LeGrande M. Slaughter

Curriculum Vitae

Assistant Professor of Chemistry
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Department of Chemistry
Physical Sciences I
Oklahoma State University
Stillwater, OK 74078-3071

I. BACKGROUND

Education

Ph.D., Inorganic Chemistry, Cornell University, 2000
Dissertation title: "Equilibrium Isotope Effects in a Titanium-Imido Carbon-Hydrogen Bond Activation System."
Doctoral Advisor: Professor Peter T. Wolczanski

B.A., Summa Cum Laude, Drew University, Madison, NJ 1994
Major: Chemistry. Minors: Physics, German

Appointments

Assistant Professor of Chemistry, Oklahoma State University
2002 – Present

Postdoctoral Affiliate, Department of Chemistry, Stanford University
Research Advisor: Professor James P. Collman
2000-2002

Visiting Positions

Visiting Postdoctoral Scientist, Summer 2002
Institut für Anorganische Chemie, Technische Universität, Munich

Research Interests

Synthetic and mechanistic organometallic chemistry
Homogeneous catalysis of organic reactions of medicinal or industrial importance
Nanostructured organometallic catalysts

Awards and Honors

OSU Arts & Sciences Travel Award, 2004
OSU Arts & Sciences Summer Research Award, 2003
OSU Environmental Institute Energy Research Grant, 2003
Deutscher Akademischer Austausch Dienst Grant for Research in Germany, 2002
Winifred B. Baldwin Fellowship for Graduate Study, 1994
Barry M. Goldwater Scholarship, 1992-1994
Phi Beta Kappa National Honor Society, 1993

Affiliations

American Chemical Society
American Association for the Advancement of Science

II. RESEARCH

Peer-Reviewed Publications

Work done prior to OSU (corresponding author in bold)

(1) Slaughter, L. M.; **Wolczanski, P. T.** "Ti(μ: η^1, η^1-$OCMe_2CH_2PPh_2)_3Rh$ has a cylindrically symmetric triple bond." *Chemical Communications* **1997**, 2109-2110.

(2) Slaughter, L. M.; **Wolczanski, P. T.**; Klinckman, T. R.; Cundari, T. R. "Inter- and Intramolecular Experimental and Calculated Equilibrium Isotope Effects for $(silox)_2(^tBu_3SiND)TiR$ + RH (silox = $^tBu_3SiO$): Inferred Kinetic Isotope Effects for RH/D Addition to Transient $(silox)_2Ti{=}NSi^tBu_3$." *Journal of the American Chemical Society* **2000**, *122*, 7953-7975.

(3) Veige, A. S.; Slaughter, L. M.; **Wolczanski, P. T.**; Matsunaga, N.; Decker, S. A.; Cundari, T. R. "Deoxygenations of $(silox)_3WNO$ and R_3PO by $(silox)_3M$ (M = V, Ta) and $(silox)_3NbL$ (silox = $^tBu_3SiO$): Consequences of Electronic Effects." *Journal of the American Chemical Society* **2001**, *123*, 6419-6420.

(4) **Collman, J. P.**; Slaughter, L. M.; Eberspacher, T. A.; Strassner, T.; Brauman, J. I. "Mechanism of Dihydrogen Cleavage by High-Valent Metal Oxo Compounds: Experimental and Computational Studies." *Inorganic Chemistry* **2001**, *40*, 6272-6280.

(5) Veige, A. S.; Slaughter, L. M.; Lobkovsky, E. B.; **Wolczanski, P. T.**; Matsunaga, N.; Decker, S. A.; Cundari, T. R. "Symmetry and Geometry Considerations of Atom Transfer: Deoxygenation of $(silox)_3WNO$ and R_3PO (R=Me, Ph, ^{t}Bu) by $(silox)_3M$ (M=V, NbL (L=PMe_3, 4-Picoline), Ta; silox=$^tBu_3SiO$)." *Inorganic Chemistry* **2003**, *42*, 6204-6224.

Collaborative work partially done at OSU

(1) Slaughter, L. M.; **Collman, J. P.**; Eberspacher, T. A.; Brauman, J. I. "Radical Autoxidation and Autogenous O_2 Evolution in Manganese-Porphyrin Catalyzed Alkane Oxidations with Chlorite." *Inorganic Chemistry* **2004**, *43*, 5198-5204. *Chosen as cover article for August 23, 2004 issue of Inorganic Chemistry.*

Independent work done at OSU

(1) Wanniarachchi, Y. A.; Khan, M. A.; **Slaughter, L. M.** "An Unusually Static, Sterically Hindered Silver Bis(*N*-Heterocyclic Carbene) Complex and Its Use in Transmetalation." *Organometallics* **2004**, *23*, 5881-5884..

(2) Moncada, A. I.; Khan, M. A.; **Slaughter, L. M.** "A Palladium Chugaev Carbene Complex as a Modular, Air-Stable Catalyst for Suzuki-Miyaura Cross-Coupling Reactions." *Tetrahedron Letters* **2005**, *46*, 1399-1403.

Conference Presentations, Oral

Work done prior to OSU (<u>presenting author</u> underlined, corresponding author in bold)

(1) ***American Chemical Society 216th National Meeting, Boston, MA, August 1998***
"Equilibrium Isotope Effect Studies on Hydrocarbon Elimination/CH-Activation in $(^tBu_3SiO)_2Ti(NHSi^tBu_3)R$." <u>Slaughter, L. M.</u>; Bennett, J. L.; Cundari, T. R.; **Wolczanski, P. T.**

Conference Presentations, Oral (continued)

(2) ***American Chemical Society 220th National Meeting, Washington, DC, August 2000***
"Reaction of Metal Oxo Compounds With Dihydrogen: Mechanistic Implications for Hydrocarbon Oxidations." **Collman, J. P.**; Slaughter, L. M.

Independent work done at OSU

(1) ***American Chemical Society 228th National Meeting, Philadelphia, PA, September 2004***
"Chelating Fischer-Type Carbene Complexes of Palladium: Metal-Templated Synthesis and Application in Catalytic Cross-Coupling Reactions." **Slaughter, L. M.**; Moncada, A. I.; Owusu, M. O.; Kogiso, Y.

(2) ***American Chemical Society 60th Southwest Regional Meeting, Ft. Worth, TX, September 2004***
"Modular Chelating Dicarbene Ligands and Their Application in Cross-Coupling Catalysis." **Slaughter, L. M.**; Moncada, A. I.; Owusu, M. O.; Kogiso, Y.

(3) ***American Chemical Society 49th Annual Pentasectional (Local) Meeting, Tulsa, OK, October 2004***
"Modular Chelating Dicarbene Ligands and Their Application in Cross-Coupling Catalysis." **Slaughter, L. M.**; Moncada, A. I.; Owusu, M. O.; Kogiso, Y.

(4) ***American Chemical Society 39th Midwest Regional Meeting, Manhattan, KS, October 2004***
"Synthesis of New Chelating Dicarbene Ligands and Their Application in Suzuki-Miyaura Cross-Coupling Reactions." Moncada, A. I.; **Slaughter, L. M.**

Conference Presentations, Poster

Independent work done at OSU

(1) ***American Chemical Society 59th Southwest Regional Meeting, Oklahoma City, OK, October 2003***
"New Chelating Carbene Ligands for Homogeneous Catalysis." **Slaughter, L. M.**; Moncada, A. I.; Kogiso, Y.

(2) ***Oklahoma EPSCoR Annual State Conference, Stillwater, OK, May 2004***
"Synthesis of Silver-Dicarbene Complexes as Agents for Carbene Transfer to Catalytic Metals." Wanniarachchi, Y. A.; **Slaughter, L. M.**

(3) ***Gordon Research Conference on Organometallic Chemistry, Newport, RI, July 2004***
"Palladium-Templated Synthesis and Catalytic Application of Fischer-Type Chelating Carbene Ligands." **Slaughter, L. M.**; Moncada, A. I.; Owusu, M. O.; Kogiso, Y.

(4) ***American Chemical Society 60th Southwest Regional Meeting, Ft. Worth, TX, September 2004***
"Approaches to Metal-Functionalized Dendrimers Containing Platinum(II) and Palladium (II) Carbene Complexes." Manne, S.; **Slaughter, L. M.**

Invited Seminars

University of North Texas, *Denton, TX,* April 30, 2004.

Cameron University, Lawton, OK, February 23, 2005

Midwestern State University, Wichita Falls, TX, February 25, 2005

Current Research Support

Petroleum Research Fund Type G Starter Grant

Project title:	Catalysis With Readily Modified Chelating Carbene Complexes
Grant period:	September 2003 – August 2005
Award amount:	$35,000

Oklahoma NSF EPSCoR NanoNet Seed Grant

Project title:	Porous Nanostructured Catalysts Derived From Metal-Functionalized Dendrimers
Grant period:	February 2004 – May 2005
Award Amount:	$42,145

III. TEACHING AND MENTORING

Courses Taught

Fall 2002	CHEM 6650	Special Topics: Organometallic Chemistry	(6 students)
Spring 2003	CHEM 5283	Solid-State Chemistry	(15 students)
Fall 2003	CHEM 5260	Advanced Inorganic Chemistry I	(16 students)
Spring 2004	CHEM 3353	Descriptive Inorganic Chemistry	(22 students)
Fall 2004	CHEM 5260	Advanced Inorganic Chemistry I	(29 students)
Spring 2005	CHEM 3353	Descriptive Inorganic Chemistry	(14 students)

Graduate Advisees

Adriana I. Moncada	M.S. student, 3rd year	12/02 - present
Sudhakar Manne	M.S. student, 3rd year	5/03 - present
Yoshitha A. Wanniarachchi	Ph.D. student, 2nd year	10/03 - present
Millicent O. Owusu	M.S. student, 2nd year	2/04 – present
Anthea J. Miranda	Ph.D. student, 1st year	1/05 - present

Undergraduate Research Students

Deirdre Sidner	Earned B.S., 2003	9/02 – 5/03
Yuri Kogiso	Senior, research assistant	8/03 – present
Michelle Ward	Sophomore,Wentz Scholar	9/03 – 4/04
Tamiko Uomori	Earned B.S., 2004	1/04 – 5/04
Lindy Dewlen	Senior, research assistant	5/04 – 8/04

Graduate Advisory Committees

Masters Committees (Chemistry)	3
Doctoral Committees (Chemistry)	12
Doctoral Committees (Photonics)	1

IV. SERVICE

Departmental Committees

Faculty Search Committee	2002 – 2003
Promotion and Tenure Committee	2003 – 2004
Graduate Policies Committee	2003 – 2005
Safety Committee	2004 – 2005

Scholar Development

Honors College	(3 Honors Contracts)
Wentz Project Mentor	(2003 – 2004)

Educational Outreach

Judge, Oklahoma EPSCoR Virtual Science Fair	2005

Peer Review, Granting Agencies

Petroleum Research Fund	(1)
National Science Foundation	(2)

Peer Review, Journals

Journal of the American Chemical Society	(1)
Organometallics	(2)