> activation and water splitting (see list of most recent publication below). To this end, we have discovered unprecedented bonding mode of CO<sub>2</sub> to a metal center (Angewandte Chemie Int Ed Engl. **VIP** accepted) and linked such a coordination to the enhancement of radical behavior of CO<sub>2</sub> (Chem. Eur.J. 2017, 23, 17269–17278.), extracting H atom from the solvent in an overall facile reduction process (Angew. Chem. Int. Ed. 2018, 57, 10928). We also have designed a new system where shuttle chemistry is used to perform a two stage water splitting (Dalton 2017, 46, 49).

## Most Recent Publications

262. Camilo J. Viasus, Nicholas P. Alderman, Sebastiano Licciulli, Ilia Korobkov and Sandro Gambarotta.

Radical behavior of CO<sub>2</sub> versus its deoxygenation promoted by vanadium aryloxide complexes: how the geometry of intermediate CO<sub>2</sub>-adducts determines the reactivity.

Chem. Eur.J. 2017, 23, 17269–17278.

263. Jacob M. Sommers, Nicholas P. Alderman, Camilo J. Viasus, Sandro Gambarotta  
  
Revisiting the behavior of BiVO<sub>4</sub> as a carbon dioxide reduction photo-catalyst.  
  
Dalton Transaction 2017, 6404
264. Nicholas P. Alderman<sup>1</sup>, Jacob M. Sommers<sup>1</sup>, Camilo J. Viasus, Christine H.T. Wang, Virginie Peneau, Sandro Gambarotta, Balamurugan Vidjayacoumar, Khalid A. Bahily-Al:  
  
Photochemical Water Splitting Mediated by a C1 Shuttle  
  
Dalton 2017, 46, 49.
265. Camilo J. Viasus, Nicholas P. Alderman, Bulat Gabidullin and Sandro Gambarotta.  
  
Reaction of CO<sub>2</sub> with a Vanadium(II) Aryloxide: Synergistic Activation of CO<sub>2</sub>/oxo Groups towards H-Atom Radical Extraction.  
  
Angew. Chem. Int. Ed. 2018, 57, 10928-10932.
266. Nicholas P. Alderman, Virginie Peneau, Camilo J. Viasus, Ilia Korobkov, Balamurugan Vidjayacoumar, Khalid Albahily and Sandro Gambarotta,  
  
Syn-gas from Waste: the Reduction of CO<sub>2</sub> with H<sub>2</sub>S.  
  
React. Chem. Eng., 2019, 4, 763-771.
267. Camilo J. Viasus, Nicholas P. Alderman, Virginie Peneau, Bulat Gabidullin, Balamurugan Vidjayacoumar, Khalid Albahily and Sandro Gambarotta.  
  
Two-Step Catalytic Dehydrogenation of Formic Acid to CO<sub>2</sub> via Formaldehyde.  
  
International Journal of Hydrogen Energy. 2019, 44, 3, 1534-1543
268. Nicholas P. Alderman, Virginie Peneau, Camilo J. Viasus, Ilia Korobkov, Balamurugan Vidjayacoumar, Khalid Bahily-Al and Sandro Gambarotta.  
  
Efficient Reduction of Formic Acid to Formaldehyde by Zinc.  
  
Canadian Journal of Chemistry., 2019, 97(1), 42-45.
269. Camilo J. Viasus, Sandro Gambarotta, Bulat Gabidullin.  
  
"Linear and Bridging End-On coordination modes of CO<sub>2</sub> on vanadium(II) and (III) aryloxides"  
  
Angewandte Chemie Int Ed Engl. **VIP** accepted

### Complete List of Publications

1. S. Gambarotta Thesis, Pisa, 1975.
2. E. Ciuffarin, S. Gambarotta, M. Isola, and L. Senatore  
  
"Chemistry of sulphenates in acidic media".  
  
J. Chem. Soc., Perkin II, 1978, 554.
3. E. Ciuffarin, S. Gambarotta, M. Isola, L. Senatore, and M. Cioni

"Racemization of non-cleavable sulfoxides in non-aqueous solvents"

J. Chem. Res., (S), 1978, 270-271. (M), 1978, 3429.

4. E. Ciuffarin, S. Gambarotta, M. Isola, and L. Senatore

"Oxygen exchange between sulfoxides and sulphides in non-aqueous solvents"

J. Chem. Res., (S), 1978, 272-273. (M), 1978, 3442.

5. E. Ciuffarin and S. Gambarotta

"Racemization of cleavable sulfoxides and chlorynolysis of cleavable sulphides in non-aqueous and aqueous solvents".

J. Chem. Res., (S), 1978, 274 (M), 1978, 3454.

6. S. Gambarotta, M. Isola, L. Senatore, and E. Ciuffarin

"NMR detection of complexes of sulfones with chloride and bromide ions"

Gazz. Chim. Ital., 1982, 112, 297.

7. S. Gambarotta and H. Alper,

"Phase transfer catalysis using cobalt tricarbonyl nitrosyl".

J. Organomet. Chem., 1981, 212, C23-C26.

8. S. Gambarotta and H. Alper

"The carbonylation of phase transfer agents".

J. Organomet. Chem., 1980, 194, C19-C21.

9. S. Gambarotta, K. Hachem, and H. Alper

"The mild Rhodium(I) and phase transfer catalyzed, dehydrogenation of benzylic alcohols".

Can. J. Chem., 1980, 194, 1599.

10. S. Gambarotta and H. Alper

"Phase transfer catalyzed hydroacylation of allenes".

J. Org. Chem., 1981, 45, 2142

11. M. Pasquali, S. Gambarotta, C. Floriani, A. Chiesi-Villa, and C. Guastini

"Activation of CO<sub>2</sub>-like molecules: synthetic and structural studies on a h<sup>2</sup>-C,N bonded carbodiimide and its conversion into a h<sup>2</sup>-C,N metal bonded amidinyl ligand".

Inorg. Chem., 1981, 20, 165.

12. S. Gambarotta, M. Pasquali, C. Floriani, A. Chiesi-Villa, and C. Guastini

"Carbon dioxide equivalents activation: h<sup>1</sup>-O and h<sup>2</sup>-C,O metal anchored carbonylic functional groups to a bis(cyclopentadienyl)vanadium unit".

Inorg. Chem., 1981, 20, 1173.

13. S. Gambarotta, F. Arena, C. Floriani, and A. Gaetani-Manfredotti

"Activation of CO<sub>2</sub>-like molecules by a multifunctional complex: possible pathways leading to C-C bond formation from one carbon functional group".

J. Chem. Soc., Chem. Commun., 1982, 835.

14. S. Gambarotta, F. Arena, C. Floriani, and P.F. Zanazzi

"Carbon dioxide fixation: bifunctional complexes containing acidic and basic sites working as reversible carriers".

J. Am. Chem. Soc., 1982, 104, 5083.

15. S. Gambarotta, C. Floriani, A. Chiesi-Villa, and C. Guastini

"Titanium-promoted syntheses of carbohydrazido ligand from carbon monoxide and a diazoalkane: diazoalkane coordination and activation by titanocene and vanadocene".

J. Am. Chem. Soc., 1982, 104, 1918.

16. S. Gambarotta, C. Floriani, A. Chiesi-Villa, and C. Guastini

"Metal-formaldehyde chemistry: coordination, disproportionation, and Lewis-acid-promoted transformation to oxymethylene derivatives".

J. Am. Chem. Soc., 1982, 104, 2019.

17. S. Gambarotta, C. Floriani, M. Basso-Bert and C. Guastini

"Nitrogen-carbon and nitrogen-hydrogen bond formation by insertion of a diazoalkane into a metal-carbon and metal-hydrogen bonds".

J. Chem. Soc. Chem. Comm., 1982, 324.

18. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini

"Carbon-carbon bond formation and cleavage resulting from a long range metal-promoted redox process".

J. Chem. Soc. Chem. Comm., 1982, 756.

19. S. Gambarotta, C. Floriani, A. Chiesi-Villa, C. Guastini and M.L. Fiallo

"Alkali cations controlling the reactivity of Co(II) schiff base complexes synthesis of a  $\mu$ -persulphido ligand from S<sub>8</sub> reacting with a Co(II) oxygen carrier compound".

J. Chem. Soc. Chem. Comm., 1982, 503

20. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini

"Nitrogen-nitrogen bond cleavage and reduction in diphenyldiazomethane and azobenzene by a Ti(III) complex".

J. Chem. Soc. Chem. Comm., 1982, 1015.

21. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini

"Monocyclopentadienyldichlorotitanium(III) as a free radical-like reagent for reducing N-N multiple bonds in azo and diazo compounds".

J. Am. Chem. Soc., 1983, 105, 7295.

22. S. Gambarotta, C. Floriani, A. Chiesi-Villa, C. Guastini and F. Urso

"Carbon-carbon bond forming and breaking by a metal-assisted redox process in a nickel(II) Schiff base complex".

Inorg. Chem., 1983, 22, 3966.

23. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini  
"Decamethylvanadocene chemistry: synthesis, structure and reactions with carbon monoxide and isocyanides".  
Inorg. Chem., 1984, 23, 1739.
24. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini  
"Genesis, bonding mode and reaction with CO of an oxymethylene unit".  
J. Am. Chem. Soc., 1983, 105, 1690.
25. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini  
"Hydrazonido ligands forming from the insertion of diazoalkanes into zirconium-carbon and zirconium-hydrogen bonds".  
Inorg. Chem., 1983, 22, 2029.
26. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini  
"Decamethylvanadocene forming a disulphur complex from elemental sulphur and desulphurization reactions".  
J. Chem. Soc. Chem. Comm., 1983, 184.
27. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini  
"Ring contraction in an arylcopper(I) promoted by a sulphur donor ligand pentamesitylcopper(I) forms a tetramesitylcopper(I)".  
J. Chem. Soc. Chem. Comm., 1983, 1156.
28. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini  
"A thermally stable and soluble arylsilver (I): synthesis and structure of mesitylsilver (I)".  
J. Chem. Soc. Chem. Comm., 1983, 1087.
29. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini  
"A homoleptic arylmanganese (II): synthesis and structure of a thermally stable trinuclear mesitylmanganese (II)".  
J. Chem. Soc. Chem. Comm., 1983, 1128.
30. S. Gambarotta, S. Strologo, C. Floriani, A. Chiesi-Villa and C. Guastini  
"Synthesis and structure of a mononuclear Copper(I) complex containing the copper(I)-phenyl functionality".  
Organometallics 1984, 3, 1444.
31. S. Gambarotta, M.L. Fiallo, C. Floriani, A. Chiesi-Villa and C. Guastini  
"Reactivity of decamethylvanadocene with phenyl isothiocyanates and carbonyl sulphide: reactions related to the desulfurization of the thiocarbonyl group".  
Inorg. Chem., 1984, 23, 3532,.
32. S. Gambarotta, S. Strologo, C. Floriani, A. Chiesi-Villa and C. Guastini  
"Insertion of CO<sub>2</sub>-like molecules into zirconium-carbon bonds: reactivity of dialkylbis(cyclopentadienyl)zirconium(IV) with carbon dioxide, diphenylketene, arylisocyanates, p-tolylcarbodiimide".  
Inorg. Chem., 1985, 24, 654,.

33. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini  
"A homoleptic arylgold(I): synthesis and structure of the pentanuclear mesitylgold(I)".  
J. Chem. Soc. Chem. Comm., 1983, 1304
34. S. Gambarotta, M. Mazzanti, C. Floriani and M. Zehnder  
"A tetranuclear polyfunctional sodium-vanadium(III) complex containing a vanadium(III)vanadium(III) double bond".  
J. Chem. Soc. Chem. Comm., 1984, 1116.
35. S. Gambarotta, F. Corazza, C. Floriani and M. Zehnder  
"A tetranuclear iron(II)-sodium complex formed from the complexation of sodium ethoxide by N,N-ethylenebis(acetylacetoniminato)iron(II)".  
J. Chem. Soc. Chem. Comm., 1984, 1305,.
36. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Guastini  
"Ethylene rearrangement to hydrido-ethylidene ligands and formaldehyde decarboxylation in the synthesis of (h<sup>5</sup>-C<sub>5</sub>H<sub>5</sub>)<sub>4</sub>Co<sub>4</sub>derivatives".  
J. Organomet. Chem., 1985, 296, C6,.
37. S. Gambarotta, C. Floriani, A. Chiesi-Villa and C. Gusastini  
"A tris -aryl vanadium(III) derivative: structural determination of trimesitylvanadium(III)-tetrahydrofuran".  
J. Chem. Soc. Chem. Comm., 1984, 886.
38. S. Gambarotta, A Chiesi-Villa and C. Guastini  
"Synthesis, X-ray structure and reactions of phenylimidodecamethyl vanadocene".  
J. Organomet. Chem., 1984, 270, C49.
39. S. Gambarotta, C. Floriani, A. Chiesi-Villa, C. Guastini  
"Carbon dioxide and formaldehyde coordination on Molybdenocene: metal and hydrogen bonds of the C1 molecule in the solid state structure".  
J. Am. Chem. Soc., 1985, 107, 2985.
40. S. Gambarotta, M. Mazzanti, C. Floriani, A. Chiesi-Villa, C. Guastini  
"Organometallic derivatives of N,N-ethylenebis(acetylacetoniminato)vanadium (III) containing vanadium-carbon bond".  
J. Chem. Soc. Chem. Comm., 1985, 829.
41. S. Gambarotta, S. Strologo, C. Floriani, A. Chiesi-Villa, C. Guastini  
"Stepwise reduction of carbon dioxide to formaldehyde and methanol: reactions of CO<sub>2</sub>and CO<sub>2</sub>-like molecules with hydridochlorobis(cyclopentadienyl)zirconium (IV)".  
J. Am. Chem. Soc., 1985, 107, 6278.
42. S. Gambarotta, C. Floriani, A. Chiesi-Villa, C. Guastini  
"Metal-formaldehyde chemistry: metal promoted elementary transformations of formaldehyde".  
Organometallics, 1986, 5, 2425
43. S. Gambarotta, M. Mazzanti, C. Floriani, A. Chiesi-Villa



"Vanadium(III)-schiff base complexes: a synthetic and structural study".

Inorg. Chem. 1986, 25, 2308.

44. S. Gambarotta, S. Stella, C. Floriani, A. Chiesi-Villa, C. Guastini

"Synthesis and structure of the Co Ti complex  $\{\mu_3-[(C_5H_5)_2TiOCl]\}_2\{(C_5H_5)_3Co_3\}$ : CO reduction by two different metal centers".

Angew. Chem. Int. Ed. Engl. 1986, 25, 254.

45. S. Ciurli, S. Gambarotta, C. Floriani, A. Chiesi-Villa, C. Guastini

"Cobalt-meso-tetraphenylporphyrine complexes: synthesis and structure of  $[Na(thf)_3]_2[Co(TPP)]$ ".

Angew. Chem. Int. Ed. Engl. 1986, 25, 553.

46. S. Gambarotta, S. Stella, C. Floriani, A. Chiesi-Villa, C. Guastini

"Co-oligomerization of diphenylketene and ethylene promoted by  $(\eta^5\text{-cyclopentadienyl})\text{bis(ethylene)cobalt(I)}$ : synthesis and X-ray structure of a heterocycle containing cobalt(III)."

J. Chem. Soc. Dalton Trans. 1987, 1789.

47. S. Gambarotta, M. Bracci, C. Floriani, A. Chiesi-Villa, C. Guastini

"Tetranuclear amido complexes of copper(I): a synthetic and structural study".

J. Chem. Soc. Dalton Trans. 1987, 1883.

48. C. Floriani, S. Gambarotta, A. Chiesi-Villa, C. Guastini

"Reaction of elemental sulphur with bis(pentamethylcyclopentadienyl) vanadium derivatives: disulphido and  $\mu$ -sulphido complexes. Crystal structures of  $[V(\eta^5\text{-C}_5\text{Me}_5)_2(S_2)]$  and  $[V_2(\eta^5\text{-C}_5\text{Me}_5)_2Cl_2(\mu\text{-S})_2]$ .

J. Chem. Soc. Dalton Trans. 1987, 2099.

49. E.M. Meyer, S. Gambarotta, C. Floriani, A. Chiesi-Villa, C. Guastini

"Polynuclear aryl derivatives of group 11 metals: synthesis, solid state-solution structural relationship and reactivity with phosphines".

Organometallics 1989, 8, 1067.

(Independent Research)

50. S. Gambarotta, M.Y.N. Chiang

"The synthesis and X-rays structure of  $CpZr(II)Cl(dmpe)_2$  ( $dmpe$  = dimethyl phosphinoethane) via reduction reaction of  $CpZrCl_3$ ".

J. Chem. Soc. Chem. Comm. 1987, 698.

51. S. Gambarotta, M.Y.N. Chiang

"The synthesis of a diamagnetic fulvalene zirconium (III) derivative. The crystal structure of  $[\eta^5\text{-C}_{10}\text{H}_8](\eta^5\text{-C}_5\text{H}_5)_2Zr_2(\mu\text{-Cl})_2$ ".

Organometallics, 1987, 6, 897.

52. S. Gambarotta, A. Chiesi-Villa, C. Guastini

"Synthesis, reactivity and crystal structure of  $CpV(CO)_3tht$ . A mild condition synthetic pathway to substitution derivatives of  $CpV(CO)_4$ . The preparation and X-ray characterization of  $cis\text{-}CpV(CO)_2(a,a'\text{-dipyridyl})$ ".

Inorg. Chem., 1988, 27, 99.

53. S. Gambarotta, F. van Bolhuis, M. Chiang

"Monomeric versus dimeric vanadium(III) aryloxide formation. The syntheses and X-ray structures of [(O-2,6-ArMe<sub>2</sub>)<sub>2</sub>(μ-O-2,6-ArMe<sub>2</sub>)V(III)]<sub>2</sub>thf and [(O-2,6-ArMe<sub>2</sub>)<sub>3</sub>V(III)(pyridine)<sub>2</sub>]".

Inorg. Chem. 1987, 26, 4301.

54. Y. Wielstra, S. Gambarotta, M. Chiang, H. Roedelof

"Monocyclopentadienyl zirconium and hafnium (II) chemistry: Synthesis and reactivity of CpM(CO)<sub>2</sub>(dmpe)Cl [M=Zr,Hf; Cp=cyclopentadienyl; dmpe=1,2-bis(dimethylphosphino)ethane] via mild condition carbonylation reaction of CpM(dmpe)<sub>2</sub>Cl. The crystal structure of CpZr(CO)<sub>2</sub>(dmpe)Cl".

Organometallics 1988, 7, 2177

55. M.Y. Chiang, S. Gambarotta, F. van Bolhuis

"Dinuclear and diamagnetic zirconium (III) derivatives without Zr-Zr bond. Synthesis and X-ray structure of {Cp<sub>2</sub>Zr[μ-P(CH<sub>3</sub>)<sub>2</sub>]}<sub>2</sub> and (Cp<sub>2</sub>Zr)<sub>2</sub>[μ-P(CH<sub>3</sub>)<sub>2</sub>]".

Organometallics 1988, 7, 1864.

56. Y. Wielstra, S. Gambarotta, M.Y. Chiang

"[1,2-bis(dimethylphosphino)ethane] (cyclopentadienyl)(methyl) zirconium(II) [CpZrMe(dmpe)<sub>2</sub>]: a catalyst precursor for the selective dimerization of ethylene to 1-butene".

Organometallics 1988, 7, 1866.

57. Y. Wielstra, S. Gambarotta, M.Y. Chiang

"The elusive Zr(III). (invited review)

Rec. Trav. Chim. Pays Bas, 1989, 108, 1.

58. Y. Wielstra, A. Meetsma, S. Gambarotta

"Synthesis of new monomeric zirconium and hafnium hydrido-butadiene complexes. The X-ray structure of CpZrH(dmpe)(h<sup>4</sup>-butadiene)".

Organometallics 1989, 8, 258.

59. Y. Wielstra, S. Gambarotta, A. Meetsma, J. deBoer

"Preparation and X-ray structure of [Cp<sub>2</sub>Zr(μ-I)]<sub>2</sub>. A thermally unstable Zr(III) complex".

Organometallics 1989, 8, 250.

60. J. Edema, S. Gambarotta, F. van Bolhuis, W.J.J. Smeets, A.L. Spek

"New classes of monomeric and dimeric Cr(II) aryloxides: syntheses and structures.

Inorg. Chem. 1989, 28, 1407.

61. J. Edema, S. Gambarotta, F. van Bolhuis, A.L. Spek

"Chromium (II) alkoxides: synthesis and crystal structure of the monomeric [(RO)<sub>4</sub>Cr][Na(tmeda)]<sub>2</sub>[R=2,6-dimethylphenyl] and dimeric [(RO)<sub>8</sub>Cr<sub>2</sub>][NaL]<sub>4</sub>[R=phenyl; L=thf,Py] without Cr-Cr bond. An insight into the question of Cr-Cr quadruple bond formation?".

J. Am. Chem. Soc. 1989, 111, 2142.

62. J. Edema, S. Gambarotta, A.L. Spek

"Synthesis and X-ray structure of the first homoleptic and dinuclear Cr(II) amide  $\{[(i\text{-Pr})_2\text{N}]\text{Cr}[\mu\text{-}(i\text{-Pr})_2\text{N}]\}_2$ ".

Inorg. Chem. 1989, 28, 812.

63. Y. Wielstra, S. Gambarotta, A. Meetsma, J. deBoer, M. Chiang

"Alkynes regioselective dimerization, co-cyclotrimerization and catalytic cyclotrimerization promoted by monocyclopentadienyl Zr(II) complexes. The preparation and X-ray structure of  $\text{Cp}(\text{dmpe})\text{XZr}[(\text{R})\text{C}=\text{C}(\text{R}')\text{C}(\text{R})=\text{C}=\text{C}(\text{R}')] [\text{R}=\text{CH}_3, \text{t-Bu}; \text{R}'=\text{H}, \text{CH}_3; \text{dmpe}=1,2\text{-bis(dimethylphosphino)ethane}]$ ".

Organometallics 1989, 8, 2696.

64. Y. Wielstra, S. Gambarotta, A. Spek

"The controversy about the thermal stability of biscyclopentadienyl Zr(III) halides  $\text{Cp}_2\text{ZrX}$  [ $\text{Cp} = \text{C}_5\text{H}_5, \text{CH}_3\text{C}_5\text{H}_4$ ]. Synthesis and X-ray structure of  $[\text{Cp}_2\text{ZrI}]_2$  via photolysis or thermolysis of  $\text{Cp}_2\text{Zr}(i\text{-Bu})\text{X}$ ".

Organometallics 1989, 8, 2948.

65. J. Edema, S. Gambarotta, A. Spek, W. Smeets

"Preparation and X-ray structure of tetramethyldibenzotetraaza [14]annulene chromium dimer. The first multiply bonded Cr(II) dimer without bridging ligands".

Inorg. Chem. 1989, 28, 3782.

66. J. Edema, S. Gambarotta, A. Meetsma

"Divalent vanadium and dinitrogen fixation: the preparation and X-ray structure of  $(\mu\text{-N}_2)\{[o\text{-Me}_2\text{NCH}_2]\text{C}_6\text{H}_4\}_2\text{V}(\text{py})_2(\text{THF})_2$ ".

J. Am. Chem. Soc. 1989, 111, 6878.

67. Y. Wielstra, S. Gambarotta, A.L. Spek

"Monocyclopentadienyl Zr and Hf alkyls: synthesis hydrogen-transfer reactions and catalytic features in the reactivity with  $\alpha$ -olefins. The X-ray structure of  $\text{CpZr}(\text{h}_4\text{-butadiene})(\text{dmpe})\text{Cl}$ ".

Organometallics 1990, 9, 572.

68. J. Edema, W. Stauthamer, S. Gambarotta, F. van Bolhuis, W. Smeets, A. Spek

"Novel V(II) amine complexes: a facile entry in the chemistry of divalent vanadium synthesis and characterization of mononuclear  $\text{L}_4\text{VCl}_2$  [ $\text{L} = \text{amine, pyridine}$ ]. The X-ray structure of  $\text{trans-(TMEDA)}_2\text{VCl}_2$  and  $\text{trans-M}_2\text{VPy}_2$  [ $\text{M}_2 = o\text{-C}_6\text{H}_4\text{CH}_2\text{N}(\text{CH}_3)_2$ ].

Inorg. Chem. 1990, 29, 1302.

69. J. Edema, S. Gambarotta, A. Meetsma, F. van Bolhuis, A. Spek

"The unpredictable structural features of chromium(II) pyrrolys: synthesis and X-ray structures of monomeric square-planar ( $\text{h}^1\text{-2,5-Me}_2\text{C}_4\text{H}_2\text{N}$ ) $\text{CrPy}_2$ , square-pyramidal ( $\text{h}^1\text{-C}_4\text{H}_4\text{N}$ ) $_2\text{Cr}(\text{py})_3$  and polymeric  $[(\text{h}^1\text{-2,5-Me}_2\text{C}_4\text{H}_2\text{N})_4\text{CrNa}(\text{THF})_2(\text{Et}_2\text{O})]_n$ . An aborted Cr-Cr quadruple bond formation?"

Inorg. Chem. 1990, 29, 2147

70. J. Edema, S. Gambarotta, F. van Bolhuis, W. Smeets, A. Spek, M. Chiang

"Monomeric Cr(II) aryl complexes: the crystal structure of  $\text{cis-Mes}_2\text{Cr}(\text{THF})_2(\text{THF})$ ,  $[\text{cis-Mes}_2\text{Cr}(\text{bipy})](\text{THF})$ ,  $[\text{Mes}_4\text{CrLi}_2(\text{THF})_2](\text{THF})$  and  $\text{Ph}_4\text{CrLi}_2(\text{THF})_4$ ".

J. Organomet. Chem. 1990, 389, 47

71. Y. Wielstra, S. Gambarotta, A.L. Spek, W.J.J. Smeets

"Binuclear Zr(III) and Zr(IV) complexes: the mild oxidation of low-valent zirconium as a synthetic pathway to a class of triand tetravalent zirconium fulvalene complexes. The molecular structures of [h5:h5-C10H8][CpZrSPh]<sub>2</sub>, [h5:h5-C10H8][CpZr(CH<sub>3</sub>)<sub>2</sub>]<sub>2</sub>, [h5:h5-C10H8][CpZr]<sub>2</sub>[μ-S]<sub>2</sub>

Organometallics 1990, 9, 2142

72. Y. Wielstra, S. Gambarotta, A. Meetsma, S. Khan

Cyclopentadiene functionalization versus fulvalene formation in the oxidation of [(h1:h5-C5H4)ZrCp(PMe<sub>3</sub>)]<sub>2</sub>: the preparation and the crystal structures of [(h1:h5-C5H4)ZrCp]<sub>2</sub>[μ-NSiMe<sub>3</sub>] and [(h1:h5-C5H4)[ZrCpSPh][μ-NSiMe<sub>3</sub>][CpZr(C5H4SPh)].

Organometallics 1990, 9, 876

73. J.J.H. Edema, A. Meetsma and S. Gambarotta

Preparation and Characterization of [VCl<sub>5</sub>(TMEDA)<sub>3</sub>][V(NPh<sub>2</sub>)<sub>4</sub>]: a V(II)- V(III) [TMEDA = N,N,N',N'-tetramethylethylenediamine] Mixed Valence Complex

J. Chem. Soc. Chem. Commun. 1990, 951

74. J.J.H. Edema, S. Gambarotta

Short and supershort Cr-Cr distances: a vanishing borderline between metal-metal bonds, magnetic couplings and ligand artifacts

Comm. Inorg. Chem. 1991, 4, 195

75. J.J.H. Edema, S. Gambarotta, R. Duchateau, R. Haynes, E. Gabe

Novel titanium(II) amine complexes L<sub>4</sub>TiCl<sub>2</sub> [L = 1/2 TMEDA, 1/2 N,N,N'-trimethylethylenediamine, pyridine, 2,2'-bipyridine]: synthesis and crystal structure of the monomeric trans-(TMEDA)<sub>2</sub>TiCl<sub>2</sub>

Inorg. Chem. 1991, 30, 154

76. J.J.H. Edema, S. Gambarotta, A.L. Spek, W.J.J. Smeets

Polymetallic Chromium alkoxides: synthesis and crystal structures of (i-PrO)<sub>8</sub>Cr<sub>2</sub>Na<sub>4</sub>(THF)<sub>4</sub> and (μ<sub>3</sub>-OPh)<sub>10</sub>Cr<sub>4</sub>(μ<sub>3</sub>-O)<sub>3</sub>Na<sub>4</sub>(TMEDA)<sub>4</sub>

Inorg. Chem. 1991, 30, 1380

77. J.J.H. Edema, S. Gambarotta, A. Meetsma, A. L. Spek, N. Veldman.

Synthesis and structural features of novel V(II) amides. The X-ray structures of the octahedral [(2-C5H4N)(CH<sub>3</sub>)N]<sub>2</sub>V[TMEDA] [TMEDA = N,N,N',N'-tetramethyl- ethylenediamine] and the square-pyramidal [2,5-(CH<sub>3</sub>)<sub>2</sub>C<sub>4</sub>H<sub>2</sub>N]<sub>2</sub>V[pyridine]<sub>3</sub>.

Inorg. Chem. 1991, 30, 1380

78. J.J.H. Edema, A. Meetsma, F. Van Bolhuis, S. Gambarotta

Role of the ligand in the formation of short vanadium-vanadium contacts. Preparation and crystal structure of monomeric {[Ph<sub>2</sub>P]<sub>2</sub>CH]<sub>3</sub>V}[Li(THF)<sub>4</sub>](THF)<sub>2</sub> and [PhNC(H)NPh]<sub>2</sub>V(TMEDA) and dimeric {[PhNC(Me)O]<sub>2</sub>V}<sub>2</sub>(TMEDA).

Inorg. Chem. 1991, 30, 2056

79. J.J. Edema, S. Gambarotta, C. Bensimon

Linear trimeric and monomeric octahedral V(II) diphenylacetate.

Inorg. Chem. 1991, 30, 2584

80. J.J. Edema, R. Duchateau, S. Gambarotta, C. Bensimon

Labile trivanadium and trititanium triangular clusters

Inorg. Chem. 1991, 30, 3585

81. J.J.H. Edema, A. Meetsma, S. Gambarotta, S.I. Khan, W.J.J. Smeets, A.L. Spek

Ligand and alkali metal cation control on the molecular complexity of anionic Chromium(II) aryloxides. Preparation and crystal structure of dimeric  $(\text{PhO})_{10}\text{Cr}_2\text{Li}_6(\text{THF})_6$  and  $(2,6\text{-Me}_2\text{C}_6\text{H}_3\text{O})_6\text{Cr}_2\text{Li}_2(\text{THF})_4$  and trimeric  $(\text{GuO})_{14}\text{Cr}_3\text{Na}_9\text{Cl}$  with an encapsulated chloride ion.

Inorg. Chem. 1991, 30, 3639

82. R. Duchateau, A. Williams, S. Gambarotta, M.Y. Chiang.

Carbon-carbon double bond formation in the intermolecular acetonitrile reductive coupling promoted by a mononuclear Ti(II) compound. Preparation and characterization of two Ti(IV) imido compounds.

Inorg. Chem. 1991, 30, 4863.

83. Y. Wielstra, R. Duchateau, S. Gambarotta, C. Bensimon, E. Gabe

Binuclear zirconium fulvalene tetraallyl complex. The preparation and crystal structure of  $[\text{h}_5\text{:h}_5\text{-C}_{10}\text{H}_8][\text{CpZr}(\text{h}_1\text{-CH}_2\text{CHCH}_2)(\text{h}_3\text{-CH}_2\text{CHCH}_2)]_2$

J. Organomet. Chem. 1991, 418, 183

84. R. Duchateau, S. Gambarotta, N. Beydhoun, C. Bensimon

Side-on versus End-on coordination of dinitrogen to titanium(II) and mixed-valence titanium(I)/titanium(II) amido complexes

J. Am. Chem. Soc. 1991, 113, 8986

85. N. Beydoun, R. Duchateau, S. Gambarotta

Synthesis and characterization of a thermally robust titanium dinitrogen complex

J. Chem. Soc., Chem. Commun. 1992, 244

86. S. Hao, J.J.H. Edema, S. Gambarotta, C. Bensimon

Cr-Cr multiple bond reversible cleavage in  $[\text{TAACr}]_2$

Inorg. Chem. 1992, 31, 2676

87. S. Hao, S. Gambarotta, C. Bensimon

Reversible Cleavage of the Cr-Cr quadruple bond of  $[\text{Me}_8\text{Cr}_2][\text{LiTHF}]_4$  via modification of the coordination sphere of the alkali cation. The preparation and the crystal structure of the monomeric  $[\text{Me}_4\text{Cr}][\text{LiTMEDA}]_2$ .

J. Am. Chem. Soc. 1992, 114, 3556

88. J.J. Edema, S. Gambarotta, A. Meetsma, A.L. Spek

Dimeric and monomeric chromium (II) and monomeric chromium (III) aryls. The crystal structure of the pyramidal  $\text{Mz}_2\text{Cr}(\text{py})$  [ $\text{Mz} = 0\text{-Me}_2\text{NCH}_2\text{C}_6\text{H}_4$ ,  $\text{py} = \text{pyridine}$ ], dimeric  $[(\text{Me}_2\text{NC}_6\text{H}_4)_2\text{Cr}]$  and octahedral  $(\text{Me}_2\text{NC}_6\text{H}_4)_3\text{Cr}$ .

Organometallics 1992, 11, 2452

89. R. Duchateau, R. Minhas, S. Gambarotta, C. Bensimon

Linear trimeric, dimeric and monomeric titanium(III) aryloxides

Inorg. Chem. 1992, 31, 4933.

90. J.J.H. Edema, S. Gambarotta, A. Meetsma, A.L. Spek, W.J.J. Smeets, M.Y. Chiang

Cr(II) amides: synthesis and structures

J. Chem. Soc., Dalton Trans. 1993, 789

91. David, G. Dick, Jilles, J.H. Edema, Robbert Duchateau, Sandro Gambarotta

Novel bis-trimethylsilylbenzamidinate Ti(III) complexes. The preparation and the crystal structures of  $\{\text{PhC}[(\text{Me}_3\text{Si})\text{N}]_2\}_2\text{Ti}(\mu\text{-Cl})_2\text{Li}(\text{TMEDA})$ ,  $\{\text{PhC}[(\text{Me}_3\text{Si})\text{N}]_2\}_2\text{Ti}(\text{BH}_4)$  and  $\{\text{PhC}[(\text{Me}_3\text{Si})\text{N}]_2\}_2\text{Ti}(\text{h}_3\text{-allyl})$ .

Inorg. Chem. 1993, 32, 1959

92. R.K. Minhas, J.J. Edema, S. Gambarotta

Vanadium (II) aryloxides

J. Am. Chem. Soc. 1993, 115, 6710

93. S. Hao, S. Gambarotta, C. Bensimon, J. Edema

Ligand steric bulk: a neglected factor in the formation of Cr-Cr supershort contacts.

Inorg. Chim. Acta Topical Volume (invited) 1993, 213, 65

94. S. Gambarotta, R. Minhas, J.J.H. Edema

Isolation and characterization of a vanadium ethylidyne complex. The crystal structure of  $[(\text{Cy}_2\text{N})_2\text{V}]_2\text{Li}(\mu_3\text{-O})(\mu_2, \text{h}_1:\text{h}_1\text{-CCH}_3)$ : an unusual  $\text{V}_2\text{LiO}$  cluster.

J. Chem. Soc. Chem. Commun. 1993, 1503

95. J. Jubba, S. Gambarotta

Preparation and characterization of the first vanadium Ynolate complex

J. Am. Chem. Soc. 1993, 115, 10410

96. A.L. Spek, J.J.H. Edema, S. Gambarotta

Chlorobis{2-[dimethylamino)methyl]-phenyl-C1,N}-(pyridine)vanadium (III)

Acta Cryst. 1994, C50, 1209

97. S. Hao, J.-I. Song, P. Berno, S. Gambarotta

Cr(II) Organochromates. Preparation, Characterization and Stability

Organometallics 1994, 13, 1326

98. S. Hao, J.I. Song, H. Aghabozorg, S. Gambarotta

Diphenylphosphinomethanide Complexes of Cr(II) and Sm(III): Preparation and Characterization of the Dinuclear  $[\text{Cr}(\text{Ph}_2\text{PC}(\text{H})\text{PPh}_2)_2](\mu\text{-Cl})[\mu\text{-C}(\text{H})(\text{PPh}_2)_2][\text{Cr}(\text{-Ph}_2\text{PC}(\text{H})\text{PPh}_2)]$  and Mononuclear Pseudo-allylic  $\text{Sm}[\text{h}_3\text{-Ph}_2\text{PC}(\text{H})\text{PPh}_2]_3$ .

J. Chem. Soc. Chem. Commun. 1994, 157.

99. P. Berno, R. Minhas, S. Hao, S. Gambarotta.

Preparation, Characterization and Reactivity of Binuclear V(III)  $\{[(\text{Me}_3\text{Si})_2\text{N}]_2\text{V}[\mu\text{-CH}_2\text{SiMe}_2\text{N}(\text{SiMe}_3)]\}_2$ . C-H s-Bond Metathesis Promoted by an Amido Function.

Organometallics 1994, 13, 1052

100. J. Jubb, S. Gambarotta  
The surprising role of THF in vanadium macrocyclic chemistry  
Inorg. Chem. 1994, 33, 2503
101. J. Jubb, S. Gambarotta  
Dinitrogen Reduction Operated by a Sm Macrocyclic Complex. Encapsulation of Dinitrogen into a Sm<sub>2</sub>Li<sub>4</sub> Metallic Cage.  
J. Am. Chem. Soc. 1994, 116, 4477
102. P. Berno, S. Gambarotta  
Reactivity of a four-membered vanadacycle ring supported by bulky silazanate ligand.  
Organometallics 1994, 13, 2569
103. J.-I. Song, P. B. and S. Gambarotta  
Dinitrogen Fixation, Ligand Dehydrogenation and Cyclometallation in the Chemistry of V(III) Amides  
J. Am. Chem. Soc. 1994, 116, 6927
104. P. Berno, S. Hao, R. Minhas, S. Gambarotta  
Dinitrogen Fixation versus Metal-Metal bond Formation in the Chemistry of V(II) Amidinates  
J. Am. Chem. Soc. 1994, 116, 7417
105. P. Berno and S. Gambarotta  
Insertion versus Elimination in the reaction of t-BuNC with a vanadacyclobutane ring supported by hexamethylsilazanate ligand  
J. Chem. Soc. Chem. Commun. 1994, 2419
106. L. Scoles, R. Minhas, R. Duchateau, J. Jubb and S. Gambarotta  
Synthesis and characterization of Novel Titanium (III) and (IV) Alkyls and Carbenes supported by Amide Ligands. The crystal structure of [(Cy<sub>2</sub>N)<sub>2</sub>Ti(μ-CH<sub>2</sub>)]<sub>2</sub>.  
Organometallics 1994, 13, 4978
107. J. Jubb, S. Gambarotta, R. Duchateau and J. H. Teuben  
Different Fragmentation Pathways of THF Promoted by a Yttrium Macrocyclic Complex  
J. Chem. Soc. Chem. Commun. 1994, 2641.
108. P. Berno, S. Gambarotta  
Hydrogenolysis of the V-N Bond of a Vanadium(III) Amide: Isolation and Characterization of a Polynuclear Polyhydride/Nitride Mixed-Valence Complex.  
Angew. Chem. Int. Ed. Engl. 1995, 34, 822
109. S. Hao, M. Dionne and S. Gambarotta  
Preparation and Characterization of a New Series of Cr(II) Tetrahydroborates.  
Can J. Chem., Special Volume in honor of W. Graham (invited) 1995, 73, 1126

110. L. Scoles and S. Gambarotta

Titanium Borohydrides Supported by Amide Ligands

Inorg. Chim. Acta, Croatto Memorial Volume (invited). 1995, 235, 375

111. P. Berno and S. Gambarotta

Formation of Metallaziridine Ring and Dinitrogen Fixation Promoted by a Niobium Amide Complex

Organometallics 1995, 14, 2159

112. J. Jubb, P. Berno, S. Hao and S. Gambarotta

The Presence of an Octahedral Carbon Atom in a Non-Solvated Tetralithium Macrocyclic Complex.

Inorg. Chem. 1995, 34, 3563

113. S. Gambarotta

Dinitrogen Activation/Fixation 30 Years Later: a Puzzle still Unsolved

J. Organomet. Chem. (vol 500 invited review) 1995, 500, 117

114. J. Song and S. Gambarotta

Preparation and Characterization of a Dinuclear Low-valent Samarium Complex with a Short Sm-Sm Contact.

Angew. Chem. Int. Ed. Engl. 1995, 34, 2141

115. P. Berno, H. Jenkins, S. Gambarotta, J. Blixt, G. A. Facey and C. Detellier.

The Isolation of  $[\text{Ti}(\mu\text{-CH}_3)_5(\mu\text{-CH}_2)][(\text{TMEDA})\text{Li}]_3\cdot\text{THF}$ : an Unusual and Highly Fluxional Titanium Organometallic Compound.

Angew. Chem. Int. Ed. Engl. 1995, 34, 2264

116. R. Minhas, L. Scoles, S. Wong and S. Gambarotta

Tri- and Tetravalent Titanium Alkyls Supported by Organic Amides.

Organometallics 1996, 15, 1113.

117. M. Dionne, J. Jubb, H. Jenkins, S. Wong and S. Gambarotta

One- versus two-electron reduction of  $\text{N}_2\text{O}$  promoted by a divalent chromium macrocyclic complex

Inorg. Chem. 1996, 35, 1874

118. S. Hao, P. Berno, R. Minhas and Sandro Gambarotta

The role of the Ligand Steric Hindrance in Determining the Stability of Very Short V-V Contacts. Preparation and Characterization of a Series of V(II) and V(III) Amidates.

Inorg. Chim. Acta 1996, 244, 37

119. J. Jubb, L. Scoles, H. Jenkins and S. Gambarotta

Formation of Bridging Nitride Versus Terminal Oxovanadium Promoted by a Low-valent Vanadium Macrocyclic Complex.

Chemistry. European J. 1996, 2, 767

120. R. Minhas, J. Song, Y. Ma and S. Gambarotta



Sm(II) and Sm(III) amides

Inorg. Chem. 1996,35, 1866

- 121 P. Berno, S. Gambarotta, S. Kotila and G. Erker

Novel Vanadium and Titanium Phosphorus Ylide Complexes

J. Chem. Soc. Chem. Commun. 1996, 779

122. L. Scoles, K. B. Rupp, S. Gambarotta

Preparation of the First Ditantalum (III) Complex Containing a Ta-Ta Bond Without Bridging Ligands.

J. Am. Chem. Soc. 1996, 118, 2529

123. S. Hao, P. Berno, R. Minhas, S. Gambarotta

The role of the ligand steric hindrance in determining the stability of very short V-V contacts.

Inorg. Chim. Acta 1996, 244, 37

124. N. Desmangles, H. Jenkins, K., Rupp, S. Gambarotta

Preparation and characterization of a vanadium (III) dinitrogen complex supported by tripodal amide ligand.

Inorg. Chim. Acta (invited) 1996, 250, 1

125. P. Berno, M. Moore, R., Minhas and S. Gambarotta

Monomeric and dimeric V(III) complexes supported by organic amides

Can. J. Chem. (invited) 1996, 74, 1052

126. J. Song, S. Gambarotta

Preparation and characterization of a diamagnetic vanadium nitride

Chemistry, Eur. J. 1996, 2, 1258

127. Kamallesh B.P. Rupp, Natalie Desmangles, Sandro Gambarotta, Glenn Yap and Arnold L. Rheingold

Preparation and Characterization of a Homoleptic Vanadium(III) Amide Complex and its Transformation into Terminal Chalcogenide Derivatives [(3,5-Me<sub>2</sub>Ph) AdN]<sub>3</sub>V(=E) [E = S, Se; Ad = adamantyl].

Inorg. Chem. 1997, 36, 1194

128. Mark Moore, Sandro Gambarotta and Corinne Bensimon

Serendipitous Formation of a Dinuclear Vanadium(III) Amide Complex Containing a Vanadazacyclobutane Ring. Potassium-H Agostic Interactions Holding Together a V<sub>2</sub>K<sub>2</sub>Tetrametallic Framework

Organometallics 1997, 16, 1086

129. Mark Moore, Sandro Gambarotta, Glenn Yap, Louise M. Liable-Sands and Arnold Rheingold

Formation of a Vanadium(V) Bicyclic Carbene/Amide Complex via Insertion of Alkyne into a V-C Bond.

J. Chem. Soc. Chem. Commun. 1997, 643

130. Shoukang Hao, Khalil Feghali and Sandro Gambarotta

Preparation and Characterization of a Diamagnetic and Dinuclear Titanium(III) Formamidinate Complex. Evidence for the Existence of a Ti-Ti Bond?

Inorg. Chem. 1997,36, 1745

131. Mark Moore, Khalil Feghali and Sandro Gambarotta

Preparation and Characterization of a Diamagnetic Sulfido-Bridged Divanadium Amide Complex.

Inorg. Chem. 1997,36, 2191

132. Damien Reardon, Istvan Kovacs, Kamalesh B.P. Rupp, Khalil Feghali, Sandro Gambarotta and Jeffrey Petersen

Reactivity of Coordinatively Unsaturated Trivalent Chromium Complexes with Sulfur. Preparation of Novel Sulfide-Bridged Dinuclear Cr(IV) Derivatives.

Chemistry, Eur. J. 1997, 3, 1482

133. Aparna Kasani, Sandro Gambarotta and Corinne Bensimon

Zirconium alkyl and borohydride complexes stabilized by a sterically demanding anionic organic amide. The crystal structures of  $ZrMeL_3(2)$  and  $Zr(BH_4)L_3(3)$  [ $L = (3,5-Me_2Ph)N(Ad)$ ,  $Ad = adamantyl$ ].

Can. J. Chem. (in honor of B. Conway) 1997,75, 1494

134. Maryam Tayebani, Khalil Feghali, Sandro Gambarotta and Corinne Bensimon

The reduction of  $Nb_2Cl_6(TMEDA)_2$  by Li amide

J. Chem. Soc. Chem. Commun. 1997, 2001

135. Natalie Desmangles, Sandro Gambarotta, Corinne Bensimon, Stephen Davis and Hayder Zahalka Preparation and Characterization of  $(R_2N)_2VCl_2[R = Cy, i-Pr]$  and its Activity as Olefin Polymerization Catalyst.

J. Organomet. Chem. (special edition in honor of Bruce King), 1997, 562, 53,

136. Maryam Tayebani, Khalil Feghali, Sandro Gambarotta, and Corinne Bensimon

Amide C-N bond cleavage and formation of nitride promoted by a Nb(II) cluster.

Organometallics 1997, 16, 5084

137. Kamalesh B.P. Rupp, Khalil Feghali, Istvan Kovacs, Kasani Aparna, Sandro Gambarotta, Glenn P.A. Yap and Corinne Bensimon

The reaction of di- and trivalent chromium amides with  $O_2$ .

J. Chem. Soc. Dalton Trans. 1998, 1595.

138. Kamalesh B. P. Rupp, Sandro Gambarotta and Glenn P.A. Yap

Tetravalent Niobium Alkyls and Enolate Stabilized by Anionic Organic Amides.

Inorg. Chim. Acta (special edition in honor of Vol'pin) 1998,280, 143.

139. Maryam Tayebani, Khalil Feghali, Sandro Gambarotta, and Glenn Yap

Dinuclear Oxidative Addition of Low-valent Nb Amide to a Ligand C-H bond.

Organometallics 1998,17, 4282

140. Maryam Tayebani, Sandro Gambarotta and Glenn Yap

C-H versus C-N bond cleavage promoted by Nb(II) amide.

Organometallics 1998, 17, 3639.

141. Tiffany Dubé, Sandro Gambarotta, and Glenn Yap

Preparation and reactivity of a compartmental Schiff base samarium dinuclear complex.

Organometallics 1998, 17, 3967

142. Maryam Tayebani, Sandro Gambarotta and Glenn Yap

Pyrrole denitrogenation and TMEDA fragmentation promoted by a Nb(II) cluster

Angew. Chem. Int. Ed. Engl. 1998, 37, 3002 (cited by C&E)

143. Aparna Kasania, Ruppa P. Kamalesh Babu, Sandro Gambarotta and Glenn P. Yap

Novel Mn(III) and Mn(IV) oxo clusters. Synthesis and Characterization of manganese formamidinate complexes and their reaction with dioxygen.

Chemistry,

Eur. J. 1999, 5, 577.

144. Tiffany Dube', Sandro Gambarotta, Glenn Yap

Reversible fixation of ethylene on a Sm(II) calix-pyrrole complex.

Angew. Chem. Int. Ed. Engl. 1999, 38, 1432.

145. Damien Reardon, Françoise Conan, Sandro Gambarotta, Glenn Yap, Qinyan Wang

Life and Death of an Active Ethylene Polymerization Catalyst. Ligand Involvement in Catalyst Activation and Deactivation. Isolation and Characterization of two Unprecedented Neutral and Anionic Vanadium (I) Alkyls.

J. Am. Chem. Soc. 1999, 121, 9318.

146. Maryam Tayebani, Khalil Feghali, Sandro Gambarotta, Glenn Yap and Laurence Thompson

Preparation and characterization of a paramagnetic diniobium complex with very short Nb-Nb distance: evidence for a pseudo Nb-Nb triple bond?

Angew. Chem. Int. Ed. Engl. 1999, 38, 3659.

147. Yinlin Ma, Damien Reardon, Sandro Gambarotta, Glenn Yap, Hayder Zahalka and Catherine Lemay

Vanadium Catalyzed Ethylene-Propylene Copolymerization: the Question of the Metal Oxidation State in Ziegler-Natta Polymerization Promoted by (b-diketonate)<sub>3</sub>V.

Organometallics 1999, 18, 2773.

148. Tiffany Dube', Sabrina Conoci, Sandro Gambarotta, Glenn Yap and Giuseppe Vasapollo

Tetrametallic reduction of dinitrogen: formation of a tetranuclear samarium dinitrogen cluster.

Angew. Chem. Int. Ed. Engl. 1999, 38, 3657.

149. Tiffany Dubé, Sandro Gambarotta, Glenn P. A. Yap

Dinuclear Complexes of Di-, Tri- and Mixed-Valent Samarium Supported by the Calix-tetrapyrrole Ligand.

Organometallics 2000, 19, 817.

150. Tiffany Dubé, Sabrina Conoci, Sandro Gambarotta, Glenn P. A. Yap

Divalent and Mixed-Valence Samarium Clusters Supported by Dipyrrolide Ligand.

Organometallics 2000, 19, 1182

151. Tiffany Dube, Dominique Freckmann, Sabrina Conoci, Sandro Gambarotta and Glenn P. A. Yap

Monomeric and Octameric Divalent Ytterbium Complexes of Diphenylmethyl Dipyrrolyl Dianion.

Organometallics 2000, 19, 209.

152. Tiffany Dubé, Sandro Gambarotta, Glenn P.A. Yap, Sabrina Conoci

Preparation and Characterization of two Mixed-valence Samarium Octameric Clusters

Organometallics 2000, 19, 115.

153. Tiffany Dubé, Sandro Gambarotta and Glenn Yap

Samarium hydride, methyl and vinyl complexes supported by calix-tetrapyrrole ring macrocycle. Thermal decomposition to Sm(II)

Organometallics 2000, 19, 121.

154. Tiffany Dubé, Sabrina Conoci, Sandro Gambarotta, Glenn P.A. Yap

Tetrametallic Divalent Samarium Cluster Hydride and Dinitrogen Complex.

Organometallics 2000, 19, 3716

156. Jingwen Guan, Tiffany Dubé, Sandro Gambarotta and Glenn P.A. Yap

Dinitrogen Labile Coordination versus Four-Electron Reduction, THF Cleavage and Fragmentation Promoted by a (calix-tetrapyrrole)Sm(II) Complex.

Organometallics 2000, 19, 4820.

157. Maryam Tayebani, Sabrina Conoci, Khalil Feghali, Sandro Gambarotta and Glenn P.A. Yap

Tri-, tetra- and mixed-valent niobium complexes supported by a tripodal tri-pyrrolylmethane trianion.

Organometallics 2000, 19, 4568

158. Mani Ganesan, Mathieu P. Lalonde, Sandro Gambarotta, Glenn, P. A. Yap

Isolation and characterization of linear polymeric  $\{[(1,1\text{-H}_{10}\text{C}_6(\text{a-C}_4\text{H}_3\text{N})_2)_2\text{Sm}[\text{Na}(\text{THF})_2]_n\}$ : a 30 electron species with a (h<sup>5</sup>-Cp)<sub>4</sub>Ln type structure.

Organometallics 2001, 20, 2443.

159. Ghazar Aharonian, Khalil Feghali, Sandro Gambarotta and Glenn P. A. Yap

Stability of Trivalent Vanadium Alkyl and Hydride Supported by a Chelating Phosphinimido Ligand.

Organometallics 2001, 20, 2616.

160. Maryam Tayebani, Khalil Feghali, Sandro Gambarotta, Glenn Yap

Insensitivity of the Nb-Nb distance in the a paddle-wheel compound to bond multiplicity and axial ligation

Inorg. Chem. 2001, 40, 1399.

Maryam Tayebani, Ghazar Aharonian, Khalil feghali, Sandro Gambarotta, Glenn Yap

Preparation and characterization of a tetranuclear and mixed-valence Nb(II)/Nb(III) diamagnetic Nb<sub>4</sub>Cl<sub>12</sub>Li<sub>2</sub>(THF)<sub>8</sub>cluster

Inorg. Chem.2001, 2442.

162. Ilia Korobkov, Sandro Gambarotta, Glenn P. A. Yap

Highly Reactive U(III) Polypyrrolide Complexes: Intramolecular C-H Bond Activation, Ligand Isomerization and Solvent Deoxygenation and Fragmentation

Organometallics2001, 20, 2552.

163. Mani Ganesan, Sandro Gambarotta, Glenn P. A. Yap

Highly reactive Sm[III] macrocyclic clusters precursors to N<sub>2</sub>reduction.

Angew. Chem. Int. Ed. Engl. 2001, 113, 788.

164. Tiffany Dubé, Jingwen Guan, Sandro Gambarotta, Glenn P. A. Yap

Reactivity of calix-tetrapyrrole SmIIand SmIIIcomplexes with acetylene: Isolation of an "N-confused" calix-tetrapyrrole ring.

Chem. Eur. J., 2001, 7,374.

Ilia Korobkov, Sandro Gambarotta, Glenn P. A. Yap, Lawrence, Thompson, Jeffrey Hay

Dinuclear Tri- and mixed-valence uranium [(-CH<sub>2</sub>-)<sub>5</sub>]-calix-[4]-tetrapyrrole complexes with short intermetallic distances.Organometallics, 2001,20, 5440

166. Ghazar Aharonian, Sandro Gambarotta\*and Glenn P. A. Yap

Oxidative Addition of a Dinuclear and Divalent Vanadium Hydride to an Olefin C-H Bond Leading to Catalytic Hydrogenation. Organometallics,2001,20, 5008.

167. Sandro Gambarotta

Using Dinitrogen as a Raw Material: There is a Future?

Inorg. Chem. Highlights, G. Meyer, D. Naumann, L. Wesemann Eds.; Wiley-VCH: Weinheim 2002

168. Dominique M. M. Freckmann, Tiffany Dubé, Christian D. Bérubé, Sandro Gambarotta, Glenn P. A. Yap.

Cyclic Di- and Mixed-valent Yb Complexes Supported by Dipyrrolide Ligands.

Organometallics, , 2002,21, 1240.

169. Khalil Feghali, David J. Harding, Damien Reardon, Sandro Gambarotta, Glenn Yap.

Stability of Metal-Carbon Bond versusMetal Reduction During Ethylene Polymerization Promoted by a Vanadium Complex: the Role of the Aluminum Cocatalyst.

Organometallics, 2002,21, 968.

170. Damien Reardon, Ghazar Aharonian, Sandro Gambarotta, Glenn P. A. Yap

Mono- and zerovalent Mn alkyl complexes supported by the a,a'-diiminato pyridine ligand: alkyl stabilization at the expenses of catalytic performance.

Organometallics2002, 21, 786

171. Ilia Korobkov, Ghazar Aharonian, Sandro Gambarotta, Glenn, P. A. Yap

Ligand fragmentation promoted by a transient low-valent thulium.

Organometallics 2002, 21, 4899

172. David Enright, Sandro Gambarotta, Glenn, P. A. Yap and Peter H. M. Budzelaar

The ability of the a,a'-diimine pyridine ligand system to accept negative charge: isolation of paramagnetic and diamagnetic trianions

Angew. Chem. Int. Ed. Engl. 2002, 41, 3873.

173. Ghazar Aharonian, Sandro Gambarotta and Glenn P. A. Yap

Tantalum complexes of diphenyldipyrrolide dianion: partial hydrogenation of a phenyl ring.

Organometallics 2002, 21, 4257.

174. Damien Reardon, Jingwen Guan, Sandro Gambarotta, Glenn, P. A. Yap, David R. Wilson

Vanadium-promoted aldol condensation and pinacolic coupling of acetylpyrrole: Formation of two new potent dinuclear catalysts for olefin copolymerization.

Organometallics 2002, 21, 4390.

175. Hiroyasu Sugiyama, Ghazar Aharonian, Sandro Gambarotta,\* Glenn P. A. Yap, Peter H.M. Budzelaar

The participation of the a,a'-di-imino pyridine ligand system to reduction of the metal center during alkylation.

J. Am. Chem. Soc. 2002, 124, 12268.

176. Ilia Korobkov, Sandro Gambarotta\*, Glenn P. A. Yap

Highly Reactive Uranium Complex Supported by the Calix-[4]-tetrapyrrole Tetra-Anion Affording Dinitrogen Cleavage, Solvent Deoxygenation and Polysilanol Depolymerization.\*\*

Angew. Chem. Int. Ed. Engl. 2002, 41, 3433.

177. Carola Schulzke, Dave Enright, Hiroyasu Sugiyama, Guy LeBlanc, Sandro Gambarotta,\* Glenn P. A. Yap, Laurence K. Thompson, David R. Wilson, Rob Duchateau

The Unusual Stability of Homoleptic Di- and Tetra-valent Cr alkyls.

Organometallics 2002, 21, 3810

178. Ilia Korobkov, Sandro Gambarotta, Glenn, P. A. Yap

Reversible alkylation at the pyridine nitrogen in a a,a'-diimine pyridine ligand system.

Organometallics, 2002, 21, 3088.

Mani Ganesan, Christian D. Bérubé, Sandro Gambarotta, Glenn P. A. Yap

The Effect of the Alkali Cation on the Bonding Mode of 2,5-Dimethylpyrrole in Divalent Samarium and Ytterbium Complexes.

Organometallics, 2002, 21, 1707

180. Patrick Crewdson, Sandro Gambarotta, Glenn Yap, and Laurence K. Thompson

Dinuclear and octanuclear Mn(II) complexes with  $\mu_2$ -C, $\mu_2$ -N(pyrrolide) and  $\mu$ -h1:h5-(pyrrolide) bridges: a structural and magnetic study.

Inorg. Chem. 2003, 42, 8579

181. Ilia Korobkov, S. Gambarotta

Amide from dinitrogen via in situ cleavage and partial hydrogenation promoted by a transient zero-valent thorium synthon: an unprecedented transformation

Angew. Chem. Int. Ed. Engl. (V.I.P. section) 2003, 42, 4958. Cited by C&En

182. Christian D. Bérubé, Sandro Gambarotta, Glenn P. A. Yap

Serendipitous isolation of the first example of a mixed-valence samarium tripyrrane complex

Organometallics 2003, 22, 3742.

183. Jennifer Scott, Sandro Gambarotta, Glenn Yap, Denis G. Rancourt

Labile tetranuclear Fe(II) and Co(II) clusters of a dipyrroliate dianion with two diamagnetic ferrous links.

Organometallics 2003, 22, 2352.

184. Christian D. Bérubé, Sandro Gambarotta, Glenn P. A. Yap

Di- and Trivalent Dinuclear Samarium Complexes Supported by Pyrrole-based tetradentate Schiff-Base

Organometallics 2003, 22, 434.

185. Ilia Korobkov, Sandro Gambarotta, Glenn P. A. Yap

The first thorium arene complex: a divalent synthon

Angew. Chem. Int. Ed. Engl. 2003, 42, 814. Cited by C&En

186. Sandro Gambarotta

Vanadium-Based Ziegler-Natta: Challenges, Promises, Problems.

Coordination Chemistry Reviews 2003, 237, 229

187. Ilia Korobkov, Athimoolan Arunachalam Pillai and Sandro Gambarotta

Cyclometallation and solvent deoxygenation during reduction of a homoleptic Th(OAr)<sub>4</sub> complex: serendipitous formation of a terminally bonded Th-OH function.

Organometallics 2004, 23, 6248.

188. S. Gambarotta, I. Korobkov

cis- Double Addition of CO<sub>2</sub> to a Coordinated Arene of a Thorium Complex.

Organometallics 2004, 23, 5379

189. H. Sugiyama, S. Gambarotta, G. P. A. Yap, D. R. Wilson, S. K.-H. Thiele

Preparation of an active Nd catalyst for regioselective butadiene cis-polymerization supported by a dianionic modification of the 2,6-diiminopyridine ligand

Organometallics 2004, 23, 5054

190. Hiroyasu Sugiyama, Ilia Korobkov, Sandro Gambarotta, Angela Möller, Peter H.M. Budzelaar

Preparation, characterization and magnetic behavior of the Ln derivatives (Ln = Nd, La) of a 2,6-diiminepyridine ligand and corresponding di-anion.

Inorg. Chem. 2004, 43, 5771

191. H. Gao, I. Korobkov, S. Gambarotta

Divalent molybdenum complexes of the dipyrrolide ligand system. Isolation of a Mo<sub>2</sub> unit with a 45° twist angle.

Inorg. Chem. 2004, 43, 1108

192. Jennifer Scott, Sandro Gambarotta

Multimetallic cooperative activation of N<sub>2</sub>

Angew. Chem. Int. Ed. Engl. 2004, 43, 5298

193. Jennifer Scott, Sandro Gambarotta, Ilia Korobkov and Peter Budzelaar

Reduction of bis-iminopyridine Fe: evidence for a non-cationic polymerization pathway?

Organometallics 2005, 24, 6298.

194. Jennifer Scott, Sandro Gambarotta, \*Ilia Korobkov, Q. Knijnenburg, Bas de Bruin and Peter Budzelaar

Formation of a paramagnetic Al complex and extrusion of Fe during the reaction of (diiminepyridine)Fe with AlR<sub>3</sub> (R = Me, Et).

J. Am. Chem. Soc. 2005, 127, 17204.

195. Patrick Crewdson, Sandro Gambarotta, Marie-Charlotte Djoman, Ilia Korobkov, Robbert Duchateau

Switchable Cr(II) Ethylene Oligomerization/Polymerization Catalyst

Organometallics 2005, 24, 5214.

196. Jennifer Scott, Sandro Gambarotta, Ilia Korobkov and Peter H.M. Budzelaar

Metal versus ligand alkylation in the reactivity of the (bis-iminopyridinato)Fe catalyst

J. Am. Chem. Soc. 2005, 127, 13019.

197. Arunachalam Pillai Athimoolam, Sandro Gambarotta\* and Ilia Korobkov

Preparation, Characterization and Structure of two Dipyrrolide Thorium Homoleptic Complexes: Isolation of a Dipyrrolide Dipotassium Salt with an Inverted-Sandwich Type of Structure.

Can. J. Chem. (special issue dedicated to H. Alper) 2005, 83, 832.

198. Arunachalam Pillai Athimoolam, Sandro Gambarotta and Ilia Korobkov

Ligand metallation during the reduction of a Th(IV) amide complex

Organometallics 2005, 24, 1996.

199. Indu Vidyaratne, Sandro Gambarotta, Ilia Korobkov, Peter H. M. Budzelaar

Dinitrogen Partial Reduction by Formally Zero- and Divalent Vanadium Complexes Supported by the Bis-iminopyridine System

Inorganic Chemistry 2005, 44, 1187

200. J. Scott, S. Gambarotta, I. Korobkov

Ligand-assisted reduction of Co(II) to Co(I) and subsequent fixation of dinitrogen

Can. J. Chem. (special issue dedicated to N<sub>2</sub> fixation) 2005, 83, 279.

201. S. Gambarotta, I. Korobkov



Trivalent Uranium

Progress in Inorg. Chem. 2005, 54, ch-4

202. Knijnenburg, Q.; Gambarotta, S.; Budzelaar, P.H.M.

Ligand-centred reactivity in diiminepyridine complexes

Dalton Trans. 2006, 5442 .

203. Claire Temple, Amir Jabri, Pat Crewdson, Sandro Gambarotta, Ilia Korobkov

The Question of the Cr Oxidation State in the (SNS)Cr [(SNS) = CySCH<sub>2</sub>CH<sub>2</sub>N(H)CH<sub>2</sub>CH<sub>2</sub>SCy] Catalyst for Selective Ethylene Trimerization: An Unanticipated Re-oxidation Pathway.

Angew. Chem. Int. Ed. Engl. 2006,45, 7050

204 Harminder Phull, Davide Alberti, Ilia Korobkov, Sandro Gambarotta

Fixation of CO<sub>2</sub> by magnesium cations: a re-interpretation

Angew. Chem. Int. Ed. Engl. (HOT papers section) 2006, 45, 5331

205. Athimoolam Arunachalampillai, Patrick Crewdson, Ilia Korobkov and Sandro Gambarotta

Ring opening, C-O and C-N bond cleavage by transient reduced Th species.

Organometallics, 2006,25, 3856

206. Amir Jabri, Claire Temple, Patrick Crewdson, Sandro Gambarotta, Ilia Korobkov, Robbert Duchateau

Role of the metal oxidation state in the SNS-Cr catalyst for ethylene trimerization. Isolation of di- and trivalent cationic intermediates.

J. Am. Chem. Soc.2006,128, 9238

207. Amir Jabri, Patrick Crewdson, Sandro Gambarotta, Ilia Korobkov

Isolation of a cationic Cr(II) species in a catalytic system for ethylene tri- and tetramerization

Organometallics2006, 25, 715

208. Indu Vidyaratne, Jennifer Scott, Sandro Gambarotta, Peter Budzelaar

Multiple pathways of dinitrogen activation during the reduction of a Fe bis-imino pyridine complex

Inorg. Chem. Accepted

209. Indu Vidyaratne, Patrick Crewdson, Emeric Lefebvre, Sandro Gambarotta

Dinitrogen Coordination and Cleavage Promoted by a Vanadium Complex of a s,p,s- Donor Ligand.

Inorg. Chem. in press

210. P.G. Cozzi, S. Gambarotta, M. Monatri, L. Zoli

Convenient preparation of chiral dipyrrolyl methanes.

Collect. Czech. Chem. Commun. 2007, 72, 1046 (invited) .

211. Indu Vidyaratne, Jennifer Scott, Sandro Gambarotta, Peter Budzelaar

Dinitrogen fixation, partial reduction and formation of coordinated imide promoted by a chromium bis-iminopyridine complex.

Inorg. Chem.2007, 46, 7040

212. Claire N. Temple, Sandro Gambarotta, Ilia Korobkov, Robbert Duchateau

New Insight into the Role of the Metal Oxidation State in Controlling the Selectivity of the Cr-(SNS) Ethylene Trimerization Catalyst

Organometallics2007,26, 4598

213. Amir Jabri, Ilia Korobkov, Sandro Gambarotta, Robbert Duchateau

Single-site, single-component catalysts for very high Mw polyethylene: a robust “ready-to-go” vanadium p-bonded complex without a pre-formed V-C bond.

Angew. Chem. Int. Ed.2007, 46, 6119.

214. Indu Vidyaratne, Jennifer Scott, Sandro Gambarotta and Robbert Duchateau

The reactivity of chromium complexes of a bis-iminopyridine ligand: highly active ethylene polymerization catalysts carrying the metal in a formally low oxidation state.

Organometallics2007,26, 3201.

215. Grigory B. Nikiforov, Patrick Crewdson, Sandro Gambarotta\*, Ilia Korobkov and Peter, H. M. Budzelaar\*

Reduction of Titanium supported by a s-/p-bonded Tripyrrole Ligand: Ligand C-N Bond Cleavage and Coordination of Olefin and Arene with an inverse Sandwich Structure.

Organometallics2007, 26, 48.

216. Indu Vidyaratne, Jennifer Scott, Sandro Gambarotta and Robbert Duchateau The reactivity of chromium complexes of a bis-iminopyridine ligand: highly active ethylene polymerization catalysts carrying the metal in a formally low oxidation state.

Organometallics2007, 26, 3201.

217. Amir Jabri, Ilia Korobkov, Sandro Gambarotta, Robbert Duchateau Single-site, single-component catalysts for very high Mw polyethylene: a robust “ready-to-go” vanadium p-bonded complex without a pre-formed V-C bond.

Angew. Chem. Int. Ed.2007, 46, 6119.

218. Claire N. Temple, Sandro Gambarotta, Ilia Korobkov, Robbert Duchateau

New Insight into the Role of the Metal Oxidation State in Controlling the Selectivity of the Cr-(SNS) Ethylene Trimerization Catalyst

Organometallics2007, 26, 4598

219. Indu Vidyaratne, Jennifer Scott, Sandro Gambarotta, Peter Budzelaar Dinitrogen fixation, partial reduction and formation of coordinated imide promoted by a chromium bis-iminopyridine complex.

Inorg. Chem.2007, 46, 7040

220. M. Monatri, L. Zoli, P.G. Cozzi, S. Gambarotta. Convenient preparation of chiral dipyrrolyl methanes.

Collect. Czech. Chem. Commun. 2007, 72, 1046 (invited) .

- 221 Indu Vidyaratne, Patrick Crewdson, Emeric Lefebvre, Sandro Gambarotta Dinitrogen Coordination and Cleavage Promoted by a Vanadium Complex of a , , - Donor Ligand

Inorg. Chem. 2007, 46, 8836.

222. Indu Vidyaratne, Jennifer Scott, Sandro Gambarotta, Peter Budzelaar

Multiple pathways of dinitrogen activation during the reduction of a Fe bis-imino pyridine complex

Inorg. Chem. 2008, 47, 896 (most accessed article Jan-Apr 2008).

223. Sougandi Ilango, Balamurugan Vidjayacoumar, Sandro Gambarotta, Serge I. Gorelsky

Low-Valent Vanadium Complexes of a Pyrrolide-Based Ligand. Electronic Structure of a Dimeric V(II) complex with a Short and Weak Metal-Metal Bond.

Inorg. Chem. 2008, 47, 3265

224. Khalid Albahily, Ece Koç, Danya Al-Baldawi, Didier Savard, Sandro Gambarotta, Tara J. Burchell, Robbert Duchateau. Chromium Catalysts Supported by a non-Innocent NPN Ligand which Switch Activity from non- Selective Ethylene Oligomerization to Trimerization and Polymerization: Isolation of the First Single-Component Chromium Polymerization Catalysts.

Angew. Chem. Int. Ed. Engl. 2008, 47, 5816.

225. Khalid Albahily, Danya Al-Baldawi, Sandro Gambarotta, Robbert Duchateau, Ece Koç, Tara J. Burchell. Preparation and Characterization of a Switchable Single-Component Chromium Trimerization Catalyst.

Organometallics 2008, 27, 5943

226. Khalid Albahily, Danya Al-Baldawi, Sandro Gambarotta, Robbert Duchateau, Ece Koç, Tara J. Burchell. Isolation of a Chromium-Hydride Single-Component Ethylene Polymerization Catalyst.

Organometallics 2008, 27, 22.

227. Amir Jabri, Chris B. Mason, Yan Sim, Sandro Gambarotta, Tara J. Burchell, Robbert Duchateau.

Isolation of Single-Component Trimerization and Polymerization Chromium Catalysts: the Role of the Metal Oxidation State

Angew. Chem. Int. Ed. Engl. 2008, 47, 9717 (cited on C&En)

228. Steven Horvath, Serge I. Gorelsky, Sandro Gambarotta, Ilia Korobkov Breaking the 1.80 Å Barrier of the Cr-Cr Multiple Bond Between Cr(II) Atoms.

Angew. Chem. Int. Ed. Engl. 2008, 47, 9937.

229. Ilia Korobkov, Serge Gorelsky, Sandro Gambarotta Reduced uranium complexes: synthetic and DFT study on the role of p-ligation in the stabilization of uranium species in a formal low-valent state.

J. Am. Chem. Soc. 2009, 131, 10406.

230. Ilia Korobkov, Sandro Gambarotta Aluminate Sm(II) and Sm(III) Aryloxides. Isolation of a Single-component Ethylene Polymerization Catalyst Organometallics 2009, 28, 4009

231. Indu Vidyaratne, Grigory B. Nikiforov, Serge I. Gorelsky, Sandro Gambarotta, Robbert Duchateau, Ilia Korobkov Isolation of a self-activating ethylene trimerization catalyst

Angew. Chem. Int. Ed. Engl. 2009, 48, 6552.

232. Grigory B. Nikiforov, Indu Vidyaratne, Sandro Gambarotta, Ilia Korobkov.

Titanium-Promoted Dinitrogen Cleavage Partial Hydrogenation and Silylation.

Angew. Chem. Int. Ed. Engl. 2009, 48, 7415.

233. Ilia Korobkov and Sandro Gambarotta Unusual reactivity of a Tm-pyrrolide/aluminate complex with a metallocene-type of structural motif.

Organometallics 2009, 28, 5560

234. Ilia Korobkov and Sandro Gambarotta Reducing the Irreducible: Preparation of a Rare Paramagnetic Thorium Species

Organometallics 2010, 29 692

228. Ilia Korobkov and Sandro Gambarotta Ligand Metallation in the Reactivity of a Tetravalent Uranium Amide

Inorg. Chem. 2010, 49, 3409

235. Indira Thapa, Sandro Gambarotta, Robbert Duchateau, Shaneesh Vadake Kulangara and Reynald Chevalier Switchable Chromium (II) Complexes of a Chelating Amidophosphine (N-P) for Ethylene Selective and non-Selective Oligomerization.

Organometallics 2010, 29, 4080

236. Ilia Korobkov and Sandro Gambarotta Ligand Metallation in the Reactivity of a Tetravalent Uranium Amide

Inorg. Chem. 2010, 49, 3409

237. Sebastiano Licciulli, Indira Thapa, Khalid Albahily, Ilia Korobkov, Sandro Gambarotta, Robbert Duchateau, Reynald Chevalier, Katrin Schuhen. Towards Selective Catalytic Ethylene Tetramerization.

Angew Chem. Int. Ed. Engl. 2010, 49, 9225\*

238. Sebastiano Licciulli, Khalid Albahily, Valeria Fomitcheva, Ilia Korobkov, Sandro Gambarotta, Robbert Duchateau. The first Chromium Ethylidene as a Potent Catalyst for Selective Ethylene Trimerization.

Angew Chem. Int. Ed. Engl. 2011, 50, 2346

239. Khalid Albahily, Yacoob Shaikh, Elena Sebastiao, Sandro Gambarotta, Ilia Korobkov and Serge I. Gorelsky Vinyl Oxidative Coupling as a Synthetic Route to Catalytically Active Monovalent Chromium

J. Am. Chem. Soc. 2011, 133, 6388

240. Khalid Albahily, Valeria Fomitcheva, Sandro Gambarotta, Ilia Korobkov, Muralee Muruges and Serge I. Gorelsky Preparation and Characterization of a Reduced Chromium Complex via Vinyl Oxidative Coupling: Formation of a Self-Activating Catalyst for Selective Ethylene Trimerization. J. Am. Chem. Soc. 2011, 133, 6380

241. Di Zhu, Indira Thapa, Ilia Korobkov, Sandro Gambarotta, Peter H.M. Budzelaar. p-Acceptor ligands and organic radical chemistry Inorg. Chem. 2011, 50, 9879.

242. Khalid Albahily, Sebastiano Licciulli, Sandro Gambarotta, Ilia Korobkov, Reynald Chevalier, Kathrine Schuhen, Robbert Duchateau Highly Active Ethylene Oligomerization Catalysts.

Organometallics 2011, 30, 3346

243. Khalid Albahily, Valeria Fomitcheva, Yacoob Shaikh, Elena Sebastiao, Serge I. Gorelsky, Sandro Gambarotta, Ilia Korobkov, Robbet Duchateau. New Self-Activating Organochromium Catalyst Precursor for Selective Ethylene Trimerization

Organometallics 2011, 30, 4201.

244. Khalid Albahily, Yacoob Shaikh, Zeeshan Ahmed, Ilia Korobkov, Sandro Gambarotta, Robbert Duchateau Isolation of a Self-Activating Ethylene Trimerization Catalyst of a Cr-SNS System.

Organometallics 2011, 30, 4159

245. Khalid Albahily, Zeeshan Ahmed, Sandro Gambarotta, Ece Koç, Robbert Duchateau. Ilia Korobkov,

New Iminophosphonamide Chromium (II) Complexes as Highly Active Polymer-Free Ethylene Oligomerization Catalysts.

Organometallics 2011, 30, 6022

246. Khalid Albahily, Sandro Gambarotta, and Robbert Duchateau

Ethylene Oligomerization Promoted by a Silylated-SNS Chromium System

Organometallics 2011, 30, 4655.

247. Indira Thapa, Sandro Gambarotta, Ilia Korobkov, Muralee Murugesu and Peter Budzelaar

Isolation and Characterization of a Class-II Mixed-Valence Cr(I)/Cr(II) Self-Activating Ethylene Trimerization Catalyst.

Organometallics 2012, 31, 486

248. Yacoob Shaikh, Khalid Albahily, Matthew Sutcliffe, Valeria Fomitcheva, Sandro Gambarotta, Ilia Korobkov, Robbert Duchateau

A Highly Selective Ethylene Tetramerization Catalyst

Angew. Chem. Int. Ed. Engl 2012, 51, 1366.

249. Shaneesh Vadake Kulangara, Chris Mason, Michael Juba, Yung Yang, Indira Thapa, Sandro Gambarotta, Ilia Korobkov, Rob Duchateau

Synthesis and catalytic oligomerization activity of chromium catalysts of ligand systems with switchable connectivity.

Organometallics 2012, 31, 6438

250. Shaneesh Vadake Kulangara, Amir Jabri, Yun Yang, Ilia Korobkov, Sandro Gambarotta, Rob Duchateau

Synthesis, X-ray Structural Analysis, and Ethylene Polymerization Studies of Group IV Metal Heterobimetallic Aluminum-Pyrrolyl Complexes

Organometallics 2012, 31, 6085

251. Yacoob Shaikh, Joanna Gurnham, Khalid Albahily, Sandro Gambarotta, Ilia Korobkov

"Aminophosphine-Based Chromium Catalysts for Selective Ethylene Tetramerization"

Organometallics 2012, 31, 7427

252. Vladimir Shuster, Sandro Gambarotta, Grigory B. Nikiforov, Ilia Korobkov and Peter H.M. Budzelaar.

Radical Cleavage of Al-C Bonds Promoted by Phenazine: from non-Innocent Ligand to Radical Abstractor.

Organometallics 2012, 31, 7011.

253. Vladimir Shuster, Sandro Gambarotta, Grigory B. Nikiforov, Ilia Korobkov and Peter H.M. Budzelaar.

Organometallics 2013, 32, 2329

254. Ahmed Alzamly, Sandro Gambarotta and Ilia Korobkov

Pyridine-Based Pincer PNP-Type of Polymer-Free Ethylene Oligomerization Using Ligand

Organometallics 2013, 32, 7204

255. Ahmed Alzamly, Sandro Gambarotta and Ilia Korobkov

Synthesis, Structures, and Ethylene Oligomerization Activity of Bis(phosphanylamine)pyridine Chromium/Aluminate Complexes

Organometallics 2013, 32, 7107

256. Ahmed Alzamly, Serge I. Gorelsky, Sandro Gambarotta, Ilia Korobkov, Jennifer Le Roy, and Muralee Murugesu

Chromium-Chromium Interaction in a Binuclear Mixed Valent Chromium Cr(I)-Cr(II) Complex

Inorg. Chem. 2014, 53, 11492

257. Joanna Gurnham, Sandro Gambarotta, Ilia Korobkov,† Lidia Jasinska-Walc, and Robbert Duchateau.

Chromium Catalyzed CO<sub>2</sub>-Epoxide Copolymerization

258. Ahmed Alzamly,; SandroGambarotta,; Ilia Korobkov,; Muralee Murugesu,; Peter Budzelaar,; Jennifer LeRoy,

Isolation of a Hexanuclear Chromium Cluster with a Tetrahedral Hydridic Core and its catalytic behavior for ethylene oligomerization

Inorg. Chem.2014, 53, 6073

- 259 Yun Yang,a,bJoanna Gurnham,cBoping Liu,bRobbert Duchateau,\*aSandro Gambarotta\*clia Korobkovd

Selective Ethylene Oligomerization with Chromium Complexes Bearing Pyridine-Phosphine Ligands: Influence of Ligand Structure on Catalytic Behavior.

Organometallics 2014, 33, 5749

260. Ahmed Alzamly, Sandro Gambarotta and Ilia Korobkov

Reactivity with Alkyl Aluminum of a Chromium Complex of a Pyridine-Containing PNP Ligand: A Redox N-P Bond Cleavage.

Organometallics 2014, 33, 1602

261. Shaneesh Vadake Kulangara, Daniel Haveman, Bala Vidjayacoumar, Ilia Korobkov, Sandro Gambarotta, and Rob Duchateau

Effect of Cocatalysts and Solvent on Selective Ethylene Oligomerization

Organometallics 2015, 34, 1203

262. Camilo J. Viasus, Nicholas P. Alderman, Sebastiano Licciulli, Ilia Korobkov and Sandro Gambarotta. Radical behavior of CO<sub>2</sub> versus its deoxygenation promoted by vanadium aryloxide complexes: how the geometry of intermediate CO<sub>2</sub>-adducts determines the reactivity.

Chem. Eur.J. 2017, 23,17269–17278.

263. Jacob M. Sommers<sup>1</sup>, Nicholas P. Alderman<sup>1</sup>, Camilo J. Viasus<sup>1,2</sup>, Sandro Gambarotta<sup>1\*</sup>

Revisiting the behavior of BiVO<sub>4</sub> as a carbon dioxide reduction photo-catalyst.

Dalton Transaction 2017, 6404

264. Nicholas P. Alderman<sup>1</sup>, Jacob M. Sommers<sup>1</sup>, Camilo J. Viasus<sup>1,2</sup>, Christine H.T. Wang<sup>1</sup>, Virginie Peneau<sup>1</sup>, SandroGambarotta<sup>1\*</sup>, Balamurugan Vidjayacoumar<sup>3</sup>, Khalid A. Bahily-Al<sup>3</sup>: Photochemical Water Splitting Mediated by a C1 Shuttle

Dalton 2017,46, 49.

265. Camilo J. Viasus, Nicholas P. Alderman, Bulat Gabidullin and Sandro Gambarotta. Reaction of CO<sub>2</sub>with a Vanadium(II) Aryloxide: Synergistic Activation of CO<sub>2</sub>-oxo Groups towards H-Atom Radical Extraction.

Angew. Chem. Int. Ed.2018, 57, 10928-10932.

266. Nicholas P. Alderman, Virginie Peneau,Camilo J. Viasus, Ilia Korobkov, Balamurugan Vidjayacoumar, Khalid Albahily and Sandro Gambarotta, Syn-gas from Waste: the Reduction of CO<sub>2</sub>with H<sub>2</sub>S.

React. Chem. Eng., 2019, 4, 763-771.

267. Camilo J. Viasus, Nicholas P. Alderman, Virginie Peneau, Bulat Gabidullin, Balamurugan Vidjayacoumar, Khalid Albahily and Sandro Gambarotta. Two-Step Catalytic Dehydrogenation of Formic Acid to CO<sub>2</sub>via Formaldehyde.

International Journal of Hydrogen Energy. 2019,44, 3, 1534-1543

268. Nicholas P Alderman, Virginie Peneau, Camilo J. Viasus, Ilia Korobkov, Balamurugan Vidjacoumar, Khalid Bahily-Al and Sandro Gambarotta. Efficient Reduction of Formic Acid to Formaldehyde by Zinc.

Canadian Journal of Chemistry., 2019, 97(1), 42-45.

269. Camilo J. Viasus, Sandro Gambarotta, Bulat Gabidullin. "Linear and Bridging End-On coordination modes of CO<sub>2</sub> on vanadium(II) and (III) aryloxides"

Angewandte Chemie Int Ed Engl. **VIP** accepted

## Patents

1. 'Hydrogen production from aqueous formaldehyde under mild basic conditions', 2017, US Patent Application 16T&I0165
2. 'Hydrogen production from water using iron sulphide catalyst', 2017, US Patent Application 17T&I0012
3. 'Formaldehyde from formic acid with production of metal oxide', 2017, US Patent Application 62/468,483
4. 'Production of acetic acid and hydrogen in an aqueous medium from ethanol and acetaldehyde via an organic/inorganic catalyst', 2016, US Patent Application 62/343,396
5. 'Carbon mediated water-splitting using formaldehyde', 2016, US Patent Application 15/150,680
6. 15T&I0029-US-PSP Light-Switchable Catalyst for the Hydrogen Production from para-Formaldehyde. Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick
7. 15T&I0029 Light-Switchable Catalyst for the Hydrogen Production from p-Formaldehyde. Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick
8. 15T&I0040-US-PSP Robust Catalyst for Hydrogen Production from p-Formaldehyde Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick
9. 15T&I0040 Robust Catalyst for the Hydrogen Production from p-Formaldehyde Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick
10. 15T&I0076 Catalytic Hydrogen Production from p-Formaldehyde Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick
11. 15T&I0089 Carbon Mediated Water Splitting using Formaldehyde Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick; Peneau, Virginie
12. 15T&I0089 Carbon Mediated Water-Splitting Using FormaldehyCatalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick; Peneau, Virginie
13. 15T&I0029-GC-NP Light-Switchable Catalyst for the Hydrogen Production from para-Formaldehyde. Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick
14. 16T&I0018-US-PSP Production of Acetic Acid and Hydrogen in an Aqueous Medium from Ethanol and Acetaldehyde via an Organic/Inorganic Catalyst Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick; Peneau, Virginie
15. 16T&I0018 Production of Acetic Acid from Ethanol in Aqueous Medium Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick; Peneau, Virginie
16. 15T&I0040-WO-PCT Robust Catalyst for Hydrogen Production from p-Formaldehyde Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick
17. 15T&I0040-GC-NP Robust Catalyst for Hydrogen Production from p-Formaldehyde Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick
18. 15T&I0029-CN-PCT Light-Switchable Catalyst for the Hydrogen Production from para-Formaldehyde. Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick
19. 16T&I0148 Hydrogen Production from Ethylene Glycol under Basic Conditions Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Thapa, Indira
20. 16T&I0149 Formaldehyde from formic acid reduction with water using zinc Oxide Production Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick; Peneau, Virginie
21. 16T&I0165 Hydrogen Production using Formaldehyde with Water under Mild Basic Conditions Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick; Peneau, Virginie
22. 15T&I0029-US-NP Light-Switchable Catalyst for the Hydrogen Production from para-Formaldehyde. Catalysis-CRD and Uottawa Vidjayacoumar, Balamurugan; Al-Bahily, Khalid Gambarotta, Sandro; Alderman, Nick

## Chapters in Encyclopedia

1. P.Berno, D. Richeson, S.Gambarotta

Vanadium

Comprehensive Organometallic Chemistry. Update 1982-1992 G. Wilkinson Ed, Pergamon Press, Oxford.

2. J. Jubb, D. Richeson, J. Song, S. Gambarotta

Comprehensive Organometallic Chemistry. Update 1982-1992 Zirconium and Hafnium G. Wilkinson Ed, Pergamon Press, Oxford.

### **Invited Lectures at Symposia, International Conferences and**

1. S. Gambarotta "Reaction of Schiff base transition metal complexes with small molecules". - University of Groningen, Chemistry Dept., Groningen June 1986.

2. S. Gambarotta "Tetradentate Schiff base complexes of transition metals. A chemical curriculum of a ligand".

- Columbia University, Chemistry Dept., Nov. 1985

- Boston University, Chemistry Dept., Boston, March 1986.

- Dalhousie University, Chemistry Dept., Halifax April 1986

- Université Laval, Chemistry Dept., Quebec May 1986

3. S. Gambarotta

"Low-valent zirconium and hafnium: synthesis, reactivity and structure".

- University of Maryland, College Park, April 1988

- West Virginia University, Morgantown, April 1988 - Princeton University, Princeton, April 1988

- University of Ottawa, Ottawa, April 1988

- Columbia University, New York, April 1988

4. S. Gambarotta

"Low-valent zirconium: synthesis reactivity and structure" Chemistry Dept., University of Oldenburg, Oldenburg FRG, Oct.

11, 1988

5. S. Gambarotta

"Coordination chemistry in brief".

DSM Maastricht The Netherlands Nov. 1988

6. S. Gambarotta

"Is a Cr-Cr multiple bond an artefact?"

- Chemistry Dept., University of Ottawa, Canada Dec. 1988

- Shell Laboratories, Amsterdam (KSLA) January 1989

- Chemistry Dept., University of Nijmegen, The Netherlands

Feb. 1989



- Chemistry Dept., University of Amsterdam, The Netherlands

March 1989

7. S. Gambarotta

Short metal-metal contacts: bonds, magnetic interactions and ligand artifacts in the chemistry of low-valent early transition metals.

University of Strasbourg may 18, 1990

8. S. Gambarotta

Short M-M contacts between low-valent early transition metals: a vanishing borderline between M-M bonds and ligand artifacts".

- Chemistry Department, University of California Berkeley,

March 1991

- Chemistry Department, University of Guelph Feb 1991

- Chemistry Department, University of Windsor March 1991

- Chemistry Department, Carleton University, Summer 1991

10. S. Gambarotta

Supershort superweak Cr-Cr bonds

- Harvard/MIT Inorganic Seminar Program, Cambridge, Sept. 16, 1992

- Dartmouth College, Inorganic Seminar Program, Hanover, Apr. 28, 1993

11. S. Gambarotta

Recent results in the chemistry of low-valent vanadium and

titanium.

- Purdue University, West-Lafayette, October 19, 1993

- Universite' de Montreal July 10 1994

12. S. Gambarotta

Role of the ligand in enforcing short and supershort M-M bonds.

- University of Iowa, Iowa City, October 15, 1993

- Indiana University, Bloomington, October 18, 1993

13. S. Gambarotta

Recent advances in low-valent early transition metal chemistry

PacifiChem, Honolulu 1995

14. S. Gambarotta. Vanadium catalyzed olefin copolymerization. ESTAC Tech Day, Toronto, Nov. 9 1998

15. S. Gambarotta. New vanadium-based Ziegler-Natta catalysts. Breaking a paradigm.

High Polymer Forum, Quebec City, Aug. 1998

16. S. Gambarotta, Low-valent early transition metal amides: a chemical cornucopia  
Technische Universitat Munich (Germany) Dec. 1997  
Anorganische Chemie, Universitat Goettingen (Germany), Dec 1997  
Anorganische Chemie, Universitat Hamburg (Germany), Dec 1997  
Anorganische Chemie, Universitat Wurzburg (Germany), Dec 1997  
Facolta Ingegneria, Universita Lecce (Italy) Dec 1997  
University of Utah, Salt Lake City (April 1998)  
State University Utah, Logan (April 1998)  
University of Wyoming, Laramie (April 1998)  
Colorado State University, Fort Collins (April 1998)
17. S. Gambarotta, Early Transition metal Amide, CIC Annual Meeting Windsor, June 1997
18. S. Gambarotta, Progress recent dans la chimie des premieres metaux de transition dans les bas etats d'oxidation.  
- Universite de Sherbrooke, Feb. 1997  
- Universite du Quebec a Montreal Feb. 1997
19. S. Gambarotta, Dinitrogen Fixation Activation promoted by low-valent ETM amides University of Victoria Feb 1996.
20. S. Gambarotta, Low-valent lanthanides and actinides as reagent for molecular activation processes  
Simon Fraser University, Dec 1999.
21. S. Gambarotta, Dinitrogen activation promoted by low-valent lanthanides. May 2000 CSC annual meeting. Calgary
22. S. Gambarotta, C-X bond activation. May 2000, CSC annual meeting, Calgary.
23. S. Gambarotta, Vanadium Ziegler-Natta: problem, promises and challenges  
High Polymer Forum, Aylmer Aug. 2000.
24. S. Gambarotta. Recent advances in dinitrogen activation. Pacifichem Dec. 2000.
25. S. Gambarotta. Multi electron redox processes promoted by lanthanide clusters. Pacifichem Dec. 2000.
26. S. Gambarotta. Cooperative reduction of dinitrogen promoted by lanthanide clusters. Annual Symposium on Lanthanide Chemistry. Stuttgart. Dec. 2000.
27. S. Gambarotta. Cooperative reduction of dinitrogen promoted by lanthanide clusters. University of Koeln. Dec. 2000.
28. S. Gambarotta. Vanadium Complexes as Ziegler-Natta Catalysts. University of Berlin Dec. 2000.
29. S. Gambarotta. Recent advances in actinide and lanthanide chemistry. Gordon Conference, Newport, July 2001.
30. S. Gambarotta. Vanadium Complexes as Ziegler-Natta Catalysts. Promises and Challenges. Third International Symposium on Vanadium Chemistry Osaka Nov 2001.
31. S. Gambarotta. Highly reactive block f metal complexes. Waseda University Tokyo. Nov 2001
32. S. Gambarotta. Who said that uranium chemistry is boring. Exciting results from the chemistry of giant atoms. University of Rochester Nov. 2001.

33. S. Gambarotta. Actinide chemistry. Activation of small molecules by using giant atoms  
  
Purdue University Oct 2003  
  
Indiana University Oct 2003
34. G. Scholss lecturer University of Chicago Dec 2002
35. Am2Net Munster 2004;
36. ASm2Net Calgary 2005
37. Pacifichem 2005 (2 lectures);
38. Rare Earth Conference Bayereuth 2004.
39. Basell Frankfurt 2006;
- 40 ACS (San Francisco) Sept 2006
- 41 CIC meeting (Halifax)
42. Catalysis Symposium University of Florida April 2006;
43. Dutch Polymer Institute meeting
44. Am2Net Muenster 2007
45. OZOM Camberra January 2008;

#### Contributed Papers at Conferences and Meetings

1. S. Gambarotta and C. Floriani  
  
"The role of bifunctional complexes in the activation of CO<sub>2</sub> and CO<sub>2</sub> analogues".  
  
EUCHEM Conference, Venice, Sept. 28-30, 1982.
2. S. Gambarotta and S. Strologo  
  
"Decamethylvanadocene: a novel model compound in coordinative addition reactions".  
  
Italian Chemical Society Inorganic Meeting, Bari Sept. 27,  
  
1982.
3. S. Gambarotta  
  
"Diazoalkanes in organometallic chemistry: coordination and  
  
metal-promoted transformations".  
  
XXII ICCS, Budapest, Aug. 23-27, 1982.
4. S. Gambarotta, M.L. Fiallo  
  
"Disulphur complexes and desulphurization reactions of the C+S functionality".

Italian Chemical Society Meeting Ferrara, Sept. 12-16, 1983. 5.

S. Gambarotta

"Carbon-carbon bond forming and breaking by a metal-assisted redox process in a nickel(II)-Schiff base complex".

Italian Chemical Society Inorganic Meeting, Ferrara, Sept. 12-16, 1983.

6. S. Gambarotta

"Bifunctional complexes promoting C-C bond formation from carbon dioxide related molecules".

7. S. Gambarotta, Y. Wielstra, M. Chiang

"Monocyclopentadienyl zirconium (II) chemistry" ACS 20th central regional meeting

Morgantown, West Virginia USA, June 1988

8. S. Gambarotta, M. Chiang

"Metal-metal bond formation in the chemistry of Zr(III)".

Third Chemical Congress of North America

Toronto, Canada, June 5 1988

9. J. Edema, S. Gambarotta

"Molecular complexity in the chemistry of Cr(II) alkoxides. The role of the alkali cation."

199th ACS National Meeting, Boston April 22-27, 1990

10. J. Edema, S. Gambarotta

"V(II) amine complexes: an easy entry in the chemistry of

divalent vanadium."

199th ACS National Meeting, Boston April 22-27, 1990

11. Y. Wielstra, S. Gambarotta

Binuclear fulvalene Zr(III) and Zr(IV) complexes: synthesis, structure and reactivity."

199th ACS National Meeting, Boston April 22-27, 1990

12. J. Edema, S. Gambarotta

"Short Cr-Cr distance in dimeric Cr(II) complexes: quadruple bonds or ligand artifacts?"

199th ACS National Meeting, Boston April 22-27, 1990

13. S. Gambarotta, J. Edema

Short M-M distances in dimeric Cr(II) and V(II) complexes: M-M multiple bonds or ligand artifacts?

-C.I.C. Congress, July 15-20, Halifax, 1990.

14. S. Gambarotta, R. Duchateau

Recent Development in the chemistry of low-valent titanium

-C.I.C. Congress, Hamilton, 1991.

15. S.Gambarotta, R. Duchateau

Coordination chemistry of divalent titanium: dinitrogen

fixation and disproportionation reactions.

203rd American Chemical Society Meeting, San Francisco, April 1992

16. S.Gambarotta, S. Hao

Reversible cleavage of Cr-Cr quadruple bond

203rd American Chemical Society Meeting, San Francisco, April 1992

17. S.Gambarotta, P. Berno

The role of the ligand steric hindrance in determining the stability of very short V-V bonds.

Okazaki Conference on Early Transition Metals, Okazaki (Japan) Aug. 1 1994

18. S. Gambarotta

New catalysis using an old ligand

CIC conference London (Ont) 1994

#### List of Collaborators

I was the only supervisor of: Y. Wielstra, Ph.D.(1990,) Philips Laboratories Eindhoven (The Netherlands); J. Edema, Ph.D. (1991), General Electrics (USA/The Netherlands); R. Duchateau, Rijksuniversiteit Groningen (The Netherlands); L. Scoles, M.Sc. (1994), Res. Associate NRC labs; S. Hao, Ph.D. (1994), P.D.F. University of Windsor; R. Minhas, Ph.D.,(1995); Y. Ma M.Sc. (1998); N. Desmangles M.Sc (1997).; T. Dubbe, Ph.D.; Myriam Tayebani, Ph.D.; Feghali Khalil, M.Sc. (Photochemical, Montreal, 1998), Damien Reardon M.Sc.; J. Jubb, P.D.F. (1994) Shell Laboratories (Amsterdam); P. Berno, Environment LTD (Italy); D. Dick, P.D.F. (1992), Wayne State University (USA); N. Beydhoun, P.D.F. (1992), Universite de Strasbourg (France); J. Song, P.D.F. Samsung Research, Seoul South Korea; H. Jenkins, P.D.F. (co-supervised with Dr. Richeson); M. Hinstead, P.D.F. (1990), Technical Staff U. of Ottawa; M. Moore, P.D.F.; K. Rupp, P.D.F.(U. of Alberta); A. Kasani P.D.F., Istvan Covacs P.D.F. (McGill); Francoise Conan, P.D.F. (Universite' de Brest); P.D.F.; Shirley Wong (Res. Ass.) Kanox (Ottawa). Aharonian Ghazar (PDF), Sabrina Conoci (PDF), Ilia Korobkov (PDF), Mani Ganesan (PDF), Jingwen Guan(PDF), Carola Schultze (PDF), Christian Berube (MSc), David Enright (MSc), David Harding(PDF), Hiroyasu Sajiya (PDF), Sajjad Mohebi(PDF), Emeric Lefebvre (visiting PhD), Jennifer Scott (PhD), Patrick Crewdson (PhD), Jalil Assoud (PDF), Dominique Freckmann, Christopher McManus, Huang Gao (PDF), Davide Alberti (PDF), Sugandi Idalgo (PDF), Grigory Nikirov (PDF) Bala Vidyacoumar (PDF), Claire Temple (PDF) Terri Clarke (MSc), Indu Vidyaratne (MSc), Ilia Korobkov (PhD), Harminder Phull (MSc), Amir Jabri (PhD), Khalid Albahili (PhD), Vladimir Shuster (MSc), Steven Horvath (MSc), Indira Thapa (PhD), Elena Smolenski (PDF), Chris Mason (MSc).

#### Honorary Memberships and Awards

1. Member of the Editorial Board of J. of Organometallic Chemistry (1994-1998);
2. Alcan Lecture Award 1996;
3. Fellow of the Chemical Institute of Canada;
4. NSERC GSC (Committee 24, 2001-2004).
5. 2002 Gerhard Schloss Lecturer, University of Chicago.

6. 2002-2005 Member of the Editorial Board of Organometallics