Massimiliano Delferro

Contact Information

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Personal Data

Date of Birth: January, 28th 1981

Place of Birth: Parma, Italy

Citizenship: Italy

Visa Status: Permanent Resident (green card holder)

Education and Professional Activities

- Group Leader Catalysis Science Program: **2016-present**, Argonne National Laboratory (CSE)
- Research Associate Professor: **2013-2016**, Northwestern University, Evanston, IL.
- Visiting Professor **2013**, Texas A&M Qatar, Doha, Qatar
- Research Assistant Professor: **2010-2013**, Northwestern University, Evanston, IL.
- Postdoctoral Fellow: **2009-2010**, Northwestern University, Evanston, IL. Advisor Prof. Tobin J. Marks.
- Graduate School (Ph.D.): **2006-2008**, University of Parma, Italy. Thesis Title: *"Synthesis and Characterization of Zwitterionic Metallates and Molecular Clusters."* Advisors Prof. Daniele Cauzzi and Prof. Antonio Tiripicchio.
- Visiting Scholar: **July-December 2007**, Northwestern University, Evanston, IL. Advisor Prof. Tobin J. Marks.
- Research Master of Science (M.S.): **2003-2005**, Inorganic and Organometallic Chemistry, University of Parma, Italy. Thesis Title: "*Synthesis, structural characterization and solution chemistry of ruthenium(III) triazole-thiadiazine complexes.*" Vote: 110/110 *summa cum laude*. Advisors Prof. Maurizio Lanfranchi and Dr. Luciano Marchiò.

- Bachelor of Science Degree (B.S.): **2000-2003**, Inorganic Chemistry, University of Parma, Italy. Thesis Title: *"Synthesis and characterization of Copper(I) complexes with 1,2,4-triazolinic ligands."* Vote: 105/110. Advisors Prof. Maurizio Lanfranchi and Dr. Luciano Marchiò.

Patents (9)

1. **Massimiliano Delferro**, Tobin J Marks, Q. Jane Wang, Yip-Wah Chung, Hassan S Bazzi, Afif M. Seyam, Michael Desanker, Blake Johnson "Oil Soluble Organo-Silver Additives as High-Temperature Additives." US Patent 15/013,878 **2016**.
2. **Massimiliano Delferro**, Regan J. Thomson; Franz M Geiger; Benjamin F. Strick "Use of , apopinene for the production of polymers using ring-opening metathesis polymerization." US Patent pending.
3. Tobin J Marks, Q. Jane Wang, Yip-Wah Chung, **Massimiliano Delferro**, Michael Desanker, Xingliang He "Substituted-Cyclen Derivatives as Anti-Friction Additives." Patent pending.
4. **Massimiliano Delferro,** Madelyn Marie Stalzer, Christopher Nicholas, Tobin J Marks, Alak Bhattacharyya "Methods for selectively hydrogenating substituted arenes with supported organometallic catalysts." U.S. Pat. Appl. Publ. (**2016**), US 20160159709 A1 20160609
5. Omar K. Farha, Joseph T. Hupp, **Massimiliano Delferro**, Rachel C. Klet "Transition Metal Complexes Supported on Metal–Organic Frameworks for Heterogeneous Catalysis." PCT Int. Appl. (**2016**), WO 2016025624 A1 20160218.
6. Tobin J Marks, **Massimiliano Delferro,** Alexander S. Dudnik, Victoria L. Weidner "Regioselective 1,2-Dearomatization of Functionalized Azines by Organolanthanide Catalysts." U.S. Pat. Appl. Publ. (**2016**), US 20160159825 A1 20160609.
7. Christopher Nicholas, **Massimiliano Delferro**, Weixing Gu, Tobin J Marks, Alak Bhattacharyya "Methods for selectively hydrogenating benzene with supported organometallic catalysts and systems and methods for reducing benzene in gasoline using such catalysts." U.S. Pat. Appl. Publ. (**2015**), US 20150210612 A1 20150730.
8. Tobin J Marks, Mark A. Ratner, **Massimiliano Delferro**, Lisa A. Fredin, Zhong Li, Michael T. Lanagan "Aluminum Metallic Nanoparticle-Polymer Nanocomposites for Energy Storage." US Patent, **2013**, 20130317170.
9. Tobin J Marks, Brandon A Rodriguez, **Massimiliano Delferro** "Neutral Bimetallic Transition Metal Phenoxyiminato Catalysts and Related Polymerization Methods." US Patent **2010**, US 20100121008 A1.

Selected Publications (40)

1. Zhihua Chen, Jennifer Brown, Martin Drees, Mark Seger, Yan Hu, Yu Xia, Damien Boudinet, Meko McCray, Massimiliano Delferro, Tobin J. Marks, Chuang-Yi Liao, Chung-Wen Ko, Yi-Ming Chang, and Antonio Facchetti "Benzo[d][1,2,3]thiadiazole (isoBT). Synthesis, Structural Analysis, and Implementation in New Semiconducting Polymers" *Chem. Mater.* **2016**, 28, 6390-6400.
2. Aidan R. Mouat, Tracy L. Lohr, Peter C. Stair,* **Massimiliano Delferro**,* Tobin J. Marks,* "Unusual Reactivity of a Carbon-Supported Single-Site Dioxo-Molybdenum Catalyst for Biodiesel Synthesis" *ACS Catal.* **2016**, 6, 6762-6769.
3. Xuan-Feng Jiang, Hui Huang, Yun-Feng Chai, Tracy Lynn Lohr, Shu-Yan Yu, Wen-Zhen Lai,Yuan-Jiang Pan, Guang-Sheng Guo, **Massimiliano Delferro**,* and Tobin J. Marks* "Facile hydrolytic cleavage of both CS_2 carbon-sulfur bonds via binuclear Pd(II) complexes at room temperature." *Nat. Chem.* **2016**, accepted.
4. Madelyn M. Stalzer, Joshua Telser, J. Krzystek, Alessandro Motta, **Massimiliano Delferro**,* and Tobin J. Marks* "A Neutrally-Charged Trimethylmanganese(III) Complex: Synthesis, Characterization, and Disproportionation Chemistry" *Organometallics*, **2016**, *35*, 2683-2688.
5. Michael Desanker, Blake Johnson, Afif M. Seyam, Yip-Wah Chung,* Hassan S. Bazzi,* **Massimiliano Delferro**,* Tobin J. Marks,* Q. Jane Wang,* "Oil-Soluble Silver-Organic Molecule for in-situ Deposition of Lubricious Metallic Silver at High Temperatures." *ACS Appl. Mater. Interfaces* **2016**, *8*, 13637–13645.
6. Thomas J. Zolper, Yifeng He, Massimiliano Delferro, Paul Shiller, Gary Doll, Babak Lotfizade Dehkordi, Ning Ren, Frances Lockwood, Tobin J. Marks, Yip-Wah Chung, Aaron Greco, Ali Erdemir, Qian Wang, "Investigation of Shear-Thinning Behavior on Film Thickness and Friction Coefficient of Polyalphaolefin Base Fluids with Varying Olefin Copolymer Content." *J. Tribol*, **2016**, 139, 021504.
7. Aidan R. Mouat, Anil U. Mane, Jeffrey W. Elam, **Massimiliano Delferro**,* Tobin J. Marks, * Peter C. Stair,* "Volatile Oxo-Amidinate Complexes of Hexavalent Group VI Metals: Mo and W Precursors for Atomic Layer Deposition." *Chem. Mater.* **2016**, *28*, 1907−1919.
8. Madelyn Marie Stalzer, Christopher P. Nicholas, Alak Bhattacharyya, Alessandro Motta, **Massimiliano Delferro,*** Tobin J. Marks,* "Single-Face/All-cis Arene Hydrogenation by a Supported Single-Site d^0 Organozirconium Catalyst." *Angew. Chem. Int. Ed.* **2016**, 55, 5263-5267.
9. Rachel C. Klet, Samat Tussupbayev, Joshua Borycz, James R. Gallagher, Madelyn M. Stalzer, Jeffrey T. Miller, Laura Gagliardi,* Joseph T. Hupp,* Tobin J. Marks,* Christopher J. Cramer,*

Massimiliano Delferro,* Omar K. Farha* "Single-Site Organozirconium Polymerization Catalyst Supported on a Metal–Organic Framework." *J. Am. Chem. Soc.* **2015**, 137, 15680-15683.

10. Irene Bassanetti, Monica Mattarozzi, **Massimiliano Delferro**,* Tobin J. Marks,* Luciano Marchiò* "Silver(I) Bis(pyrazolyl)methane Complexes and Their Implementation as Precursors for Metallic Silver Deposition." *Eur. J. Inorg. Chem.* **2015**, *15-16*, 2626-2633 (invited contribution)
11. Dongxu Shu, Aidan R. Mouat, Casey J. Stephenson, Anna M. Invergo, **Massimiliano Delferro**,* Tobin J. Marks,* "Ligand-Unsymmetrical Phenoxyiminato Dinickel Catalyst for High Molecular Weight Long-Chain Branched Polyethylenes." *ACS Macro Lett.* **2015**, *4*, 1297−1301.
12. Sherzod T. Madrahimov, James R. Gallagher, Guanghui Zhang, Zachary Meinhart, Sergio Javier Garibay, Massimiliano Delferro, Jeffrey T. Miller, Omar K. Farha, Joseph T. Hupp, SonBinh T. Nguyen, "Gas-phase dimerization of ethylene under mild conditions catalyzed by MOF materials containing (bipy)NiII complexes." *ACS Catal.* **2015**, *5*, 6713-6718.
13. Yanshan Gao, Aidan R. Mouat, Aalessandro Motta, Alceo Macchioni, Cristiano Zuccaccia, **Massimiliano Delferro**, Tobin J. Marks, "Pyridyl-Amido Bi-Hafnium Olefin Polymerization Catalysis: Conformationally Supported Hf···Hf Enchainment Cooperativity." *ACS Catal.* **2015**, *5*, 5272-5282.
14. Benjamin F. Strick, **Massimiliano Delferro**, Franz M. Geiger, Regan J. Thomson "Investigations into Apopinene as a Biorenewable Monomer for Ring-Opening Metathesis Polymerization." *ACS Sustainable Chem. Eng.* **2015**, *3*, 1278-1281.
15. Weixing Gu, Madelyn Marie Stalzer, Christopher P. Nicholas, Alak Bhattacharyya, Alessandro Motta, James R. Gallagher, Guanghui Zhang, Jeffrey T. Miller, Takeshi Kobayashi, Marek Pruski, **Massimiliano Delferro,*** Tobin J. Marks* "Benzene Selectivity in Competitive Arene Hydrogenation: Effects of Single-Site Catalyst···Acidic Oxide Surface Binding Geometry." *J. Am. Chem. Soc.* **2015**, *137*, 6770-6780. (JACS June 3 Cover and JACS Spotlights).
16. Madelyn Marie Stalzer, **Massimiliano Delferro,*** Tobin J Marks* "Supported Single-Site Organometallic Catalysts for the Synthesis of High-Performance Polyolefins." *Catal. Lett.* **2015**, *1*, 3-14.
17. Alexander S. Dudnik, Victoria L. Weidner, Alessandro Motta, **Massimiliano Delferro**,* and Tobin J. Marks* "Atom-Efficient Regioselective 1,2-Dearomatization of Functionalized N-Heterocycles by Earth-Abundant Organolanthanide Catalysts." *Nat. Chem.* **2014**, *6*, 1100-1107.
18. Jennifer P. McInnis, **Massimiliano Delferro**,* and Tobin J. Marks* "Multinuclear Group 4 Catalysis: Olefin Polymerization Pathways Modified by Strong Metal−Metal Cooperative Effects." *Acc. Chem. Res.* **2014**, *47*, 2545–2557.

19. Shaofeng Liu, Alessandro Motta, Aidan R. Mouat, **Massimiliano Delferro**,* and Tobin J. Marks* "Very Large Cooperative Effects in Heterobimetallic Titanium-Chromium Catalysts for Ethylene Polymerization/Copolymerization." *J. Am. Chem. Soc.* **2014**, 136, 10460-10469.
20. Irene Bassanetti, Christina P. Twist, Myung-Gil Kim, Afif M. Seyam, Hassan S. Bazzi, Q. Jane Wang, Yip-Wah Chung, Luciano Marchió,* **Massimiliano Delferro**,* Tobin J. Marks* "Synthesis and Characterization of Silver(I) Pyrazolylmethylpyridine Complexes and Their Implementation as Metallic Silver Thin Film Precursors." *Inorg. Chem.* **2014**, 53, 4629-4638.
21. Casey J. Stephenson, Jennifer P. McInnis, Changle Chen, Michael Patrick Weberski, Alessandro Motta, **Massimiliano Delferro**,* and Tobin J. Mark* "Ni(II) Phenoxyiminato Olefin Polymerization Catalysis: Striking Coordinative Modulation of Hyperbranched Polymer Microstructure and Stability by a Proximate Sulfonyl Group." *ACS Catal.* **2014**, *4*, 999-1003.
22. Shaofeng Liu, Alessandro Motta, **Massimiliano Delferro**,* and Tobin J. Marks* "Synthesis, Characterization, and Heterobimetallic Cooperation in a Titanium-Chromium Catalyst for Highly Branched Polyethylenes." *J. Am. Chem. Soc.* **2013**, *135*, 8830-8833.
23. Linda A. Williams, Neng Guo, Alessandro Motta, **Massimiliano Delferro**,* Ignazio L. Fragalà,* Jeffrey T. Miller,* Tobin J. Marks,* "Surface Structural-Chemical Characterization of a Single-Site d^0 Heterogeneous Arene Hydrogenation Catalyst Having 100% Active Sites." *Proc. Natl. Acad. Sci. U.S.A.* **2013**, *110*, 413-418.
24. Christina P. Twist, Irene Bassanetti, Matthew Snow, **Massimiliano Delferro**, Hassan Bazzi, Yip-Wah Chung, Luciano Marchió, Tobin J. Marks, Q. Jane Wang "Silver-Organic Oil Additive for High Temperature Applications." *Tribol. Lett.* **2013**, 52, 261-269.
25. Stephen D. Wobser, Casey J. Stephenson, **Massimiliano Delferro**,* and Tobin J. Marks* "Carbostannolysis Mediated by Bis(pentamethylcyclopentadienyl)lanthanide Catalysts. Utility in Accessing Organotin Synthons." *Organometallics,* **2013**, *32*, 1317-1327.
26. Michael P. Weberski Jr., Changle Chen, **Massimiliano Delferro**,* Cristiano Zuccaccia, Alceo Macchioni, Tobin J. Marks,* "Suppression of β-Hydride Chain Transfer in Nickel(II)-Catalyzed Ethylene Polymerization via Weak Fluorocarbon Ligand-Product Interactions." *Organometallics* **2012**, *31,* 3773-3789.
27. Michael P. Weberski Jr., Changle Chen, **Massimiliano Delferro**,* Tobin J. Marks,* "Ligand Steric and Fluoroalkyl Substituent Effects on Enchainment Cooperativity and Stability in Bimetallic Nickel(II) Polymerization Catalysts." *Chem-Eur. J.*, **2012**, *18*, 10715-10732.
28. **Massimiliano Delferro**, Tobin J. Marks, "Multinuclear olefin polymerization catalysts." *Chem. Rev.* **2011**, *111*, 2450-2485.

29. Daniele Cauzzi, Roberto Pattacini, **Massimiliano Delferro**, Francesca Dini, Corrado Di Natale, Roberto Paolesse, Sara Bonacchi, Marco Montalti, Nelsi Zaccheroni, Matteo Calvaresi, Francesco Zerbetto, Luca Prodi, "Temperature-Dependent Fluorescence of Cu_5 Metal Clusters: A Molecular Thermometer." *Angew. Chem., Int. Ed.,* **2012**, 51, 9662 –9665.
30. **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 [{Ni(TMEDA)SeO_3}$_2$]." *Eur. J. Inorg. Chem.* **2011**, *22*, 3327-3333.
31. **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.
32. **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.
33. **Massimiliano Delferro**,* Claudia Graiff, Lisa Elviri, Giovanni Predieri,* "Sef-Assembly of Polyoxoselenitopalladate Nanostars $[Pd_{15}(\mu_3\text{-}SeO_3)_{10}(\mu_3\text{-}O)_{10}Na]^{9-}$ and their Supramolecular Pairing in the Solid State." *Dalton Trans.* **2010**, *39*, 4479-4481.
34. **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.
35. Daniele Cauzzi, **Massimiliano Delferro**, Claudia Graiff, Roberto Pattacini, Giovanni Predieri, Antonio Tiripicchio "Coordination properties of the multifunctional *S,N,S* zwitterionic ligand EtNHC(S)Ph_2P=NPPh_2C(S)NEt." *Coord. Chem. Rev.* **2010**, *254* (5-6), 753-764.
36. **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.
37. **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*, 2062-2071.
38. **Massimiliano Delferro**, Roberto Pattacini, Daniele Cauzzi, Claudia Graiff, Mattia Terenghi, Giovanni Predieri, Antonio Tiripicchio, "Reactivity of the zwitterionic ligand EtNHC(S)Ph_2P=NPPh_2C(S)NEt towards $[Ru_3(CO)_{12}]$. Sulfur transfer and ligand fragmentation

leading to the methideylamide [-N(Et)-CH(R)-] μ_3-bridging moiety." *Dalton Trans.* **2009**, *3*, 544-549.

39. **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 EtNHC(S)Ph_2P = NPPh_2C(S)NEt in its anionic, neutral and cationic forms - Determination of absolute pK_a values in CH_2Cl_2 of Rh(I) complexes." *Eur. J. Inorg. Chem.* **2008**, *14*, 2302-2312.
40. 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.

* denotes corresponding authors

Invited Lectures, Seminars and Conference Presentations:

Invited Speaker

1. **Massimiliano Delferro** "Cooperative Effects in Homo- and Heterobimetallic Catalysts for Ethylene Polymerization/Copolymerization." 14th Pacific Polymer Conference, Kauai, HI December 9-13, **2015**.
2. **Massimiliano Delferro**, Tobin J. Marks, *"Cooperative Effects in Olefin Polymerization Catalysis."* 245th ACS National Meeting & Exposition, New Orleans, LA, April 7-11, **2013**, INOR-619.
3. **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, 09/25-28, **2011**.
4. **Massimiliano Delferro**, Michael P. Weberski, Jr., and Tobin J. Marks, *"Nuclearity Effects in Olefin Polymerization Catalysis."* Advances in Polyolefins 2009. Santa Rosa, CA, 09/20-23 **2009**.

Seminars

5. University of Parma, Italy, Dec. 18, 2009, "*Nuclearity Effects in Olefin Polymerization Catalysts."* Hosted by Prof. Daniele Cauzzi.
6. University of Louisville, KY, Feb. 24, 2012, "*Nuclearity and Cooperative Effects in Olefin Polymerization Catalysts."* Hosted by Prof. Chris Burns.
7. Texas Christian University, Fort Worth, TX, Jan. 15, 2013, "*Nuclearity and Cooperative Effects in Olefin Polymerization Catalysts."* Hosted by Prof. Robert Neilson.
8. Iowa State University, Ames, IA, Feb. 25, 2015, *"Surface Structural-Chemical Characterization of Single-Site d0 Organometallic Selective Arene Hydrogenation Catalyst Supported on "Super-Acidic" Sulfated Oxides."* Hosted by Prof. Marek Pruski.

9. Argonne National Laboratory, Lemont, IL, Nov. 19, 2015 "*Well-Defined Single-Site Supported Catalysts for Valuable Transformations."* Hosted by Dr. Emilio Bunel.
10. Donghua University, Shanghai, China, Sep. 14, 2016 "*Surface Structural-Chemical Characterization of Supported Single-Site Organometallic Catalysts."* Hosted by Prof. Zhengguo Cai.
11. University of Science and Technology of China, Hefei, China, Sep. 15, 2016 "*Surface Structural-Chemical Characterization of Supported Single-Site Organometallic Catalysts."* Hosted by Prof. Changle Chen.

Conference Presentations (Oral communications)

12. **Massimiliano Delferro**, Peter C. Stair, Tobin J. Marks, Aidan R. Mouat, *"Novel oxo-amidinate Mo and W precursors for atomic layer deposition"* 251th ACS National Meeting & Exposition, San Diego, CA, United States, March 13-17, **2016**, PMSE-255.
13. **Massimiliano Delferro,** Weixing Gu, Madelyn Marie Stalzer, Christopher P. Nicholas, Alak Bhattacharyya, Alessandro Motta, James R. Gallagher, Guanghui Zhang, Jeffrey T. Miller, Takeshi Kobayashi, Marek Pruski, Tobin J. Marks *"Surface Structural-Chemical Characterization of Single-Site d0 Organometallic Selective Arene Hydrogenation Catalyst Supported on "Super-Acidic" Sulfated Oxides."* 24th North American Catalysis Society Meeting, Pittsburg, PA, United States, June 14-19, **2015**, O-Tu-403-9.
14. **Massimiliano Delferro**, Shaofeng Liu, Jennifer McInnis, Alessandro Motta, Aidan R. Mouat, Tobin J. Marks *"Significant proximity effects in constrained bimetallic titanium catalysts for ethylene (Co)polymerization."* 248th ACS National Meeting & Exposition, San Francisco, CA, United States, August 10-14, **2014**, INOR-853.
15. **Massimiliano Delferro**, Alexander S. Dudnik, Victoria L. Weidner, Alessandro Motta, Tobin J. Marks *"Organolanthanide-catalyzed atom-efficient and regioselective dearomatization of substituted aromatic N-heterocycles."* 247th ACS National Meeting & Exposition, Dallas, TX, United States, March 16-20, **2014**, INOR-890.
16. **Massimiliano Delferro**, Shaofeng Liu, Alessandro Motta, Aidan R. Mouat, Tobin J. Marks *"Heterobimetallic effects for enhanced α-olefin incorporation in ethylene polymerization catalysis"* 247th ACS National Meeting & Exposition, Dallas, TX, United States, March 16-20, **2014**, INOR-764.
17. **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**.

18. **Massimiliano Delferro**, Daniele Cauzzi, Claudia Graiff, Antonio Tiripicchio, *"Synthesis, Characterization and Reactivity of Zwitterionic Metallates of Palladium(II)."* VIII Italian Conference of Organometallic Chemistry (CoGICO 2008), Perugia, Italy, 06/25-28 **2008**.
19. **Massimiliano Delferro**, Daniele Cauzzi, Claudia Graiff, Antonio Tiripicchio, *"Zwitterionic Metalletes of Rh(I)."*, Interuniversity Consortium Chemical Reactivity and Catalysis, Perugia, Italy, 02/23-24 **2007**.

Poster presentations

20. **Massimiliano Delferro**, Neng Guo, Alessandro Motta, Ignazio L. Fragalà, Jeffrey T. Miller, Tobin J. Marks, *"Surface Structural-Chemical Characterization of a Single-Site d^0 Heterogeneous Arene Hydrogenation Catalyst Having 100% Active Sites."* Gordon Conference-Organometallics 2012, Salve Regina University, Newport, RI, 07/08-13 **2012**.
21. **Massimiliano Delferro**, Jiaxi Wang, Neng Guo, Irene Bassanetti, 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, 07/09-15 **2011**.
22. **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, 07/10-16 **2010**.
23. **Massimiliano Delferro**, Daniele Cauzzi, Claudia Graiff, Giovanni Predieri, Antonio Tiripicchio, *"Reactivity of the zwitterionic ligand EtNHC(S)Ph_2P=NPPh_2C(S)NEt towards [$Ru_3(CO)_{12}$]. Sulfur transfer and ligand fragmentation leading to the methideylamide [-N(Et)-CH(R)-] μ_3-bridging moiety."* VIII Italian Conference of Organometallic Chemistry (CoGICO 2008), Perugia, Italy, 06/25-28 **2008**.
24. **Massimiliano Delferro**, Daniele Cauzzi, Claudia Graiff, Antonio Tiripicchio, *"Synthesis, Characterization and Reactivity of Zwitterionic Metallates of Palladium(II)."* VII Italian Conference of Organometallic Chemistry (CoGICO 2008), Parma, Italy, 07/09-12 **2006**.

Reviews for International Journals:

ACS: Chemical Reviews, Journal of the American Chemical Society, Organometallics, Inorganic Chemistry, Macromolecules, ACS Catalysis, Industrial & Engineering Chemistry Research.

RSC: Dalton Transactions, Chemical Science, Inorganic Chemistry Frontier, New Journal of Chemistry.

Wiley: Angewandte Chemie, Int. Ed., Chemistry-European Journal, European Journal of Inorganic Chemistry.

Elsevier: Inorganic Chimica Acta, Journal of Organometallic Chemistry.

Collaborators (in alphabetic order):

Prof. C. J. Cramer (Univ. of Minnesota), Dr. J. Elem (ANL), Prof. A. Facchetti (Polyera and Northwestern Univ.), Prof. L. Gagliardi (Univ. of Minnesota), Dr. N. Gu (BP, Naperville, Illinois), Prof. J. T. Hupp (Northwestern Univ.), Honeywell-UOP LLC (Des Plaines, Illinois), Dr. J. Klosin (Dow Chemicals), Prof. A. Macchioni (Univ. of Perugia, Italy), Dr. H. Makio (Mitsui Chemical, Singapore), Dr. L. Marchio' (Univ. of Parma), Dr. J. T. Miller (ANL), Prof. G. Predieri (Univ. of Parma), Prof. L. Prodi (Univ. of Bologna, Italy), Prof. M. Pruski (Iowa St. Univ., DOE Ames Lab), Prof. R. Rioux (Penn. St. Univ.) Prof. Q. Wang (Northwestern Univ.), Prof. R. Zanoni (Univ. of Rome, Italy), F. Zerbetto (Univ. of Bologna, Italy), Dr. C. Zuccaccia (Univ. of Perugia, Italy).

Teaching Experience

Postdoctoral Researchers: Dr. Titel Jurca (2015-present), Dongxu Shu (2013-2015), Dr. Yanshan Gao (2013-present), Dr. Shaofeng Liu (2011-2014), Dr. Weixing Gu (2011-2013), Dr. Chengle Chen (2010).

Ph.D. Students: Anna Invergo (2014-present), Madi Stalzer (2014-present), Michael Desanker (2014-present), Victoria Lynn Weidner (2013-present), Jennifer McInnis (2008-2014), Stephen Wobser (2008-2012), Michel P. Weberski (2008-2011).

Visiting Scientists: Dr. Alessandro Motta (2013), Irene Bassanetti (2010-2011), Inga Jordan (2010), Prof. Afif M. Seyam (2009, 2014).

Grants

1. Grant awarded by DOE, entitled "*Tunable Single-Site Catalysts for Selective Functionalization of Alkanes*" lead-PI, 2016-2018
2. Grant awarded by DOE, entitled "*Institute for Catalysis in Energy Processes*" multi PIs, 2015-2018.
3. Grant awarded by The Dow Chemical Co. entitled, *"Cooperativity in Multicentered Olefin Polymerization Catalysis."* PI: T. J. Marks, Co-PI: M. Delferro, 2015-2016.

4. Grant awarded by UOP-Honeywell Co. entitled, *"Selective Arene Hydrogenation and Alkane Metathesis by Organometallic Catalysts Supported on Super Brønsted Acids."* PI: T. J. Marks, Co-PI: M. Delferro, 2011-2012.
5. Grant awarded by Institute for Sustainability and Energy at Northwestern ISEN, Booster Award, entitled "*Size-Selective Catalysis Utilizing Super-Acidic Sulfated MOFs*" PIs: O. Farha, M. Delferro, 2015-2016.

Professional Organizations

Italian Chemical Society (SCI)

American Chemical Society (ACS)

Activities

- Symposium Organizer: "Support and Activator Effects on Metal-Mediated Polymerization", ACS National Meeting, San Francisco, 2017.
- Symposium Organizer: "*Gabor A. Somorjai Symposium in Honor of Tobin J. Marks*", ACS National Meeting, New Orleans 7-11 April, 2013.
- Scholars of Global School for Advanced Studies (GSAS), National Science Foundation (NSF), Session on *"Catalysis and Materials for Hydrocarbon Conversions"*, Doha, Qatar, January 6-8, 2013.
- Session Chair at ACS meetings – Inorganic Division.

Award

- Omar Farha Award for Research Leadership (Northwestern University, **2014**).