

Laura T. Smith
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Education

Mississippi University for Women (1996)

Degree: B.S.
Graduation Date: August 1996
Major: Chemistry

Mississippi State University (2002)

Degree: Ph.D.
Graduation Date: August 2002
Major: Inorganic Chemistry
Doctoral Advisor: Judith L. Eglin
Thesis Title: Synthetic and Characterization Studies of Dirhenium, Ditungsten, and Dirhodium Formamidinate Complexes

Professional Experience

2013-present	Mississippi State University Distance/Online Administrator/Instructor Upper Division Lab Coordinator
2002-2013	Institute for Clean Energy Technologies (ICET)/Senior Research Associate
1996-2002	Mississippi State University Graduate Research Assistant/Student Advisor: Dr. J. L. Eglin Synthesis and Characterizations of Dinuclear Transition Metal Formamidinate Complexes
1995-1996	Undergraduate Independent Research Mississippi State University Advisor, J. L. Eglin Reactivity of $\text{Re}_2\text{Cl}_6(\text{P}(n\text{-but})_3)_2$ with dppe in the presence of nitriles
1995	Research Experience for Undergraduates (REU) participant Mississippi State University Mississippi State, Mississippi 39762

Professional Affiliations

American Chemical Society (1996-present), Division of Inorganic Chemistry-Mississippi Division (1996-2006), Columbus Junior Auxiliary (life member), Mississippi Academy of Sciences (2007)

Research Experience

Synthesis of air and temperature sensitive compounds, solution NMR spectroscopy, X-ray crystallography, XRD, UV-vis analysis, IR spectroscopy, electrochemistry, vacuum line and drybox techniques. Thermodynamic (Environmental Simulation Program) computer modeling for high level alkaline or acidic systems. Water analysis, QA/ QC.

Publications

Sameera R. Gunatilake, Akila G. Karunanayake, Fathima S. Ameer, Laura Smith, D. Mlsna, and Dongmao Zhang. "Undergraduate Laboratory Experiment Modules for Probing Nanoparticle Interfacial Phenomena". *J. Chem. Educ.*, **92(11)**, 1924-1927, (2015).

Krishna K. Ayyalasomayajula, Vivek Dikshit, Fang Yu Yueh, Jagdish P. Singh, and Laura T. Smith, "Quantitative Analysis of Slurry Sample by Laser-induced Breakdown Spectroscopy", *Anal. Bioanal. Chem.*, **400(10)**, 3315-22, (2011).

P.P. Naik, R.K. Toghiani, J.S. Lindner, L.T. Smith, L.E. Pearson, "Kinetics of Aluminum Formation in the Caustic Side Solvent Extraction (CSSX) Process," Waste Management Conference, Phoenix, AZ, 2011.

Rebecca K. Toghiani, Valerie A. Phillips, Laura T. Smith, and Jeffrey S. Lindner, "Solubility in the Na+SO₄+NO₃ and Na+SO₄+NO₂ Systems in Water and Sodium Hydroxide." *J. Chem. Eng. Data*, **53(3)**, 798-804, (2008).

T. J. Ruff, R. K. Toghiani, L. T. Smith, and J. S. Lindner, "Studies on the Gibbsite to Boehmite Transition." *Separation Science and Technology*, **43**, 2887-2899, (2008).

L. T. Smith, J. S. Lindner, V. Phillips, A. Antonyraj, and R. K. Toghiani, "Modeling and Experiments for the SRS Low-Curie Salt Process." *Separation Science and Technology*, (2006).

Jason A. Aligo, Laura Smith, Judith L. Eglin, and Laura E. Pence, "Solution and Solid-State Variation of Curpric Phenanthroline Complexes." *Inorg Chem*, **44**, 4001-4007 (2005).

Patricia M. Bradley, Laura T. Smith, Judith L. Eglin, and Claudia Turro, "Direct Observation from the ³δδ* Excited State of Re₂Cl₂(p-OCH₃form)₄." *Inorg Chem*, **42**, 7360-7362 (2003).

Judith L. Eglin and Laura T. Smith, "Tungsten to Tungsten Quadruple Bonds: Over 30 Years of Research, 50 Structurally Characterized Compounds, and 100 Known Compounds." *Inorganica Chimica Acta*, **351**, 217-224 (2003).

Sidika P. Cakir, Keith T. Mead, and Laura T. Smith, "Synthesis and Ring Cleavage Reactions of Tetrahydro-4H-furo[2,3-b]pyran-2-ones. A Potential Strategy for Use in the Synthesis of Blepharocalyxin." *Tetrahedron Letters*, **44**, 6355-58 (2003).

Wei Li, Keith T. Mead, and Laura T. Smith, "Synthesis and Ring Cleavage Reactions of Hexahydro-2H, 5H-pyrano[2,3-b]pyran-2-ones. A Potential Strategy for Use in the Synthesis of Blepharocalyxin D." *Tetrahedron Letters*, **44**, 6351-53 (2003).

Michael Dequeant, Judith L. Eglin, Melissa K. Graves-Brook, and Laura T. Smith
"The Hydrolysis of Cyanophenols at a Bimetallic Re₂(III, III) Core." *Inorganica Chimica Acta*, **351**,141-149 (2003).

Judith L. Eglin and Laura T. Smith, "The structure of (η^6 -C₆H₅Cl)Cr(CO)₂PPh₃." *Inorganica Chimica Acta*, **320**, 198-202.

Tosha Barclay, Judith L. Eglin, and Laura T. Smith, "The Synthesis, Crystal Structure, and Spectroscopic Characterization of a Tetrakis(μ -N,N' diarylformamidinato)-chlorodirhenium(III, III) Cationic Complex." *Polyhedron*, **20**, 767-771 (2001).

Kathryn M. Carlson-Day, Judith L. Eglin, and Laura T. Smith, "The Structure of the Dichromium Compound Cr₂(μ -OH)₂(μ -3,5Cl₂-form)₂(η^2 -3,5Cl₂-form)₂." *Inorganica Chimica Acta*, **310**, 282-284 (2000).

Judith L. Eglin, Chun Lin, Tong Ren, Laura Smith, Richard J. Staples, and David O. Wipf.
"Crystallographic and Spectroscopic Characterization of Tetrakis(μ -N,N' diarylformamidinato)dichlorodirhenium(III, III) Compounds." *Eur J of Inorg Chem*, 2095-2103 (1999).

Kathryn M. Carlson-Day, Judith L. Eglin, Laura T. Smith, and Richard J. Staples. "Preparation and Structure of Two Ditungsten Compounds Synthesized with the 3,5-Dichlorophenylformamidinate Ligand." *Inorg Chem*, **38**, 2216-2220 (1999).

Kathryn M. Carlson-Day, Judith L. Eglin, Chun Lin, Laura T. Smith, Richard J. Staples, and David O. Wipf. "Synthesis of Multiply-Bonded Dichromium Complexes with a Variety of Formamidinate Ligands." *Polyhedron*, **18**, 817-824 (1999).

Undergraduate Publications

Judith L. Eglin, Laura T. Smith, Richard J. Staples, Edward J. Valente, and Jeffrey D. Zubkowski.
"Synthesis, Characterization, and X-ray Crystallography of a Series of Ditungsten Complexes with Bis(diphenylphosphino)amine." *J of Organomet Chem* **596**, 136-143 (2000).

Judith L. Eglin, Laura T. Smith, Edward J. Valente, and Jeffrey D. Zubkowski. "The synthesis and characterization of *trans*-ReCl₂(dppe)₂ and α -Re₂Cl₄(dppe)₂" *Inorganica Chimica Acta*, **268**, 151-157 (1998)

Presentations

"Aluminum Solubility: Experimental Studies in Mixed Sodium Salt Solutions," L. T. Smith, R. K. Toghiani, Y. Xia, and J. S. Lindner, 17th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN October 2011.

"Process Chemistry and Operations Planning for Hanford Waste Alternatives," L. T. Smith, R. K. Toghiani, and J. S. Lindner. DOE Technical Exchange Meeting, Atlanta, GA November, 2010.

"Task 2.1 Aluminum Solubility Project Overview," L. T. Smith, R. K. Toghiani, and J.S. Lindner. Site presentation, Dr. John Shultz, DOE EM-31 June 16, 2010.

"Aluminum Solubility," L. T. Smith, R. K. Toghiani, V. Phillips, Y. Xia, and J. S. Lindner. Waste Management Symposia, Phoenix, AZ March, 2010.

"Aluminum Solubility Studies," L. T. Smith, R. K. Toghiani, V. Phillips, Y. Xia, and J. S. Lindner. 16th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN October 2009.

"Thermodynamic Modeling Studies," J. Lindner, L. T. Smith, J. C. Luthe, L. Pearson, R. K. Toghiani, Y. Xia, and P. Naik. DOE Technical Exchange Meeting Denver, CO May, 2009.

"Task 2.1: Process Chemistry Support of Hanford Waste Operations Planning," L. T. Smith, R. K. Toghiani and J. S. Lindner. US DOE Cooperative Agreement ICET Internal Mid-Year Review, June 2009.

"Modeling and Experimental Support for High Level SRS Salt Disposition Alternatives," L. T. Smith and J.S. Lindner. ICET, 205 Research Boulevard, Starkville, MS, 39759. (September, 2008). SRS/DOE representative presentation held at ICET.

"Chemical Analyses and Thermodynamic Modeling of Groundwater Samples from the Vicinity of Cranfield Oilfield MS," J.S.Lindner, L.T.Smith, and Yunju Xia, ICET, 205 Research Boulevard, Starkville, MS, 39759. (September, 2008).

"Fate of WMD in Waste and Storm Water Treatment Systems," R. M. Counce, (University of Tennessee, Knoxville); R. T. Jubin, B. E. Lewis, Jr., J. F. Birdwell, Jr. (Oak Ridge National Laboratory); D. D. Truax, J.L Martin, B. S. Magbanua, Jr., (Department of Civil Engineering, Mississippi State University); J. S. Lindner and L. T. Smith (Institute for Clean Energy Technology, ICET); and S. M. Aceil (Alcorn State University). (August, 2008) Presentation of Results to Mayor Mary Hawkins Butler and Police, Fire, Public Works Department Heads for the city of Madison, Mississippi.

"Studies on the Gibbsite to Boehmite Transition." T. J. Ruff, R. K. Toghiani, L. T. Smith, and J. S. Lindner, ICET-MSU, 205 Research Boulevard, Starkville, MS, 39759, 15th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN October 23-27, 2007.

"DOE Chemistry Studies." Jeff S. Lindner, Rebecca K. Toghiani, L. T. Smith, and J. C. Luthe. ICET and Mississippi State University, Hanford-Savannah River-Idaho Technology Exchange, Atlanta, GA. October, 2007.

"Preparation and Treatment of Hanford Tank Waste Sludge." Timothy Ruff, L. T. Smith, Rebecca K.Toghiani, and Jeff S. Lindner. Dave C. Swalm School of Engineering and ICET, Mississippi Academy of Sciences, Mississippi State University, February, 2007.

"Solubility Investigations of (K⁺,Na⁺,Cs⁺)-OH-H₂O Systems." Caleb Tash, Laura T. Smith, Rebecca K. Toghiani, and Jeff Lindner. ICET and Dave C. Swalm School of Engineering, Mississippi Academy of Sciences, Mississippi State University, February, 2007.

"Aluminum Solubility." L. T. Smith, Tim Ruff, Valerie Phillips, MiHee Jung, J. S. Lindner, and R. K .Toghiani. ICET, 205 Research Boulevard, Starkville, MS, 39759, Aluminum Chromium Leaching for HLW Sludges Workshop, Atlanta, GA January 21-23, 2007.

"Tank Retrieval Modeling." L. T. Smith, J. S. Lindner, R. K .Toghiani. ICET, 205 Research Boulevard, Starkville, MS, 39759, Hanford-Savannah River-Idaho Technology Exchange, Richland, WA May 16-18, 2006.

"ICET Chemistry Projects." L. T. Smith, J. S. Lindner, R. K .Toghiani, V. Phillips, J. Luthe, and Tim Ruff. Presented to CH2M Hill, ICET, March, 2006.

"Modeling and Experiments for the SRS Low-Curie Salt Process." L. T. Smith, R. K. Toghiani, V. Phillips, A. Antonyraj, and J. S Lindner, DIAL-MSU, 205 Research Boulevard, Starkville, MS, 39759, 14th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN October 23-27, 2005.

"Improved Process Chemistry for Legacy Nuclear Waste Remediation: Development of DBLSLTDB."

Toghiani, R. K., Smith, L. T., Phillips, V., Jung, M. H., Selvaraj, D., and J. S. Lindner, 14th Symposium on Separation Science and Technology for Energy Applications, October 23-27, 2005, Gatlinburg, TN.

"Process Chemistry Support for Hanford." J. S. Lindner, R. K. Toghiani, V. Phillips, M. Jung, L. T. Smith, and M. J. Plodinec. Presented to CH2M Hill, Hanford Site, August, 2005.

"Process Chemistry Support for Hanford." J. S. Lindner, R. K. Toghiani, V. Phillips, M. Jung, L. T. Smith, and M. J. Plodinec. Savannah River/Hanford Technical Exchange, Savannah River Site, March 22-24, 2005. WSRC-MM-2005-00044

"DIAL Process Chemistry Support." J. S. Lindner, R. K. Toghiani, V. Phillips, M. Jung, L. T. Smith, and M. J. Plodinec. Savannah River/Hanford Technical Exchange, Savannah River Site, March 22-24, 2005. WSRC-MM-2005-00044.

"Modeling and Experimental Support for High-Level SRS Salt Disposition Alternatives." L. T. Smith, R. K. Toghiani, and J. S. Lindner, DIAL-MSU, 205 Research Boulevard, Starkville, MS, 39759, SRS-Hanford Salt Retrieval Technical Exchange, Aiken, SC March 21-23, 2005.

"Modeling and Experimental Support for High-Level SRS Salt Disposition Alternatives." L. T. Smith, R. K. Toghiani, J. S. Lindner, and V. Phillips, DIAL-MSU, 205 Research Boulevard, Starkville, MS, 39759, SRS POW presentation, March 24, 2004.

"Thermodynamic Modeling of the Hanford 242-A Evaporator." J. S. Lindner, R. Zhong, R. K. Toghiani and L. T. Smith, DIAL-MSU, 205 Research Boulevard, Starkville, MS, 39759, Thirteenth Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN October 27-30, 2003.

"Salt Waste Alternative Processing and Chemistry Support-II." Laura T. Smith, DIAL-MSU, 205 Research Boulevard, Starkville, MS 39759, SRS-Hanford Salt Retrieval Technical Exchange, Aiken, SC April 22-23, 2003.

"Spectroscopic and Structure Studies of $\text{Rh}_2(\mu\text{-O}_2\text{Ac})_4(\eta^1\text{-p-MeOHFORM})_2$." Laura T. Smith, and Judith L. Eglin, Dept. of Chemistry, Mississippi State University, Box 9573, Mississippi State, MS 39762, 223rd National Meeting of the American Chemical Society, Orlando, April 7-11, 2002, Orlando, Florida.

"Continuing Studies on $\text{Re}_2\text{Cl}_2(\mu\text{-Form})_4$ Complexes." Laura T. Smith, Judith L. Eglin, Tosha M. Barclay, 220 National Meeting of the ACS, Washington, D.C. August 20-24, 2000.

"Reactivity Studies of $\text{Re}_2\text{Cl}_2(\mu\text{-form})_4$ Complexes." Laura T. Smith, Judith L. Eglin, and Tosha Barclay, Contemporary Inorganic Chemistry II, March 12-15, 2000, College Station, TX.

"Synthesis and Characterization of a Series of Ditungsten-Tetraformamidinate Compounds." Laura T. Smith, Judith L. Eglin, David O. Wipf, and Richard J. Staples, 50th Southeast Regional American Chemical Society Meeting, October 17-20, 1999, Knoxville, Tennessee.

"Preparation and characterization of tetras($\mu\text{-}N,N'$ -diarylformamidinato)-dichlorodirhenium(III, III) compounds." Laura T. Smith, Judith L. Eglin, David O. Wipf, Chun Lin, Tong Ren, and Richard J. Staples, 218th National Meeting of the American Chemical Society Meeting, August 22-26, 1999, New Orleans, LA.

"The Structures and Characterization of Two New Ditungsten Tetraformamidinate Compounds." Laura T. Smith, Kathryn M. Carlson-Day, Judith L. Eglin, and Richard J. Staples, Mississippi EPSCoR Conference, Jackson, MS, March 2-3, 1999.

"The Preparation, Characterization and Structures of a Variety of New Ditungsten Tetraformamidinate Compounds." , Laura T. Smith, Kathryn M. Carlson-Day, Judith L. Eglin and Richard J. Staples, 54th Southwest Regional American Chemical Society Meeting, November 1-3, 1998, Baton Rouge, Louisiana.

"The Structures and Characterization of Two New Ditungsten Tetraformamidinate Compounds." Kathryn M. Carlson-Day, Judith L. Eglin, Laura T. Smith, and Richard J. Staples, 215th National Meeting of the American Chemical Society Meeting, August 23-27, 1998, Boston, MA.

"The Synthesis and Characterization of Three Novel Ditungsten Compounds." Laura T. Smith, Judith L. Eglin, Edward J. Valente, Jeffrey D. Zubkowski and Richard J. Staples, 214th National Meeting of the ACS, September 11-15, 1997, Las Vegas, Nevada.

"The Reactivity of $\text{Re}_2(\text{Cl}_6(\text{P}(\text{n-but})_3)_2$ with DPPE in the Presence of Nitriles." Laura T. Smith, Judith L. Eglin, Edward J. Valente and Jeffrey D. Zubkowski, 211 National Meeting of the ACS, New Orleans, LA. March 24-28, 1996.

Funded Proposals/Research

Process Chemistry and Operations Planning for Hanford Waste Alternatives, Co-Principal Investigator, ICET/DOE University Cooperative Agreement, 1/1/10-12/31/2010, \$400,000.

Modeling and Experimental Support for SRS Alternative Processes, Co-Principal Investigator, ICET/DOE University Cooperative Agreement, 1/1/10-12/31/2010, \$400,000.

Analysis of WMD Materials in Waste Storm Water Treatment Infrastructures in Southeastern US Cities, Phase II, Co-Principal Investigator, ORNL/ SERRI, 2/1/2009-4/30/2010, \$50,000.

Process Chemistry and Operations Planning for Hanford Waste Alternatives, Co-Principal Investigator, ICET/DOE University Cooperative Agreement, 1/1/2009-12/31/2009, \$400,000.

Modeling and Experimental Support for SRS Alternative Processes, Co-Principal Investigator, ICET/DOE University Cooperative Agreement, 1/1/2009-12/31/2009, \$400,000.

Analysis of WMD Materials in Waste Storm Water Treatment Infrastructures in Southeastern US Cities, Phase I, #362992, Co-Principal Investigator, ORNL/ SERRI, 3/1/2008-2/1/2009, \$80,000.

Modeling and Experimental Support for SRS Alternative Processes, Co-Principal Investigator, ICET/DOE University Cooperative Agreement, 1/1/2008-12/31/2008, \$400,000.

Process Chemistry and Operations Planning for Hanford Waste Alternatives, Co-Principal Investigator, ICET/DOE University Cooperative Agreement, 1/1/2008-12/31/2008, \$100,000.

Modeling and Experimental Support for SRS Alternative Processes, Co-Principal Investigator, ICET/DOE University Cooperative Agreement, 1/1/2007-12/31/2007, \$300,000.

Analysis of WMD Materials in Waste Storm Water Treatment Infrastructures in Southeastern US Cities, Co-Principal Investigator, ORNL/ SERRI, 11/1/2006-3/1/2008, \$84,000.

Modeling and Experimental Support for SRS Alternative Processes, Co-Principal Investigator, ICET/DOE University Cooperative Agreement, 1/1/2006-12/31/2006, \$300,000.

Reillex Resin Irradiation Damage Analysis, Co-Principal Investigator, Sponsor-040164 Los Alamos National Laboratory (LANL) (DOE), 1/1/2006-11/1/2006, \$20,000.

Development and Testing of Unique Radiation Detection Technology and Particle Size Distribution, Co-Principal Investigator, Los Alamos National Laboratory (LANL) (DOE), 1/1/2004-1/1/2006, \$45,000.