

MASSIMILIANO DELFERRO, Ph.D.

CONTACT INFORMATION

Name: Massimiliano Delferro

Date of Birth: 01/28/1981

Place of Birth: Parma (Italy)

Citizenship: Italian

Work address: Department of Chemistry, Northwestern University, 2145 Sheridan rd, Evanston, 60208 IL, USA

Email: m-delferro@northwestern.edu

Website: <http://faculty.wcas.northwestern.edu/~mde548/index.html>

EDUCATION

High School: **1995-2000**, ITIS “Leonardo da Vinci”, Parma (Italy).

University:

- Bachelor Degree: **2000-2003**, University of Parma (Italy), Inorganic Chemistry: vote: 105/110, Title: “*Synthesis and characterization of Copper(I) complexes with 1,2,4-triazolinic ligands*”, Advisor Prof. Maurizio Lanfranchi and Dr. Luciano Marchiò.
- Research Master of Science: **2003-2005**, University of Parma (Italy), Inorganic and Organometallic Chemistry: vote: 110/110 *summa cum laude*, Title: “*Synthesis, structural characterization and solution chemistry of ruthenium(III) triazole-thiadiazine complexes*”, Advisor Prof. Maurizio Lanfranchi and Dr. Luciano Marchiò
- Graduate School: **2006-2008**, University of Parma (Italy), Title: “*Synthesis and Characterization of Zwitterionic Metallates and Molecular Clusters*”, Advisor Prof. Daniele Cauzzi and Prof. Antonio Tiripicchio.

Visiting Scholar: **July-December 2007**, Northwestern University (Evanston, IL, USA), Advisor Prof. Tobin J. Marks.

Post-Doctoral Training: **2009-2010**, Northwestern University (Evanston, IL, USA), Advisor Prof. Tobin J. Marks.

Research Assistant Professor: **2010-**, Northwestern University (Evanston, IL, USA)

INTERNATIONAL JOURNAL REVIEWED:

Chemical Reviews, Organometallics, Chemistry-European Journal, Dalton Transaction, European Journal of Inorganic Chemistry.

PROFESSIONAL QUALIFICATIONS

“Advance NMR”, University of Parma/Bruker BioSpin (Italy), **2008**.

“IX School of Chemistry of Inorganic Materials”, University of Calabria, Cosenza (Italy), **2006**.

Mac and Windows operation systems, Internet, e-Mail, Microsoft Office (Word, Power Point, Excel), NMR software (Bruker, Varian, iNMR, MestreNova), WinGX package (programs for solving, refining and analysing single crystal X-ray diffraction data for small molecules), Cambridge Crystallographic Data Centre (CDCC: Mercury, Encifer, ConQuest), EndNote, Papers (Mac), ChemBioDraw, File Transfer Protocol, VPN, Spartan molecular modelling.

PROFESSIONAL AND TECHNICAL SKILLS

Solid background in Inorganic and Organometallic chemistry, High pressure/vacuum line, NMR (1D ^1H , ^{13}C , ^nX ; 2D COSY, NOESY, HOESY, DOESY, HETCOR, solid state CPMAS), UV-Vis (microcostants and kinetic), FT-IR, GC-MS, ESI-MS, MALDI-TOF, GPC, XRD Bruker APEX-II

PATENTS

Tobin J Marks, Brandon A Rodriguez, Massimiliano Delferro “Neutral Bimetallic Transition Metal Phenoxyiminato Catalysts and Related Polymerization Methods.” US Patent, **2010**, 2010121008.

PUBLICATIONS

- 1 Linda A. Williams, Neng Guo, Massimiliano Delferro, Alessandro Motta, Ignazio L. Fragalà, Christopher L. Marshall, Jeffrey T. Miller, and Tobin J. Marks “Direct Visualization of a Heterogeneous Single-Site Catalyst Having Nearly 100% Active Sites”, submitted
- 2 Michael P. Weberski Jr., Changle Chen, Massimiliano Delferro, Tobin J. Marks “Phenoxyiminato-Based Nickel(II) Ethylene Polymerization Catalysts-An Effect of Hemilabile Pendant Ligand on Ethylene Oligomerization”, submitted
- 3 Michael P. Weberski Jr., Changle Chen, Massimiliano Delferro, Tobin J. Marks “Catalyst Center- Catalyst Center Enchainment Cooperativity and Deactivation Pathway in Bimetallic Nickel(II) Phenoxyiminato-Based Ethylene Polymerization Catalysts”, submitted
- 4 Jiayi Wang, Neng Guo, Irene Bassanetti, Massimiliano Delferro, Tobin J. Marks “Statistical Strategies to Enchainment Cooperativity between Single-Site Olefin Polymerization Catalysts. Maximizing Heterometallic Ion Pairing via a Dendrimeric Tetranuclear Cocatalyst/Activator”, submitted
- 5 Michael P. Weberski Jr., Changle Chen, Massimiliano Delferro, Cristiano Zuccaccia, Alceo Macchioni, and Tobin J. Marks “Suppression of β -H Chain Transfer in Nickel(II)-Catalyzed Ethylene Polymerization via Weak Secondary Ligand Interactions“, submitted
- 6 Irene Bassanetti, Christina Twist, Ming-Gil Kim, Massimiliano Delferro, Yip-Wah Chung, Luciano Marchiò, Q. Jane Wang, Tobin J. Marks “Pyrazole-Pyridine Silver complexes as Molecularly-Engineered Lubricants”, submitted
- 7 Massimiliano Delferro, Claudia Graiff, Luciano Marchiò, Lisa Elviri, Marcello Mazzani, Mauro Riccò, Giovanni Predieri “Synthesis, Structural Characterization, and Magnetic Properties of the Heteroleptic Dinuclear Nickel Selenite Complex [$\{\text{Ni}(\text{TMEDA})\text{SeO}_3\}_2$]", *Eur. J. Inorg. Chem.* **2011**, 22, 3327–3333.
- 8 Massimiliano Delferro, Tobin J. Marks “Multinuclear olefin polymerization catalysts”, *Chem. Rev.* **2011**, 111, 2450-2485.
- 9 Massimiliano Delferro, Linda A. Williams, Michael P. Weberski, Tobin J. Marks “Designed center-surface and center-center cooperative effects in the catalytic syntheses of new polymer architectures”, *Polymer Preprints*, **2010**, 51, 374-375.
- 10 Massimiliano Delferro, Jennifer P. McInnis, Tobin J. Marks “Ethylene polymerization characteristics of an electron-deficient nickel(II) phenoxyiminato catalyst modulated by non-innocent intramolecular hydrogen-bonding.” *Organometallics* **2010**, 29, 5040-5049.

- 11 Massimiliano Delferro, Claudia Graiff, Lisa Elviri, Giovanni Predieri "Self-Assembly of Polyoxoselenitopalladate Nanostars $[\text{Pd}_{15}(\mu_3\text{-SeO}_3)_{10}(\mu_3\text{-O})_{10}\text{Na}]^{9-}$ and their Supramolecular Pairing in the Solid State." *Dalton Trans.* **2010**, 39, 4479-4481.
- 12 Massimiliano Delferro, Michael P. Weberski Jr., Brandon A. Rodriguez, Tobin J. Marks "Tetraaquabis{2,7-bis[(2,6-diisopropylphenyl)iminomethyl]naphthalene-1,8-diolato}di- μ^3 -hydroxido-di- μ^2 -hydroxido bis(trimethylphosphine oxide)tetranickel(II)-trimethylphosphine oxide-ethyl ether-water (1/2/2/2)." *Acta Cryst.* **2010**, E66, m258.
- 13 Daniele Cauzzi, Massimiliano Delferro, Claudia Graiff, Roberto Pattacini, Giovanni Predieri and Antonio Tiripicchio "Coordination properties of the multifunctional *S,N,S* zwitterionic ligand $\text{EtNHC(S)Ph}_2\text{P=NPPH}_2\text{C(S)NEt}$." *Coord. Chem. Rev.* **2010**, 254 (5-6), 753-764.
- 14 Massimiliano Delferro, Luciano Marchio, Matteo Tegoni, Saverio Tardito, Renata Franchi-Gazzola, Maurizio Lanfranchi "Synthesis, structural characterisation and solution chemistry of ruthenium(III) triazole-thiadiazine complexes." *Dalton Trans.* **2009**, 19, 3766-3773.
- 15 Massimiliano Delferro, Matteo Tegoni, Vincenzo Verdolino, Daniele Cauzzi, Claudia Graiff, Antonio Tiripicchio "Oxidative Addition of Iodomethane to Charge-Tuned Rhodium(I) Complexes." *Organometallics* **2009**, 28 (7), 2062-2071.
- 16 Brandon A Rodriguez, Massimiliano Delferro, Tobin J Marks "Bimetallic Effects for Enhanced Polar Comonomer Enchainment Selectivity in Catalytic Ethylene Polymerization." *J. Am. Chem. Soc.* **2009**, 131 (16), 5902-5919.
- 17 Massimiliano Delferro, Roberto Pattacini, Daniele Cauzzi, Claudia Graiff, Mattia Terenghi, Giovanni Predieri, Antonio Tiripicchio "Reactivity of the zwitterionic ligand $\text{EtNHC(S)Ph}_2\text{P=NPPH}_2\text{C(S)NEt}$ towards $[\text{Ru}_3(\text{CO})_{12}]$. Sulfur transfer and ligand fragmentation leading to the methideylamide $[-\text{N}(\text{Et})\text{-CH(R)-}] \mu_3$ -bridging moiety." *Dalton Trans.* **2009**, 3, 544-549.
- 18 Massimiliano Delferro, Daniele Cauzzi, Roberto Pattacini, Matteo Tegoni, Claudia Graiff, Antonio Tiripicchio "A study on the coordinative versatility of the zwitterionic *S,N,S* ligand $\text{EtNHC(S)Ph}_2\text{P=NPPH}_2\text{C(S)NEt}$ in its anionic, neutral and cationic forms - Determination of absolute $\text{p}K_a$ values in CH_2Cl_2 of Rh(I) complexes." *Eur. J. Inorg. Chem.* **2008**, 14, 2302-2312.
- 19 Brandon A. Rodriguez, Massimiliano Delferro, Tobin J Marks "Neutral bimetallic nickel(II) phenoxyiminato catalysts for highly branched polyethylenes and ethylene-norbornene copolymerizations." *Organometallics* **2008**, 27, 2166-2168.

CONFERENCES

Oral communications:

Massimiliano Delferro, Michael P. Weberski Jr., Jennifer P. McInnis, Changle Chen, Tobin J. Marks "Nuclearity and Electronic Effects in Olefin Polymerization Catalysis", Advances in Polyolefins 2011, Santa Rosa (CA, USA), 09/25-28, **2011**, invited speaker.

Massimiliano Delferro, Brandon A. Rodriguez, Michael P. Weberski, Jr., and Tobin J. Marks, "Nuclearity Effects in Olefin Polymerization Catalysis", Advances in Polyolefins 2009, Santa Rosa (CA, USA), 09/20-23 **2009**, invited speaker.

Massimiliano Delferro, Matteo Tegoni, Vincenzo Verdolino, Daniele Cauzzi, Claudia Graiff, Antonio Tiripicchio "Oxidative Addition of Iodomethane to Charge-Tuned Rhodium(I) Complexes." XXXVI Italian Conference on Inorganic Chemistry, Lecce (Italy), 09/01-05 **2008**.

Massimiliano Delferro, Daniele Cauzzi, Claudia Graiff, Antonio Tiripicchio "Synthesis, Characterization and Reactivity of Zwitterionic Metalates of Palladium(II)" VIII Italian Conference of Organometallic Chemistry (CoGICO 2008), Perugia (Italy), 06/25-28 **2008**.

Massimiliano Delferro, Daniele Cauzzi, Claudia Graiff, Antonio Tiripicchio "Zwitterionic Metalates of Rh(I)", Interuniversity Consortium Chemical Reactivity and Catalysis, Perugia (Italy), 02/23-24 **2007**.

Poster presentations:

Jiaxi Wang, Neng Guo, Irene Bassanetti, Massimiliano Delferro, Tobin J. Marks "Statistical Strategies to Enchainment Cooperativity between Single-Site Olefin Polymerization Catalysts. Maximizing Heterometallic Ion Pairing via a Dendrimeric Tetranuclear Cocatalyst/Activator", Gordon Conference-Organometallics 2011, Salve Regina University, Newport (RI, USA), 07/09-15 **2011**.

Michael P. Weberski Jr., Changle Chen, Massimiliano Delferro, Cristiano Zuccaccia, Alceo Macchioni, and Tobin J. Marks "Suppression of β -H Chain Transfer in Nickel(II)-Catalyzed Ethylene Polymerization via Weak Secondary Ligand Interactions", Gordon Conference-Organometallics 2011, Salve Regina University, Newport (RI, USA), 07/09-15 **2011**.

Jennifer P. McInnis, Massimiliano Delferro, Tobin J. Marks Gordon Conference-Organometallics 2011, Salve Regina University, Newport (RI, USA), 07/09-15 **2011**.

Massimiliano Delferro, Jennifer P. McInnis, Tobin J. Marks "Ethylene Polymerization Characteristics of an Electron-Deficient Nickel(II) Phenoxyiminato Catalyst Modulated by Non-Innocent Intramolecular Hydrogen-Bonding." Gordon Conference-Organometallics 2010, Salve Regina University, Newport (RI, USA), 07/10-16 **2010**.

Massimiliano Delferro, Daniele Cauzzi, Claudia Graiff, Giovanni Predieri, Antonio Tiripicchio "Reactivity of the zwitterionic ligand $\text{EtNHC(S)Ph}_2\text{P=NPPh}_2\text{C(S)NEt}$ towards $[\text{Ru}_3(\text{CO})_{12}]$. Sulfur transfer and ligand fragmentation leading to the methideylamide $[-\text{N(Et)-CH(R)-}]$ μ_3 -bridging moiety." VIII Italian Conference of Organometallic Chemistry (CoGICO 2008), Perugia (Italy), 06/25-28 **2008**.

Massimiliano Delferro, Daniele Cauzzi, Claudia Graiff, Giovanni Predieri, Antonio Tiripicchio, "Zwitterionic Metalates of Pd(II) with the ligand $\text{EtNHC(S)PPh}_2\text{NPPh}_2\text{C(S)NEt}$ " 1st European Chemistry Congress, Budapest (Hungary), 08/27-31 **2006**.

Lorenzo Barbieri, Daniele Cauzzi, Massimiliano Del Ferro, Claudia Graiff, Maurizio Lanfranchi, Roberto Pattacini, Alessandro Stercoli, Antonio Tiripicchio "A new class of zwitterionic metalates" 1st European Chemistry Congress, Budapest (Hungary), 08/27-31 **2006**.

Massimiliano Delferro, Daniele Cauzzi, Claudia Graiff, Antonio Tiripicchio “*Synthesis, Characterization and Reactivity of Zwitterionic Metalates of Palladium(II)*” VII Italian Conference of Organometallic Chemistry (CoGICO 2008), Parma (Italy), 07/09-12 **2006**.

PROFESSIONAL MEMBERSHIPS

Italian Chemical Society (SCI)

American Chemical Society (ACS)