

Craig A. Grapperhaus

Department of Chemistry

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Professional Appointments

2011 – present	Professor of Chemistry	University of Louisville
2015 – present	Vice Chair of Chemistry	University of Louisville
2013 – present	Visiting Scientist-Regenerative Medicine Research Center	
	West China Hospital, Sichuan University	
2009 – 2012	Vice Chair of Chemistry	University of Louisville
2005 – 2011	Associate Professor of Chemistry	University of Louisville
2005 – 2010	Chemistry Director of Graduate Studies	University of Louisville
2000 – present	Member of Graduate Faculty	University of Louisville
2000 – 2005	Assistant Professor of Chemistry	University of Louisville

Education

1998 – 2000	Alexander von Humboldt Postdoctoral Fellow
	Max Planck Institut für Strahlenchemie, Mülheim, Germany
	Advisor: Prof. Karl Wieghardt
1994 – 1998	Ph.D. in inorganic chemistry
	Texas A&M University
	Advisor: Prof. Marcetta Y. Darensbourg
1990 – 1994	B.S. in Chemistry, <i>Summa Cum Laude</i> , minor in Economics
	Southern Illinois University at Edwardsville
	Advisor: Prof. Thomas Getman

Honors and Awards

2011	Provost Award for Exemplary Advising
2001	Ralph E. Powe Junior Faculty Enhancement Award
1998 – 2000	Alexander von Humboldt Postdoctoral Fellowship
1997 – 1998	Dow Teacher/Scholar Fellowship, Texas A&M
1996 – 1997	NIH Chemistry/Biology Interface Training Program Fellowship, Texas A&M
1994 – 1996	Industry-University Cooperative Chemistry Program Fellowship, Texas A&M
1994	Medallion of Lincoln, Academy of Lincoln
1993	Council on Undergraduate Research Fellowship, SIUE

Professional Societies and Activities

- 2015 Pacifichem 2015 – Symposium Co-Organizer
- 2007 Local Organizing Committee – Kentucky Academy of Science Annual Meeting
- 2005 Invited Participant – Tenth Annual Congressional Visits Day
- 2001 – 2004 Founder and Chair: Kentuckiana Undergraduate Research Symposium
- 2001 – Member of Society of Bioinorganic Chemistry
- 2000 – 2005 Member of Council on Undergraduate Research
- 1996 – Member of the American Chemical Society

Publications (h-index: 19) (citations: total = 1452, since 2000 = 1402, UofL articles = 552)

1. Grapperhaus, C. A.; Darensbourg, M. Y.; Sumner, L. W.; Russell, D. H. "Template effect for O₂ addition across cis-sulfur sites in nickel dithiolates" *J. Am. Chem. Soc.* **1996**, *118*, 1791-1792
2. Grapperhaus, C. A.; Maguire, M. J.; Tuntulani, T.; Darensbourg, M. Y. "Singlet oxygen and the production of sulfur oxygenates of nickel(II) and palladium(II) thiolates" *Inorg. Chem.* **1997**, *36*, 1860-1866
3. Mills, D. K.; Font, I.; Farmer, P. J.; Hsiao, Y. M.; Tuntulani, T.; Buonomo, R. M.; Goodman, D. C.; Musie, G.; Grapperhaus, C. A.; Maguire, M. J.; Lai, C. H.; Hatley, M. L.; Smee, J. J.; Bellefeuille, J. A.; Darensbourg, M. Y. "1,5-Diazacyclooctane, Pendant Arm Thiolato Derivatives and [(N,N'-bis(2-mercaptoethyl)-1,5-diazacyclooctanato)Nickel(II)]" *Inorg. Synth.* **1998**, *37*, 4052-4058
4. Grapperhaus, C. A.; Tuntulani, T.; Reibenspies, J. H.; Darensbourg, M. Y. "Methylation of tethered thiolates in (bme-daco)Zn₂ and (bme-daco)Cd₂ as a model of zinc sulfur-methylation proteins" *Inorg. Chem.* **1998**, *37*, 4052-4058
5. Bellefeuille, J. A.; Grapperhaus, C. A.; Buonomo, R. M.; Reibenspies, J. H.; Darensbourg, M. Y. "Alkylation-induced O-atom rearrangement in nickel S-oxygenates" *Organometallics* **1998**, *17*, 4813-4821
6. Grapperhaus, C. A.; Darensbourg, M. Y. "Oxygen Capture By Sulfur In Nickel Thiolates" *Acc. Chem. Res.* **1998**, *31*, 451-459
7. Grapperhaus, C. A.; Bill, E.; Wieghardt, K. "Ozone oxidation of iron(III) in a monofunctionalized cyclam: Spectroscopic characterization of high valent iron species" *J. Inorg. Biochem.* **1999**, *74*, 146-146
8. Grapperhaus, C. A.; Bellefeuille, J. A.; Reibenspies, J. H.; Darensbourg, M. Y. "Synthesis and dimer cleavage reactions of the N₂S thiolate bridged dimer [(mmp-dach)₂Ni]₂Cl₂" *Inorg. Chem.* **1999**, *38*, 3698-3703
9. Bellefeuille, J. A.; Grapperhaus, C. A.; Derecskei-Kovacs, A.; Reibenspies, J. H.; Darensbourg, M. Y. "Correlation of electrochemistry, nucleophilicity and density functional calculations of the cis-dithiolate (bme*-daco)Ni" *Inorg. Chim. Acta* **2000**, *300*, 73-81
10. Grapperhaus, C. A.; Mienert, B.; Bill, E.; Weyhermuller, T.; Wieghardt, K. "Mononuclear (nitrido)iron(V) and (oxo)iron(IV) complexes via photolysis of [(cyclam-acetato)Fe^{III}N₃]⁺ and ozonolysis of [(cyclam-acetato)Fe^{III}O₃SCF₃]⁺ in water/acetone mixtures" *Inorg. Chem.* **2000**, *39*, 5306-5317
11. Smee, J. J.; Miller, M. L.; Grapperhaus, C. A.; Reibenspies, J. H.; Darensbourg, M. Y. "Subtle bite-angle influences on N₂S₂Ni complexes" *Inorg. Chem.* **2001**, *40*, 3601-3605 (Doi 10.1021/1c0008619).

12. Grapperhaus, C. A.; Bill, E.; Weyhermuller, T.; Neese, F.; Wieghardt, K. "Molecular and electronic structure of $[\text{Mn}^{\text{V}}\text{N}(\text{cyclam-acetato})\text{PF}_6]$. A combined experimental and DFT study" *Inorg. Chem.* **2001**, *40*, 4191-4198 (10.1021/ic001370r).
13. Grapperhaus, C. A.; Patra, A. K.; Poturovic, S. "Synthetic Models of Nitrile Hydratase" *J. Inorg. Biochem.* **2001**, *86*, 240-240
14. Grapperhaus, C. A.; Patra, A. K.; Mashuta, M. S. "First $\{\text{Fe-NO}\}^6$ complex with an $\text{N}_2\text{S}_3\text{Fe-NO}$ core as a model of NO-inactivated iron-containing nitrile hydratase. Are thiolates and thioethers equivalent donors in low-spin iron complexes?" *Inorg. Chem.* **2002**, *41*, 1039-1041
15. Kaasjager, V. E.; Bouwman, E.; Gorter, S.; Reedijk, J.; Grapperhaus, C. A.; Reibenspies, J. H.; Smee, J. J.; Darensbourg, M. Y.; Derecskei-Kovacs, A.; Thomson, L. M. "Unique reactivity of a tetradentate N_2S_2 complex of nickel: Intermediates in the production of sulfur oxygenates" *Inorg. Chem.* **2002**, *41*, 1837-1844 (10.1021/ic010784x).
16. Mashuta, M. S.; Pimenov, K. V.; Grapperhaus, C. A. "cis-Dioxocyclam" *Acta Crystallographica Section C-Crystal Structure Communications* **2002**, *58*, O226-O227 (Doi 10.1107/S0108270102003165).
17. Grapperhaus, C. A.; Li, M.; Mashuta, M. S. "1,5-Bis(benzothiazolyl)-3-thiapentane and its asymmetric dinuclear $\text{Ag}(\text{I})$ complex with three distinct intermolecular-stacking interactions" *Chem. Commun.* **2002**, 1792-1793
18. Grapperhaus, C. A.; Poturovic, S.; Mashuta, M. S. "Dichloromethane alkylates a trithiolato-ruthenium complex to yield a methylene-bridged thioether core. Synthesis and structural comparison to the thiolato-ruthenium precursor" *Inorg. Chem.* **2002**, *41*, 4309-4311
19. Grapperhaus, C. A.; Li, M.; Patra, A. K.; Poturovic, S.; Kozlowski, P. M.; Zgierski, M. Z.; Mashuta, M. S. "Synthesis and characterization of $\text{N}_2\text{S}_3\text{X-Fe}$ models of iron-containing nitrile hydratase" *Inorg. Chem.* **2003**, *42*, 4382-4388
20. Grapperhaus, C. A.; Li, M.; Gibson, E. R.; Mashuta, M. S. "Hydrogen-bond networks in the mono- and diprotonated cyclic diamine $9\text{aneN}_2\text{S}$ " *J. Chem. Crystallogr.* **2004**, *34*, 5-11
21. Grapperhaus, C. A.; Mullins, C. S.; Kozlowski, P. M.; Mashuta, M. S. "Synthesis and oxygenation of a nickel(II) and zinc(II) dithiolate: An experimental and theoretical comparison" *Inorg. Chem.* **2004**, *43*, 2859-2866
22. Grapperhaus, C. A.; Poturovic, S. "Electrochemical investigations of the tris(2-(diphenylphosphino)thiaphenolato)ruthenate(II) monoanion reveal metal- and ligand-centered events: radical, reactivity, and rate" *Inorg. Chem.* **2004**, *43*, 3292-3298
23. Serres, R. G.; Grapperhaus, C. A.; Bothe, E.; Bill, E.; Weyhermuller, T.; Neese, F.; Wieghardt, K. "Structural, spectroscopic, and computational study of an octahedral, non-heme $\{\text{Fe-NO}\}^{6-8}$ series: $[\text{Fe}(\text{NO})(\text{cyclam-ac})]^{2+/+0}$ " *J. Am. Chem. Soc.* **2004**, *126*, 5138-5153 (10.1021/ja030645+).
24. Grapperhaus, C. A.; Kreso, M.; Burkhardt, G. A.; Roddy, J. V. F.; Mashuta, M. S. "Template synthesis of N_2S and N_3S chelates via alkylation of bis(2-aminoethanethiolato)Ni: sulfur and nitrogen-centered alkylations" *Inorg. Chim. Acta* **2005**, *358*, 123-130
25. Grapperhaus, C. A.; Mullins, C. S.; Mashuta, M. S. "Structural comparison of alkylated derivatives of (bmmp-dmed)Ni and (bmmp-dmed)Zn" *Inorg. Chim. Acta* **2005**, *358*, 623-632
26. Poturovic, S.; Mashuta, M. S.; Grapperhaus, C. A. "Carbon-sulfur bond formation between a ruthenium-coordinated thiyl radical and methyl ketones" *Angewandte Chemie-International Edition* **2005**, *44*, 1883-1887 (10.1002/anie.200462713).
27. Grapperhaus, C. A.; Poturovic, S.; Mashuta, M. S. "Oxygenation of a ruthenium(II) thiolate to a ruthenium(II) sulfinate proceeds via ruthenium(III)" *Inorganic Chemistry* **2005**, *44*, 8185-8187 (10.1021/ic051211d).
28. Mullins, C. S.; Grapperhaus, C. A.; Kozlowski, P. M. "Density functional theory investigations of NiN_2S_2 reactivity as a function of nitrogen donor type and $\text{N-H}\cdots\text{S}$ hydrogen bonding inspired by

- nickel-containing superoxide dismutase" *J. Biol. Inorg. Chem.* **2006**, *11*, 617-625 (10.1007/s00775-006-0109-6).
29. Frye, B. C.; Mashuta, M. S.; Mullins, C. S.; Grapperhaus, C. A.; Buchanan, R. M. "Ethyl 1-methylimidazole-2-carboxylate" *Acta Crystallographica Section E-Structure Reports Online* **2006**, *62*, O1548-O1549 (10.1107/s1600536806010038).
 30. Grapperhaus, C. A.; O'Toole, M. G.; Mashuta, M. S. "Synthesis and structure of the tetradeca-iron(III) oxide-alkoxide cluster $[\text{Bu}_4\text{N}]_2[\text{Fe}_{14}\text{O}_8(\text{OCH}_2\text{CH}_3)_{20}\text{Cl}_8]$ " *Inorg. Chem. Commun.* **2006**, *9*, 1204-1206
 31. Grapperhaus, C. A.; Kozlowski, P. M.; Kumar, D.; Frye, H. N.; Venna, K. B.; Poturovic, S. "Singlet diradical character of an oxidized ruthenium trithiolate: electronic structure and reactivity" *Angew. Chem., Int. Ed. Engl.* **2007**, *46*, 4085-4088 (10.1002/anie.200700297).
 32. Green, K. N.; Brothers, S. M.; Jenkins, R. M.; Carson, C. E.; Grapperhaus, C. A.; Darensbourg, M. Y. "An experimental and computational study of sulfur-modified nucleophilicity in a dianionic NiN_2S_2 complex" *Inorg. Chem.* **2007**, *46*, 7536-7544 (10.1021/ic700878y).
 33. Grapperhaus, C. A.; O'Toole, M. G.; Mashuta, M. S. "{3,3'-Ethane-1,2-diylbis(methylimino)-bis(propene-1-thiolato)}nickel(II)" *Acta Crystallogr., Sect. E: Struct. Rep. Online* **2007**, *63*, M2281-U2317 (10.1107/s1600536807037725).
 34. Grapperhaus, C. A.; Venna, K. B.; Mashuta, M. S. "Carbon-sulfur bond formation via alkene addition to an oxidized ruthenium thiolate" *Inorganic Chemistry* **2007**, *46*, 8044-8050 (10.1021/ic701078e).
 35. Grant, G. J.; Botros, M. E.; Hassler, J. S.; Janzen, D. E.; Grapperhaus, C. A.; O'Toole, M. G.; VanDerveer, D. G. "Hg(II) and Cd(II) complexes with mixed donor macrocyclic thioethers: The oxophobicity of mercury(II)" *Polyhedron* **2008**, *27*, 3097-3104 (10.1016/j.poly.2008.07.005).
 36. O'Toole, M. G.; Kreso, M.; Kozlowski, P. M.; Mashuta, M. S.; Grapperhaus, C. A. "Spin-State-Dependent Oxygen Sensitivity of Iron Dithiolates: Sulfur Oxygenation or Disulfide Formation" *J. Biol. Inorg. Chem.* **2008**, *13*, 1219-1230 (10.1007/s00775-008-0405-4).
 37. O'Toole, M. G.; Bennett, B.; Mashuta, M. S.; Grapperhaus, C. A. "Substrate Binding Preferences and pK_a Determinations of a Nitrile Hydratase Model Complex: Variable Solvent Coordination to $(\text{bmmp-TASN})\text{FeOTf}$ " *Inorganic Chemistry* **2009**, *48*, 2300-2308 (10.1021/ic802180d).
 38. Grapperhaus, C. A.; Ouch, K.; Mashuta, M. S. "Redox-regulated ethylene binding to a rhenium-thiolate complex" *J. Am. Chem. Soc.* **2009**, *131*, 64-65 (10.1021/ja8086483).
 39. $\text{N}_2\text{S}_3\text{X-Fe}$ Models of Nitrile Hydratase; O'Toole, M., G.; Grapperhaus, C., A. In *Bioinorganic Chemistry*; American Chemical Society: Washington, DC, 2009, p 99-113.
 40. Mullins, C. S.; Grapperhaus, C. A.; Frye, B. C.; Wood, L. H.; Hay, A. J.; Buchanan, R. M.; Mashuta, M. S. "Synthesis and Sulfur Oxygenation of a $(\text{N}_3\text{S})\text{Ni}$ Complex Related to Nickel-Containing Superoxide Dismutase" *Inorg. Chem.* **2009**, *48*, 9974-9976 (10.1021/ic901246w).
 41. Grapperhaus, C. A.; Cui, J. L.; Buchanan, R. M.; Mashuta, M. S. "Supramolecular assembly of a dinuclear Ag(I) complex with discrete Ag_2S_2 centers" *Inorg. Chem. Comm.* **2009**, *12*, 1091-1093 (10.1016/j.inoche.2009.08.027).
 42. Masitas, C. A.; Mashuta, M. S.; Grapperhaus, C. A. "Asymmetric Oxygenation of a Ruthenium Dithiolate Mimics the Mixed Sulfenato/Sulfinato Donor Sets of Nitrile Hydratase and Thiocyanate Hydrolase" *Inorganic Chemistry* **2010**, *49*, 5344-5346 (10.1021/ic100414c).
 43. Masitas, C. A.; Kumar, M.; Mashuta, M. S.; Kozlowski, P. M.; Grapperhaus, C. A. "Controlled Sulfur Oxygenation of the Ruthenium Dithiolate (4,7-Bis-(2'-methyl-2'-mercaptopropyl)-1-thia-4,7-diazacyclononane) RuPPh_3 under Limiting O_2 Conditions Yields Thiolato/Sulfinato, Sulfenato/Sulfinato, and Bis-Sulfinato Derivatives" *Inorganic Chemistry* **2010**, *49*, 10875-10881 (10.1021/ic101221z).

44. Cui, J.; Mashuta, M. S.; Buchanan, R. M.; Grapperhaus, C. A. "Synthesis, Structure, and Solution Properties of [(mim-TASN)FeCl₂]⁺ and Its μ -Oxo Derivative" *Inorg. Chem.* **2010**, *49*, 10427-10435 (10.1021/ic1012999).
45. Cheruzel, L. E.; Cui, J. L.; Mashuta, M. S.; Grapperhaus, C. A.; Buchanan, R. M. "N-(2-formyl-1-methylimidazol-4-yl)-2,2-dimethylpropanamide: A versatile reagent for preparing imidazole-amine ligands with variable second-coordination spheres" *Tetrahedron Lett.* **2011**, *52*, 4771-4774
46. Ouch, K.; Mashuta, M. S.; Grapperhaus, C. A. "Metal-Stabilized Thiyl Radicals as Scaffolds for Reversible Alkene Addition via C–S Bond Formation/Cleavage" *Inorg. Chem.* **2011**, *50*, 9904-9914 (10.1021/ic200416y).
47. Ouch, K.; Mashuta, M. S.; Grapperhaus, C. A. "Alkyne Addition to a Metal-Stabilized Thiyl Radical: Carbon–Sulfur Bond Formation between 1-Octyne and [Ru(SP)₃]⁺" *European Journal of Inorganic Chemistry* **2012**, *2012*, 475-478 (10.1002/ejic.201101016).
48. Herdt, D. R.; Grapperhaus, C. A. "Kinetic study of nickel-thiolate oxygenation by hydrogen peroxide. Implications for nickel-containing superoxide dismutase" *Dalton Trans.* **2012**, *41*, 364-366 (10.1039/C1DT11300C).
49. Shearer, J.; Callan, P. E.; Masitas, C. A.; Grapperhaus, C. A. "Influence of Sequential Thiolate Oxidation on a Nitrile Hydratase Mimic Probed by Multiedge X-ray Absorption Spectroscopy" *Inorg. Chem.* **2012**, *51*, 6032-6045 (10.1021/ic202453c).
50. Chauhan, R.; Mashuta, M. S.; Grapperhaus, C. A. "Selective and Reversible Base-Induced Elimination of a Ruthenium Dithioether Yields a Vinyl Metallosulfonium Complex" *Inorg. Chem.* **2012**, *51*, 7913-7920 (10.1021/ic300983x).
51. Kumar, D.; Masitas, C. A.; Nguyen, T. N.; Grapperhaus, C. A. "Bioinspired catalytic nitrile hydration by dithiolato, sulfinato/thiolato, and sulfenato/sulfinato ruthenium complexes" *Chem. Commun.* **2013**, *49*, 294-296 (10.1039/C2CC35256G).
52. Sampson, K. O.; Kumar, D.; Mashuta, M. S.; Grapperhaus, C. A. "Addition of polysubstituted alkenes, aromatic alkynes, and dienes to a metal-stabilized thiyl radical via carbon–sulfur bond formation: Electrochemical, chemical, and computational investigations" *Inorg. Chim. Acta* **2013**, *408*, 1-8 (10.1016/j.ica.2013.08.003).
53. Sulfur-Oxygenation Enhances Ligand Exchange in Nitrile Hydratase Inspired Ruthenium(II) Complexes; Masitas, C. A.; Mashuta, M. S.; Grapperhaus, C. A. In *Biochalcogen Chemistry: The Biological Chemistry of Sulfur, Selenium, and Tellurium* Bayse, C. A., Brumaghim, J. L., Eds.; ACS Books, accepted for publication 2013.
54. Lu, M.; Campbell, J. L.; Chauhan, R.; Grapperhaus, C. A.; Chen, H. "Probing the Reactivity and Radical Nature of Oxidized Transition Metal-Thiolate Complexes by Mass Spectrometry" *J. Am. Soc. Mass. Spectrom.* **2013**, *24*, 502-512 (10.1007/s13361-012-0537-1).
55. Chauhan, R.; Mashuta, M. S.; Grapperhaus, C. A. "Reinvestigation of the first structurally characterized metal-coordinated sulfenic acid complex" *Inorg. Chem. Commun.* **2013**, *37*, 186-188 (DOI 10.1016/j.inoche.2013.09.045).
56. Kumar, D.; Nguyen, T. N.; Grapperhaus, C. A. "Kinetic Effects of Sulfur Oxidation on Catalytic Nitrile Hydration: Nitrile Hydratase Insights from Bioinspired Ruthenium(II) Complexes" *Inorg. Chem.* **2014**, *53*, 12372-12377 (Doi 10.1021/IC501695N).
57. Chauhan, R.; Moreno, M.; Banda, D. M.; Zamborini, F. P.; Grapperhaus, C. A. "Chemiresistive metal-stabilized thiyl radical films as highly selective ethylene sensors" *Rsc Adv* **2014**, *4*, 46787-46790 (Doi 10.1039/C4ra07560a).
58. Kumar, D.; Mashuta, M. S.; Grapperhaus, C. A. "Metal-centered oxidation decreases nitrile hydration activity of bioinspired (N2S3)Ru-PPh₃ precatalysts" *Inorg. Chem. Commun.* **2015**, *61*, 197-199 (10.1016/j.inoche.2015.10.001).

59. Haddad, A. Z.; Kumar, D.; Sampson, K. O.; Matzner, A. M.; Mashuta, M. S.; Grapperhaus, C. A. "Proposed Ligand-Centered Electrocatalytic Hydrogen Evolution and Hydrogen Oxidation at a Noninnocent Mononuclear Metal-Thiolate" *J. Am. Chem. Soc.* **2015**, *137*, 9238-9241 (10.1021/jacs.5b05561).
60. Haddad, A. Z.; Garabato, B. D.; Kozlowski, P. M.; Buchanan, R. M.; Grapperhaus, C. A. "Beyond Metal-Hydrides: Non-Transition-Metal and Metal-Free Ligand-Centered Electrocatalytic Hydrogen Evolution and Hydrogen Oxidation" *J. Am. Chem. Soc.* **2016**, *138*, 7844-7847 (10.1021/jacs.6b04441).
61. Zhang, W.; Saraei, N.; Hanlin, N.; Vaughn, J. R.; Jones, A. S.; Mashuta, M. S.; Buchanan, R. M.; Grapperhaus, C. A. "Reversible Methanol Addition to Copper Schiff Base Complexes: A Kinetic, Structural, and Spectroscopic Study of Reactions at Azomethine C=N Bonds" *Dalton Trans.* **2016**, Advance Article (10.1039/C6DT01955B).

Presentations

A. Scholarly Meetings

1. Grapperhaus, C. A.; Maguire, M. J.; Tuntulani, T.; Darensbourg, M. Y. "Reactions of sulfur in nickel- and palladium-bound thiolates with $^1\Delta$ O₂: Production of metallosulfoxides and metallosulfones" 211th American Chemical Society National Meeting, New Orleans, LA (1996) poster presentation
2. Grapperhaus, C. A.; Bellefeuille, J. A.; Darensbourg, N. Y. "Alkylation induced oxygen transfer in nickel sulfoxides" 215th American Chemical Society National Meeting, Dallas, TX (1998) oral presentation
3. Grapperhaus, C. A.; Darensbourg, M. Y.; Bellefeuille, J. A. "Sulfur Site Reactivity of Nickel Thiolates and Implications for Degradation of Metalloenzymes by Oxygenation" Graduate Research Seminar: Bioinorganic Chemistry (Gordon), Ventura, CA (1998) oral presentation
4. Grapperhaus, C. A.; Bill, E.; Weighardt, K. "Ozone Oxidation of Iron(III) in a Monofunctionalized Cyclam: Spectroscopic Characterization of High Valent Iron Species" 9th International Conference on Biological Inorganic Chemistry, Minneapolis, MN (1999) poster presentation
5. Grapperhaus, C. A.; Bill, E.; Weyhermüller, T.; Weighardt, K. "Ozonolysis and Photolysis of Fe(III) Precursors in a Monofunctionalized Cyclam: Spectroscopic Characterization of Fe(IV)=O and Fe(V)=N Species" TMR (Training and Mobility of Researchers) – NOHEMIP Research Network Mid-Term Review and Second Annual Meeting, Toulouse, France (2000) oral presentation
6. Grapperhaus, C. A.; Patra, A. K.; Poturovic, S. "Synthetic Models of Nitrile Hydratase" 1st Annual Kentuckiana Undergraduate Research Symposium, Louisville, KY (2001) oral presentation
7. Grapperhaus, C. A.; Patra, A. K.; Poturovic, S. "Synthetic Models of Nitrile Hydratase" 10th International Conference on Bioinorganic Chemistry, Florence, Italy (2001) poster presentation
8. Grapperhaus, C. A.; Patra, A. K.; Poturovic, S.; Kozlowski, P. M.; Mashuta, M. S. "A Structural and Electronic Model of NO-Inactivated Iron-Containing Nitrile Hydratase. A Comparison of Thiolate and Thioether Donor Atoms in Low-Spin Iron Complexes" Metals in Biology Gordon Conference Ventura, CA (2002) poster presentation
9. Grapperhaus, C. A.; Patra, A. K.; Li, M.; Poturovic, S.; Mashuta, M. S. "Modeling oxygenated cysteine thiolates with a thiolate/thioether donor set. A structural and spectroscopic model of no-inactivated iron-containing nitrile hydratase" 224th American Chemical Society National Meeting, Boston, MA (2002) oral presentation
10. Grapperhaus, C. A.; Poturovic, S.; Mashuta, M. S. "Ligand versus metal oxygen sensitivity of ruthenium(II) thiolates" 225th American Chemical Society National Meeting, New Orleans, LA (2003) oral presentation

11. Grapperhaus, C. A.; Poturovic, S.; Mashuta, M. S. "Understanding ruthenium thiolate reactivity: radicals, oxygen, and alkylation" Inorganic Chemistry Gordon Research Conference, Newport, RI (2003) poster presentation
12. Grapperhaus, C. A. "Modeling Oxygenated Cysteine Thiolates at the Active Site of Iron-Containing Nitrile Hydratase with a Thiolate/Thioether Donor Set" Third German-American Symposium on Frontiers of Chemistry (*invited*), Kloster Seeon, Germany (2004) poster presentation (*withdrawn due to illness*)
13. Grapperhaus, C. A.; Patra, A. K.; Li, M.; Poturovic, S.; Mashuta, M. S. "Modeling Oxygenated Cysteine Thiolates at the Active Site of Iron-Containing Nitrile Hydratase with a Thiolate/Thioether Donor Set" CERC3 Young Chemists' Workshop: Biocatalysis, Erlangen, Germany (2004) oral presentation
14. Grapperhaus, C. A. "Understanding Ruthenium Thiolate Reactivity: Radicals, Oxygen, and Alkylation" Inorganic Chemistry Gordon Conference, Newport, RI (2004) poster presentation (*withdrawn due to illness*)
15. Grapperhaus, C. A.; Poturovic, S.; Mashuta, M. S. "Reactivity Studies of a Metal-Coordinated Thiyl Radical: C-S Bond Formation" Inorganic Reaction Mechanisms Gordon Conference, Ventura, CA (2005) poster presentation
16. Grapperhaus, C. A.; Poturovic, S.; Mashuta, M. S. "Reactivity Studies of a Proposed Metal-Coordinated Thiyl Radical: C-S Bond Formation" 12th International Conference on Biological Inorganic Chemistry, Ann Arbor, MI (2005) poster presentation
17. Grapperhaus, C. A.; Mullins, C. S.; Buchanan, R. M.; Frye, B. C.; Mashuta, M. S.; Kozlowski, P. M. "Probing thiolate reactivity of Ni-SOD model complexes" 232nd American Chemical Society National Meeting, Atlanta, GA (2006) oral presentation (delivered by Martin G. O'Toole due to illness)
18. Grapperhaus, C. A.; Poturovic, S.; Frye, H. N.; Mashuta, M. S.; Kozlowski, P. M. "Reactivity studies of a proposed metal-coordinated thiyl radical" 231st American Chemical Society National Meeting, Atlanta, GA (2006) poster presentation (delivered by Martin G. O'Toole due to illness)
19. Grapperhaus, C. A. "Substrate Binding & Oxygenation Studies of Iron-Dithiolates as Models of Nitrile Hydratase" Metals in Biology Gordon Conference, Ventura, CA (2007) poster presentation
20. Grapperhaus, C. A.; O'Toole, M. G.; Mashuta, M. S. "N₂S₃FeX model complexes of nitrile hydratase: Substrate binding and spin state dependent oxygen reactivity" 233rd American Chemical Society National Meeting, Chicago, IL (2007) oral presentation
21. Grapperhaus, C. A. "Reactivity of Nitrile Hydratase Model Complexes" CERMACS2007 – Central Regional Meeting of the American Chemical Society, Cincinnati, OH (2007) oral presentation (*invited*)
22. Grapperhaus, C. A. "[9]aneN₂S Based Models of the Sulfur-Oxygenated Active Site of Nitrile Hydratase" SERMACS2007 - Southeastern Regional Meeting of the American Chemical Society, Greenville, SC (2007) oral presentation (*invited*)
23. Grapperhaus, C. A.; Ouch, K.; Venna, K. B.; Mashuta, M. S. "One way or reversible: Alkene addition to metal-coordinated thiyl radicals" 236th American Chemical Society National Meeting, Philadelphia, PA (2008) oral presentation
24. Grapperhaus, C. A.; Cui, J. L.; Buchanan, R. M.; Mashuta, M. S. "Supramolecular assembly of a dinuclear Ag(I) complex with discreet Ag₂S₂ centers" *Inorg. Chem. Comm.* **2009**, 12, 1091-1093 (10.1016/j.inoche.2009.08.027).
25. Grapperhaus, C. A.; Ouch, K.; Mashuta, M. S. "Redox Regulated Binding of Alkenes to a Rhenium Thiolate" 39th IRMG: Inorganic/Bioinorganic Reaction Mechanisms Group Meeting, Kloster Banz, Germany (2010) poster presentation

26. Grapperhaus, C. A. "A Tame Metal-Coordinated Thiyl Radical: Redox Regulation of Alkene Binding to Metal Thiolates" Internation Symposium on Molecular Coordination Chemistry (In honor of Prof. K. Wieghardt's retirement), Mülheim, Germany (2010) oral presentation (*invited*)
27. Chauhan, R.; Mashuta, M. S.; Grapperhaus, C. A. "Alkene addition to a Ru-coordinated thiyl radical: Synthesis by chemical oxidants and reactivity studies" Pacifichem 2010, Honolulu, HI (2010) poster presentation
28. Grapperhaus, C. A.; Ouch, K.; Chauhan, R.; Mashuta, M. S. "Alkene addition and reactivity with oxidized metal thiolates" Pacifichem 2010, Honolulu, HI (2010) oral presentation (*invited*)
29. Grapperhaus, C. A.; Ouch, K.; Mashuta, M. S. "Redox regulated binding of alkenes to rhenium thiolates" Pacifichem 2010, Honolulu, HI (2010) poster presentation
30. Grapperhaus, C. A.; Masitas, C. A.; Mashuta, M. S. "Sulfur Oxygenation of Nitrile Hydratase Mimic Enhances Ligand Lability and Hydrolysis Activity" Inorganic Reaction Mechanisms Gordon Conference, Galveston, TX (2011) poster presentation
31. Grapperhaus, C. A. "Controlled sulfur oxygenation of a nitrile hydratase mimic: Enhanced ligand lability and hydrolysis activity" 244th American Chemical Society National Meeting, Philadelphia, PA (2012) oral presentation (*invited*)
32. Kumar, D.; Grapperhaus, C. A. "Sulfur-Oxidation Effects on the Hydration Activity of Bioinspired Ru Catalysts" Metals in Biology Gordon Conference, Ventura, CA (2013) poster presentation
33. Grapperhaus Craig, A.; Chauhan, R.; Moreno, M.; Haddad, A.; Mashuta, M. S.; Zamborini, F. P. "Metal-stabilized thiyl radicals as scaffolds for ethylene sensing, alkene activation, and proton reduction" Inorganic Reaction Mechanisms Gordon Conference, Galveston, TX (2013) poster presentation
34. Grapperhaus Craig, A.; Zamborini, F. P.; Chauhan, R.; Moreno, M. "Chemiresistive metal-stabilized thiyl radical films as highly selective ethylene sensors" 248th American Chemical Society National Meeting, San Francisco (2014) oral presentation
35. Grapperhaus Craig, A.; Jain, R.; Zhang, W.; Gibson, T.; Nie, H. L.; Mashuta, M. S.; Buchanan, R. M. "Reversible binding of aliphatic alcohols and benzyl alcohol oxidation using N4 – Schiff base and reduced Schiff base Copper (II) complexes. " Inorganic Reaction Mechanisms Gordon Conference, Galveston, TX (2015) poster
36. Grapperhaus Craig, A. "Redox-Active Metal-Thiolates: Ligand-Centered Alkene Binding and Proton Reduction" International Conference on Inorganic Chemistry (CIC 2015), Suzhou, China (2015) oral (and session chair)
37. Grapperhaus Craig, A.; Haddad, A. Z.; Jain, R.; Kumar, D.; Sampson, K. O.; Mashuta, M. S. "Redox-Active Metal-Thiolates: Ligand-Centered Electrocatalytic Proton Reduction & Hydrogen Oxidation " Pacifichem 2015, Honolulu, HI (2015) oral (symposium co-organizer)

Invited Oral Presentations at Academic Institutions

Western Kentucky University (2000)
 Southern Illinois University at Edwardsville (2001)
 Kentucky State University (2002)
 Indiana State University (2003)
 University of Nevada – Reno (2004)
 University of Cincinnati (2004)
 University of Würzburg (2004)
 University of Delaware (2004)
 Indiana University (2004)
 Texas A&M University (2004)
 Rice University (2004)

University of Miami (Ohio) (2004)
 University of Kentucky (2004)
 College of Mount St. Joseph (2005)
 Purdue University (2005)
 University of North Carolina – Charlotte (2005)
 Marshall University (2007)
 Virginia Commonwealth University (2008)
 Old Dominion University (2008)
 Bellarmine University (2008)
 Ohio University (2008)
 Wayne State University (2008)
 Berea College (2009)
 Western Kentucky University (2009)
 University of Missouri, St. Louis (2009)
 University of Louisville, Department of Chemical Engineering (2010)
 Technische Universität Kaiserslautern (2010)
 University of Nevada, Reno (2011)
 Marquette University (2011)
 Duquesne University (2012)
 University of Memphis (2012)
 Sichuan University (2013)
 National Taiwan Normal University (2013)
 National Tsing Hua University (2013)
 University of Toronto (2013)
 Auburn University (2015)
 Tulane University (2016)

Persons Mentored

Post-Doctoral Researchers

2008 – 2012 Jinlan Cui
 2001 – 2002 Ming Li
 2000 – 2001 Apurba Patra

Ph.D. Students

current	Rahual Jain	Andrew Haddad	Wuyu Zhang
	Nicholas Vishnosky	Jason Young	Caleb Calvary
	Nina Sarei	Steven Cronin	Emtias Chowdhury
2015 Davinder Kumar	2014 Rajat Chauhan	2012 Kagna Ouch	
2012 Cesar Masitas	2008 Martin O'Toole	2006 Christopher S. Mullins	
2005 Selma Poturovic			

M.S. Thesis Students

2008 Kagna Ouch 2007 Kiran Venna 2006 Majda Kreso

>40 Undergraduate Research Students mentored