

Floyd A. Beckford

Department of Natural Sciences
The University of Virginia's College at Wise
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Wise, VA 24293
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EDUCATION

University of the West Indies, Kingston, Jamaica
PhD in Chemistry, 1990 - 1994, specializing in Inorganic Chemistry

University of the West Indies, Kingston, Jamaica
B.Sc. (Hons) in Chemistry, 1986 - 1990

TEACHING EXPERIENCE

Van Daniel III Professor of Chemistry, University of Virginia's College at Wise, 2012 - present

- Responsible for teaching **Inorganic Chemistry**. Also teach **General Chemistry** and **Medicinal Chemistry**.

Professor, Lyon College, 2012

- Taught **Advanced Inorganic Chemistry** and **Instrumental Analysis**. Also taught **General Chemistry** and **Environmental Chemistry** along with non-majors chemistry.

Associate Professor of Chemistry, Lyon College, 2007 – 2012.

- Taught **Advanced Inorganic Chemistry** and **Instrumental Analysis**. Also teach **General Chemistry** and **Environmental Chemistry** along with non-majors chemistry.

Assistant Professor of Chemistry, Lyon College, 2001 – 2007

- Taught **Advanced Inorganic Chemistry** and **Instrumental Analysis**. Also teach **General Chemistry** and **Environmental Chemistry** along with non-majors chemistry.

Visiting Assistant Professor, University of Toledo, 1999 – 2001

- Taught **Advanced Inorganic Chemistry** at the graduate and undergraduate levels. Also taught a graduate **Spectroscopy** class as well as undergraduate **Organic Chemistry** and **General Chemistry**

Lecturer in Chemistry, University of the West Indies, 1998

- Taught an advanced **Inorganic Chemistry** class

Lecturer in Chemistry, Texas A&M University, 1997 – 1998

- Taught **General Chemistry**

Teaching Assistantship, University of the West Indies, Mona, 1994 – 1995

- Taught and managed undergraduate laboratories without faculty supervision

Tutor Assistantship, University of the West Indies, Mona, 1993 - 1994

- Taught and managed undergraduate laboratories without faculty supervision

TEACHING INTERESTS

- General chemistry, inorganic (including bioinorganic and organometallic), medicinal chemistry, environmental chemistry and instrumental analysis.

RESEARCH

Postdoctoral Research Associate, Texas A&M University, 1995 – 1997 (Advisor: Dr. Don Darensbourg)

- Development of water-soluble organometallic compounds for potential use in aqueous or biphasic catalysis

Graduate research, Chemistry Department, University of the West Indies, Kingston, Jamaica

- Investigated the redox chemistry of iron cyano complexes with reductants of biological significance
- Trained in NMR, IR, UV-VIS spectroscopy
- Use of Schlenk techniques for handling air/moisture sensitive materials
- Synthetic inorganic and organometallic chemistry
- Design and execution of antimicrobial screens

RESEARCH INTERESTS

- Broadly defined as bioinorganic chemistry. Specifically the anti-neoplastic and antimicrobial properties of organometallic and inorganic compounds

- Inorganic/Environmental Chemistry. Development of catalysts for use in environmentally benign solvents such as water and ionic liquids. Other areas of environmental focus: studying soil respiration and looking at its relationship with the carbon sequestration ability of soils. I am also interested in pharmaceutical and personal products in the environment.

UNDERGRADUATE STUDENT SUPERVISION

- Experienced in mentoring undergraduate research. In eleven years I directed twenty-one students in research projects at Lyon College. That activity led to over forty poster presentations and seventeen oral presentations at local, regional and national scientific meetings. Furthermore, fifteen undergraduate students are co-authors of eleven papers that have been published in peer-reviewed publications.
- At UVa-Wise I have mentored/mentoring 5 students on research projects. This has resulted in 3 poster presentations and 2 oral presentations.

Past Funding

- Arkansas IDeA Network of Biomedical Research Excellence (AR INBRE), February 2012, Supplemental Equipment grant
Floyd Beckford (PI), (\$24,784)
- National Center for Research Resources/National Institutes of Health, Arkansas INBRE, 05/10 – 08/12
Floyd Beckford (PL). Metal-based Anti-cancer agents: Chemistry, Biology and Medicine. (~\$281,730)
- National Center for Research Resources/National Institutes of Health, Arkansas INBRE, 08/07 – 04/10
Floyd Beckford (PL). Anticancer thiosemicarbazone complexes of ruthenium and copper – synthesis, biochemistry, and cellular mechanisms targeting nucleic acids. (~\$307,721)
- Arkansas Space Grant Consortium, 04/07 – 04/08
Floyd Beckford (PI) and Sheena Highsmith (undergraduate). Carbon Sequestration in the woodlands of Lyon College (\$7,657)
- Arkansas Space Grant Consortium. 03/05 – 02/06
Floyd Beckford (PI) and Amon Holt (undergraduate). Biochemical Studies of Organometallic Compounds. (\$11,161)
- American Chemical Society – Petroleum Research Fund, Summer 2005.
Floyd Beckford (research fellow) and David Vici. Reversible Switching of Spin-State Isomers (\$8,000)
- Arkansas Biomedical Research Infrastructure Network, 06/02 – 08/02
Floyd Beckford (Summer Research Fellow) and Neil T. Allison. Organometallic Ruthenium Complexes: potential anticancer agents. (\$16,667)
- Arkansas Biomedical Research Infrastructure Network, September 2003
Floyd Beckford (PI), Supplemental Equipment grant. (\$25,331)
- Arkansas Space Grant Consortium, 03/03 – 02/04

Floyd Beckford (PI) and Danielle Rinke (undergraduate). Coordination Chemistry of Diindolylmethanes. (\$5,905)

- American Chemical Society – Petroleum Research Fund, Summer 2002
Floyd Beckford (Research Fellow) and Mark R. Mason. Poly(indolyl)methane Complexes of Group 13-15 Elements. (\$8,000)

PUBLICATIONS (Undergraduate authors are underlined and undergraduate presenters are asterisked)

1. **Floyd A. Beckford**, Alyssa Stott, Antonio González-Sarrías and Navindra P. Seeram, “Novel microwave synthesis of half-sandwich $[(\eta^6\text{-C}_6\text{H}_6)\text{Ru}]$ complexes and an evaluation of the biological activity and biochemical reactivity”. *Appl. Organometal. Chem.* **2013**, 27, 425–434 (DOI: 10.1002/aoc.3007)
2. Nerissa A. Lewis, Fang Liu, Luke Seymour, Anthony Magnusen, Travis R. Erves, Jessa Faye Arca, **Floyd A. Beckford**, Ramaiyer Venkatraman, Antonio González-Sarrías, Frank R. Fronczek, Don G. VanDerveer, Navindra P. Seeram, Aimin Liu, William L. Jarrett and Alvin A. Holder. “Synthesis, characterization and preliminary *in vitro* studies of vanadium(IV) complexes with a Schiff base and thiosemicarbazones as mixed-ligands”. *Eur. J. Inorg. Chem.* **2012** 4 664 – 677. (DOI:10.1002/ejic.201100898)
3. **Floyd A. Beckford**, Jeffery Thessing, Alyssa Stott, Alvin A Holder, Oleg Poluektov, Liya Li and Navindra P. Seeram. “Anticancer activity and biophysical reactivity of copper complexes of 2-(benzo[d][1,3]dioxol-5-ylmethylene)-N-alkylhydrazinecarbothioamides.” *Inorg. Chem. Commun.* 15 (**2012**) 225 – 229. (DOI: 10.1016/j.inoche.2011.10.032). PMC3579949
4. **Floyd A. Beckford**, Marc-Andre LeBlanc, P. Canisius Mbarushimana, Antonio González-Sarrías and Navindra P. Seeram. “Coordination chemistry of polyaromatic thiosemicarbazones. 2. Synthesis and biological activity of zinc, cobalt and copper complexes of 1-(naphthalene-2-yl)ethanone thiosemicarbazone.” *International Journal of Inorganic Chemistry* Volume 2011, Article ID 624756 (DOI:10.1155/**2011**/624756). PMC3269312.
5. **Beckford, F.A.**, Michael Shaloski, Jr., Jeffrey Thessing, Jason Woods, Diedra Dourth, Jacob Didion, Vernon Crowell, Nikolay Gerasimchuk, Antonio Gonzalez-Sarrías and Navindra P. Seeram. “Half-sandwich ruthenium-arene complexes with thiosemicarbazones: Synthesis and biological evaluation of $[(\eta^6\text{-}p\text{-cymene})\text{Ru}(\text{piperonal thiosemicarbazones})\text{Cl}]\text{Cl}$ ”. *J. Inorg. Biochem.* 105 (**2011**) 1019 – 1029 (DOI: 10.1016/j.jinorgbio.2011.04.008) PMC3111060
6. **Beckford, F.A.**, Jeffrey Thessing, Michael Shaloski, Jr., P. Canisius Mbarushimana, Alyssa Brock, Jacob Didion, Jason Woods, Antonio González-Sarrías and Navindra P. Seeram. Synthesis and characterization of mixed-ligand diimine-piperonal thiosemicarbazone complexes of ruthenium(II): Biophysical investigations and

- biological evaluation as anticancer and antibacterial agents. *J. Mol. Struct.* 992 (2011) 39 – 47. PMC3086094.
7. **Beckford, F.A.**, Jeffrey Thessing, Jason Woods, Jacob Didion, Nikolay Gerasimchuk, Antonio González-Sarrías and Navindra P. Seeram. "Synthesis and structure of $[(\eta^6\text{-}p\text{-cymene})\text{Ru}(2\text{-anthracen-9-ylmethylene-N-ethylhydrazinecarbothioamide})\text{Cl}]\text{Cl}$; biological evaluation, topoisomerase II inhibition and reaction with DNA and human serum albumin". *Metallomics*, 3(5) (2011) 491 – 502. PMID:PMC3271380
 8. **Beckford, F.A.**, "Reaction of the anticancer organometallic ruthenium compound, $[(\eta^6\text{-}p\text{-cymene})\text{Ru}(\text{ATSC})\text{Cl}]\text{PF}_6$, with human serum albumin". *International Journal of Inorganic Chemistry*, Volume 2010, Article ID 975756 (doi:10.1155/2010/975756) PMC2911368
 9. **Beckford, F.A.**, M. Shalowski, Jr., G. Leblanc, J. Thessing, L. C. Lewis-Alleyne, A.A. Holder, L. Li and N.P. Seeram. Microwave synthesis of mixed ligand diimine-thiosemicarbazone complexes of ruthenium(II): biophysical reactivity and cytotoxicity. *Dalton Trans.*, 2009, 10757-10764. PMC2814159
 10. **Beckford, F.A.**, G. Leblanc, J. Thessing, M. Shalowski, Jr., B. J. Frost, L. Li and N.P. Seeram. Organometallic ruthenium complexes with thiosemicarbazone ligands: Synthesis, structure and cytotoxicity of $[(\eta^6\text{-}p\text{-cymene})\text{Ru}(\text{NS})\text{Cl}]^+$ (NS = 9-anthraldehyde thiosemicarbazones), *Inorg. Chem. Commun.* 2009, 12(11), 1094. PMC2769075
 11. **Beckford, F.A.**, Harness, R. and Robertson, C. Thiosemicarbazone complexes of group 12 elements. 1. An investigation of the thiosemicarbazone from *p*-dimethylaminobenzaldehyde. *Journal of Undergraduate Chemistry Research* 2008, 7(3), 92.
 12. **Beckford, F.A.**, and Holt, A. Coordination Chemistry of Polycyclic Thiosemicarbazones. I. Reactions of the thiosemicarbazone from 9-anthraldehyde. *Journal of Undergraduate Chemistry Research* 2007, 6, 173.
 13. **Beckford, F.A.**, Dasgupta, T.P., Maragh, P.T., Lui-Lyn, J., Stedman, G. Kinetics and Mechanism of the Reaction Between the Di- μ -cyanobis[tetracyanoferrate(III)] ion and Sulfite in Aqueous Solution. *Inorg. Chim. Acta* 2007, 360, 2284.
 14. **Beckford, F.A.**, and Holt, A. Organometallic Ruthenium Complexes of Novel Thiosemicarbazones. *Journal of the Arkansas Academy of Sciences* 2006, 60, 27.
 15. **Beckford, F.A.**, Rinke, D., and Bashari, V. "Synthesis, Characterization, and Antimicrobial Activity of Organometallic Ruthenium(II) Complexes." *Journal of Undergraduate Chemistry Research* 2006, 5, 99.
 16. **Beckford, F.A.**, and Bashari, V. "Synthesis and Spectroscopy of Aromatic Dithiocarbamates and Their Transition Metal Complexes". *Proceeding Journal of the 2005 Arkansas Undergraduate Research Conference*, 159.
 17. **Beckford, F.A.**, Mason, M.R., Kirschbaum, K., and Goreck, B.J. "Fortuitous formation of $[(\text{LiCl})_6(\text{Me}_2\text{NCH}_2\text{C}_8\text{H}_5\text{N})_3\text{P})_2]$: an amine-ligated hexameric lithium chloride aggregate", *Inorg. Comm.* 2005, 8, 331.

18. **Beckford, F.A.**, Darensbourg, D.J., Reibenspies, J.H. "Water-soluble organometallic compounds. 8. Synthesis, Spectral Properties and crystal Structures of 1,3,5-Triaza-7-phosphaadamantane (PTA) Derivatives of Metal Carbonyl Clusters: $\text{Ru}_3(\text{CO})_9(\text{PTA})_3$ and $\text{Ir}_4(\text{CO})_7(\text{PTA})_5$." *J. Cluster Sci.* **2000**, 11, 1.
19. **Beckford, F.A.**, Bennet, D., Dasgupta, T.P., Stedman, G. "Redox chemistry of $[\text{Fe}_2(\text{CN})_{10}]^{4-}$. Part 4. Reaction with L-cysteine". *J. Chem. Res. (S)*. **1998**, 90.
20. **Beckford, F.A.**, Dasgupta, T.P., Stedman, G. "Redox chemistry of $[\text{Fe}_2(\text{CN})_{10}]^{4-}$. Part 3. Reaction with L-ascorbic acid". *J. Chem. Soc., Dalton Trans.* **1995**, 2561.
21. **Beckford, F.A.**, Dasgupta, T.P., Stedman, G. "Redox chemistry of $[\text{Fe}_2(\text{CN})_{10}]^{4-}$. Part 2. Reaction with thiosulfate". *J. Chem. Soc., Dalton Trans.* **1993**, 3605.

RECENT PRESENTATIONS (Oral/Posters)

UVa-Wise

1. **Beckford, F.A.**, Shylene A. Scott, Kinsey Hall*, "Synthesis, characterization and initial biophysical reactivity of ruthenium complexes containing curcuminoid ligands". Presentation at the 8th Annual Student Research Symposium co-sponsored by The University of Virginia's College at Wise and Emory and Henry College. **April 2014**.
2. **Beckford, F.A.**, Shylene A. Scott, Kinsey Hall, Samantha Smith, "Exploring the coordination chemistry of curcuminoids: Synthesis and biophysical reactivity." Presentation at the 2013 Virginia Academy of Science, Virginia Tech, May 2013.
3. **Beckford, F.A.**, Shylene Scott, Jonathan Dannatt, Raoul Noumbissi-Siewe, Eamon Olwell. "Curcuminoids as ligands in half-sandwich organometallic ruthenium piano-stool complexes: Synthesis and biophysical reactivity". Presentation at the 245th National Meeting of the American Chemical Society, New Orleans, **April 2013** (Paper #: INOR 21)
4. **Beckford, F.A.**, "Developing Pharmaceutical Agents: Metal Complexes With Thiosemicarbazones As Ligands". Presented North East Tennessee Section of the American Chemical Society, February 28, **2013**, Kingsport, TN. (Invited presentation)

Posters

1. **Beckford, F.A.**, Kelsey Webb*, "Synthesis and characterization of copper-thiosemicarbazone complexes and their anti-oxidant behavior." Presentation at the 8th Annual Student Research Symposium co-sponsored by The University of Virginia's College at Wise and Emory and Henry College. **April 2014**.
2. **Beckford, F.A.**, Shylene Scott, Kinsey Hall*. "Synthesis, characterization and initial biophysical reactivity of $[\eta^6\text{-}(\text{C}_6\text{H}_6)\text{Ru}(\text{curcuminoid})\text{Cl}]$ complexes". Presentation at the 245th National Meeting of the American Chemical Society, New Orleans, **April 2013** (Paper #: CHED 700)
3. **Beckford, F.A.**, Shylene A. Scott, Kinsey Hall, Samantha Smith*, "Synthesis, characterization, and initial biophysical reactivity of $[\eta^6\text{-}(\text{C}_6\text{H}_6)\text{Ru}(\text{curcuminoid})\text{Cl}]$

complexes". Presentation at the 2013 joint University of Virginia's College at Wise and Emory and Henry College Undergraduate Research Symposium.

Lyon College (Oral)

5. **Beckford, F.A., Marc-Andre LeBlanc***, Antonio Gonzalez-Sarrias, Navindra P Seeram. "*Synthesis, biophysical reactivity and medicinal evaluation of a series of half-sandwich ruthenium complexes with a 1,4,7-trithiacyclononane face-cap.*" Presentation at the 243rd National Meeting of the American Chemical Society, San Diego, March **2012**. (Paper #: INOR 13)
6. **Beckford, F.A., P. Canisius Mbarushimana, Alyssa M Stott, Marc-Andre LeBlanc**, Antonio Gonzalez-Sarrias, Navindra P Seeram. "*Half-sandwich ruthenium complexes with thiosemicarbazones ancillary ligands.*" Presentation at the 243rd National Meeting of the American Chemical Society, San Diego, March **2012**. (Paper #: INOR 14)
7. **Beckford, F.A.** "*Towards the development of metal complexes potentially useful as therapeutic agents.*" Presented at the **2011** Arkansas INBRE Research Conference, University of Arkansas, Fayetteville. (Invited presentation).
8. **Beckford, F.A.** and Alyssa Stott*. "*Benzene-ruthenium organometallic complexes: synthesis, characterization and biophysical reactivity*". Presented at the **2011** Arkansas INBRE Research Conference, University of Arkansas, Fayetteville. (Paper #: C11-U. This paper was also presented in the poster format)
9. **Beckford, F.A.** and Marc-Andre LeBlanc*. "*Half-sandwich ruthenium(II) complexes with a 1,4,7-trithiacyclononane face and ancillary thiosemicarbazone ligands; chemical and biochemical reactivity*". Presented at the **2011** Arkansas INBRE Research Conference, University of Arkansas, Fayetteville. (Paper #: C19-U. This paper was also presented in the poster format. **This poster won first place in the undergraduate chemistry division**).
10. **Beckford, F.A.** and P. Canisius Mbarushimana*. "*A comparison of half-sandwich ruthenium-thiosemicarbazone complexes with [9]aneS₃ or p-cymene facecaps*". Presented at the 2011 Arkansas INBRE Research Conference, University of Arkansas, Fayetteville. (Paper #: C13-U)
11. **Beckford, F.A., Alyssa Brock, Vernon Crowell, Jacob Didion, Diedra Dourth, Gabriel Leblanc, Michael Shaloski, Jeffrey Thessing**, Liya Li, Antonio González-Sarrias, Navindra P Seeram. "*Investigations of ruthenium, gallium and copper complexes that contain thiosemicarbazone ligands as medicinal agents.*" Presentation at the 241st National Meeting of the American Chemical Society, Anaheim, March **2011**. (Paper #: INOR 129)
12. **Beckford, F.A.**, "Transition Metal-thiosemicarbazone Complexes as Medicinal Agents". Presentation at the 240th National Meeting of the American Chemical Society, Boston, MA., August **2010**. (Paper #: INOR 27)
13. **Beckford, F.A., Sarah Dunkerson, Michael Shaloski, Gabriel Leblanc, Jeffrey Thessing**, Navindra Seeram and Liya Li. "*The bioorganometallic chemistry of*

- thiosemicarbazones.*" Presentation at the 237th National Meeting of the American Chemical Society, Salt Lake City, March **2009**. (Paper #: INOR 587)
14. **Beckford, F.A.** and Michael Shaloski. "Synthesis of $[(\eta^6\text{-}p\text{-cymene})\text{Ru}(9\text{-ATSC})\text{Cl}]\text{PF}_6$ and its interaction with human serum albumin (9-ATSC = 9-anthraldehyde thiosemicarbazone)." Presentation at the 92nd Annual Meeting of the Arkansas Academy of Science, Clarksville, **2009**.
 15. **Beckford, F.A.**, Dunkerson, S., Shaloski, M., Leblanc, G., and Thessing, J. "The ruthenium organometallic chemistry of thiosemicarbazones. Synthesis, characterization and reactivity of $[(\text{CH}_3\text{C}_6\text{H}_5)\text{RuCl}(9\text{-anthraldehyde thiosemicarbazone})]^+$." Presentation at the 64th Southwest Regional Meeting of the American Chemical Society, Little Rock **2008**. (Paper #: 273)
 16. **Beckford, F.A.**, Jeffrey Thessing*, Michael Shaloski, and Christopher Robertson. "Synthesis, characterization and reactivity of copper and ruthenium complexes of a series of thiosemicarbazones derived from piperonal." Presentation at the 64th Southwest Regional Meeting of the American Chemical Society, Little Rock **2008**. (Paper #: 354)
 17. **Beckford, F.A.**, Michael Shaloski*, Jeffrey Thessing, and Gabriel Leblanc. "Microwave synthesis of mixed ligand diimine-thiosemicarbazone complexes of ruthenium(II)." Presentation at the 64th Southwest Regional Meeting of the American Chemical Society, Little Rock **2008**. (Paper #: 353)
 18. **Beckford, F.A.**, Jeffrey Thessing*, Chris Robertson and Michael Shaloski, "Synthesis, characterization and cytotoxicity of copper and ruthenium complexes of a series of thiosemicarbazones derived from piperonal." Presented at the 2008 Arkansas INBRE Research Conference, University of Arkansas, Fayetteville, Nov. 7 – 8. (Paper #: C37-U. **This presentation won first place in the Chemistry and Biochemistry oral section**)
 19. **Beckford, F.A.**, Ryan Harness and Christopher Robertson. "A synthetic and spectroscopic investigation of the thiosemicarbazone from *p*-dimethylaminobenzaldehyde". Presentation at the 92th Annual Meeting of the Arkansas Academy of Science, Henderson State University, April **2008**.
 20. **Beckford, F.A.** and Amon Holt "Synthesis, Characterization, and Antimicrobial Activity of Novel Thiosemicarbazones and Their Transition Metal Complexes". Presentation at the 90th Annual Meeting of the Arkansas Academy of Science; Lyon College, April **2006**.
 21. **Beckford, F.A.**, Danielle Rinke and Valbona Bashari. "Synthesis and Biological Activity of Organometallic Ruthenium Complexes". Presentation at the 61st Southwest and 57th Southeast Joint Regional Meetings of the American Chemical Society, Memphis, November **2005**.

Lyon College (Posters)

4. **Beckford, F.A.**, Shylene Scott*, Jonathan Dannatt*, Raoul Noubissi-Siewe*, and Eamon Olwell*. "Synthesis and Initial Biochemical Study of Organometallic Ruthenium

- Complexes of Curcuminoids*". Presented at the Arkansas INBRE Research Day, University of Arkansas for Medical Sciences, July 27, **2012**.
5. **Beckford, F.A., P. Canisius Mbarushimana***, Antonio Gonzalez-Sarrias, Navindra P Seeram. "*Comparison of half-sandwich ruthenium-thiosemicarbazone complexes with [9]aneS₃ or p-cymene face-caps.*" Presentation at the 243rd National Meeting of the American Chemical Society, San Diego, March **2012**. (Paper #: INOR 456)
 6. **Beckford, F.A., Alyssa M Stott***, Antonio Gonzalez-Sarrias, Navindra P Seeram. "*Benzene-ruthenium organometallic complexes: Synthesis, characterization, and biophysical reactivity.*" Presentation at the 243rd National Meeting of the American Chemical Society, San Diego, March **2012**. (Paper #: INOR 457)
 7. Justin R. Moreira*, Alvin A. Holder, Rosella M. Taylor, Rodney Ballard, Antonio Gonzalez-Sarrias, Tiffany B. Edwards, Navindra Seeram and **Floyd A. Beckford**. "*A Novel Chemotherapeutic Agent of Copper(II) With a Thiosemicarbazone as Ligand: Structural and in vitro Studies*". Presentation at the Annual Biomedical Research Conference for Minority Students, St. Louis, November **2011**.
 8. **Beckford F.A.** "*In pursuit of ruthenium complexes that are suitable for use as pharmaceutical agents.*" Presented at the 2011 Southeast INBRE Regional Conference, New Orleans, LA, Sept. 22-24. (Paper #: CN4)
 9. **Beckford, F.A.**, and Alyssa (Brock) Stott*. "*Synthesis, Characterization and Biophysical Reactivity of Benzene-Ruthenium Thiosemicarbazone Half-Sandwich Complexes*". Presented at the Arkansas INBRE Research Day, University of Arkansas for Medical Sciences, July 27, **2011**.
 10. **Beckford, F.A.**, and Marc-Andre LeBlanc*. "*Half-sandwich ruthenium(II) complexes with a 1,4,7-trithiacyclononane face and ancillary thiosemicarbazone ligands*". Presented at the Arkansas INBRE Research Day, University of Arkansas for Medical Sciences, July 27, **2011**.
 11. **Beckford, F.A., Alyssa Brock**, Antonio Gonzalez-Sarrias, Navindra P. Seeram. "*Synthesis, characterization, and biological evaluation of semicarbazone and thiosemicarbazone complexes of gallium.*" Presentation at the 241st National Meeting of the American Chemical Society, Anaheim, March **2011**. (Paper #: CHED 663)
 12. **Beckford, F.A., Jacob Didion, Vernon Crowell**, Antonio Gonzalez-Sarrias, Navindra P Seeram. "*Biological evaluation of ferrocenyl-ruthenium complexes and their evaluation as potential human topoisomerase II inhibitors.*" Presentation at the 241st National Meeting of the American Chemical Society, Anaheim, March **2011**. (Paper #: CHED 747)
 13. **Beckford, F.A., Marc-Andre Leblanc, Gabriel Leblanc, Canisius Mbarushimana**, Antonio Gonzalez-Sarrias, Navindra P Seeram. "*First-row transition metal complexes of thiosemicarbazones containing extended aromatic rings*". Presentation at the 241st National Meeting of the American Chemical Society, Anaheim, March **2011**. (Paper #: CHED 660)
 14. **Beckford, F.A., Canisius Mbarushimana**, Antonio Gonzalez-Sarrias, Navindra P Seeram, "*Synthesis, characterization, and biological evaluation of ruthenium and gallium complexes containing thiosemicarbazone ligands.*" Presentation at the 241st

- National Meeting of the American Chemical Society, Anaheim, March **2011**. (Paper #: CHED 659)
15. Nerissa A. Lewis, Fang Liu, Tony Magnusen, Travis Erves, Jessa Faye Arca, **Floyd A. Beckford**, Ramaiyer Venkatraman, Antonio Gonzalez Sarrias, Liya Li, Suman Parajuli, Navindra Seeram, Aimin Liu, William Jarrett, Wujian Miao, Alvin A. Holder. *"Novel chemotherapeutic agents of vanadium(IV) with thiosemithiocarbazones and Schiff bases as ligands: Structural and in vitro studies"*. Presentation at the 241st National Meeting of the American Chemical Society, Anaheim, March **2011**. (Paper #: INOR 207)
 16. **Beckford, F.A.**, Jacob Didion* and Vernon Crowell. *"Mix-metal dinuclear ferrocenyl-ruthenium complexes and their evaluation as potential topoisomerase II inhibitors"*. Presented at the **2010** Arkansas INBRE Research Conference, University of Arkansas, Fayetteville. (Paper #: B16-U)
 17. **Beckford, F.A.** and Alyssa Brock*. *"Synthesis and characterization of semicarbazone and thiosemicarbazone complexes of gallium"*. Presented at the **2010** Arkansas INBRE Research Conference, University of Arkansas, Fayetteville. (Paper #: C5-U. **This poster won first place in the undergraduate chemistry division**).
 18. **Beckford, F.A.**, and Canisius Mbarushimana*. *"Thiosemicarbazones and their metal complexes: synthesis and characterization of ruthenium and gallium complexes"*. Presented at the **2010** Arkansas INBRE Research Conference, University of Arkansas, Fayetteville. (Paper #: C21-U)
 19. **Beckford, F.A.** "Transition metal-thiosemicarbazone Complexes as medicinal Complexes". Presentation at the 3rd National IDEa Symposium of Biomedical Research Excellence, Bethesda, MD, **2010**. (Poster #: 70)
 20. **Beckford, F.A.**, Gabriel Leblanc, Jeffrey Thessing*, and Charles Morgan. *"The interaction of anticancer copper complexes with DNA and human serum albumin."* Presentation at the 239th National Meeting of the American Chemical Society, San Francisco, March **2010**. (Paper #: CHED 866)
 21. **Beckford, F.A.** and Vernon Crowell*. *"DNA interaction studies of binuclear ruthenium-iron thiosemicarbazone complexes."* Presentation at the 239th National Meeting of the American Chemical Society, San Francisco, March **2010**. (Paper #: CHED 769)
 22. **Beckford, F.A.** and Jason Woods*. *"Synthesis and reactivity of ruthenium(II)-dimethyl sulfoxide complexes containing ferrocenyl thiosemicarbazones."* Presentation at the 239th National Meeting of the American Chemical Society, San Francisco, March **2010**. (Paper #: CHED 771)
 23. **Beckford, F.A.** and Diedra Dourth*. *"Synthesis and reactivity of ruthenium(II) complexes containing piperonal thiosemicarbazones."* Presentation at the 239th National Meeting of the American Chemical Society, San Francisco, March **2010**. (Paper #: CHED 768)
 24. **Beckford, F.A.***, Michael Shaloski, Jeffrey Thessing and Charles Morgan. *"Microwave synthesis of mixed-ligand diimine-thiosemicarbazone complexes of Ru(II) and their reactivity with DNA and human serum albumin."* Presentation at the 239th National

- Meeting of the American Chemical Society, San Francisco, March **2010**. (Paper #: INOR 225)
25. **Beckford F.A.**, Charles Morgan and Jeffrey Thessing, "*The interaction of anticancer copper complexes with DNA and human serum albumin.*" Presented at the 2009 Southeast INBRE Regional Conference, Charleston, SC, Nov. 9-11. (Paper #: CR-P4)
 26. **Beckford, F.A.** and Vernon Crowell*. "*Ruthenium(II) Complexes of Ferrocenyl Thiosemicarbazones: Synthesis, DNA Binding, and Electrochemistry*". Presented at the 2009 Arkansas INBRE Research Conference, University of Arkansas, Fayetteville
 27. **Beckford, F.A.** and Diedra Dourth*. "*Synthesis and reactivity of ruthenium(II) compounds containing piperonal thiosemicarbazones*". Presented at the 2009 Arkansas INBRE Research Conference, University of Arkansas, Fayetteville.
 28. **Beckford, F.A.** and Jason Woods*. "*Synthesis and Reactivity of Ruthenium(II)-Dimethyl Sulfoxide Complexes Containing Ferrocenyl Thiosemicarbazones*". Presented at the 2009 Arkansas INBRE Research Conference, University of Arkansas, Fayetteville
 29. **Beckford, F.A.**, and Vernon Crowell*. "*Ruthenium(II) complexes of Ferrocenyl Thiosemicarbazones: Synthesis, DNA Binding, and Electrochemistry*". Presented at the Arkansas INBRE Research Day, University of Arkansas for Medical Sciences, July 24, **2009**.
 30. **Beckford, F.A.** and Diedra Dourth*. "*Synthesis and Reactivity of Ruthenium(II) Compounds Containing Piperonal Thiosemicarbazones*". Presented at the Arkansas INBRE Research Day, University of Arkansas for Medical Sciences, July 24, **2009**.
 31. **Beckford, F.A.** and Jason Woods* "*Synthesis and Reactivity of Ruthenium(II) Compounds Containing Ferrocenyl Thiosemicarbazones*". Presented at the Arkansas INBRE Research Day, University of Arkansas for Medical Sciences, July 24, **2009**.
 32. **Beckford, F.A.**, Michael Shaloski*, Gabriel Leblanc, Jeffrey Thessing, Liya Li and Navindra P. Seeram. "*Mixed ligand diimine-thiosemicarbazone complexes of ruthenium(II): Synthesis, biophysical reactivity and cytotoxicity.*" Presentation at the 237th National Meeting of the American Chemical Society, Salt Lake City, March **2009**. (Paper #: CHED 585)
 33. **Beckford, F.A.**, Jeffrey Thessing*, Chris Robertson, Michael Shaloski, Liya Li and Navindra P. Seeram. "*Synthesis, characterization and cytotoxicity of copper and ruthenium complexes of a series of thiosemicarbazones derived from piperonal.*" Presentation at the 237th National Meeting of the American Chemical Society, Salt Lake City, March **2009**. (Paper #: CHED 633)
 34. **Beckford, F.A.**, Michael Shaloski*, Gabriel Leblanc and Jeffrey Thessing, "*Microwave synthesis of mixed ligand diimine thiosemicarbazone complexes of ruthenium(II)*". Presented at the 2008 Arkansas INBRE Research Conference, University of Arkansas, Fayetteville, Nov. 7 – 8. (Paper #: C30-U)
 35. **Beckford, F.A.**, and Michael Shaloski. "*Synthesis of bipyridyl and phenanthroline ruthenium complexes of thiosemicarbazones and their biophysical reactivity with CT-DNA.*" Presented at the Arkansas INBRE Research Day, University of Arkansas for Medical Sciences, July 24, **2008**.

36. **Beckford, F.A.**, and Jeffrey Thessing*. "*Synthesis and Biological Reactivity of Copper Complexes of 4-Alkyl-Substituted Thiosemicarbazones of Piperonal*." Presented at the Arkansas INBRE Research Day, University of Arkansas for Medical Sciences, July 24, **2008**.
37. **Beckford, F.A.**, and Gabriel Leblanc*. "*Novel thiosemicarbazones from 9-anthraldehyde and their copper and ruthenium complexes*". Presentation at the 92th Annual Meeting of the Arkansas Academy of Science, Henderson State University, April **2008**.
38. **Beckford, F.A.**, Amon Holt and Robert Frank*. "*Organometallic Ruthenium Complexes: potential anticancer agents*." Presented at the 235th American Chemical Society National Meeting, April 6-10, **2008**, New Orleans, LA. (Paper #: CHED 1263)
39. **Beckford, F.A.**, Amon Holt and Robert Frank*. "*Organometallic Ruthenium Complexes: potential anticancer agents*." Presented at the Arkansas INBRE Research Day, University of Arkansas for Medical Sciences, July **2007**.
40. **Beckford, F.A.** and Amon Holt*. "*An Investigation of the Thiosemicarbazone of Vitamin B₂: Coordination Chemistry and Biological Activity*". Presentation at the 14th Annual Arkansas Space Grant Symposium; Arkansas Tech University, April **2006**.
41. **Beckford, F.A.** and Amon Holt. "*Transition metal complexes of novel thiosemicarbazones: synthesis, characterization, and antimicrobial activity*". Poster presentation at the 14th Annual Arkansas Space Grant Symposium; Arkansas Tech University, April **2006**.
42. **Beckford, F.A.** and Amon Holt. "*Ruthenium complexes of novel thiosemicarbazones: synthesis, characterization, and antimicrobial activity*". Presentation at the 90th Annual Meeting of the Arkansas Academy of Science; Lyon College, April **2006**.
43. **Beckford, F.A.**, and Valbona Bashari*. "*Synthesis, Characterization and Biological Activity of Dithiocarbamates and Their First Row Transition Metal Complexes*". Presentation at the Arkansas Undergraduate Research Conference, Henderson State University, April **2005**.
44. **Beckford, F.A.**, Danielle Rinke+ and Valbona Bashari. "*Synthesis, Characterization and Biological Activity of Organometallic Ruthenium Complexes*". Presentation at the 89th Annual Meeting of the Arkansas Academy of Science; Hendrix College, April **2005**.
45. **Beckford, F.A.** and Danielle Rinke*. "*Synthesis, Characterization, and Coordination Chemistry of Diindolylmethanes*", Book of Abstracts, Poster presentation at the 12th Annual Arkansas Space Grant Symposium, Lyon College, April **2004**.
46. **Beckford, F.A.**, Danielle Rinke* and Timothy Voris*. "*Synthesis of Organometallic Ruthenium Complexes and their use as Catalysts for Transfer Hydrogenation Reactions in Ionic Liquids*". Poster presentation at the 88th Annual Meeting of the Arkansas Academy of Science; Arkansas State University, April **2004**.
47. **Beckford, F.A.**, Allison, N.T., "*Organometallic Ruthenium Complexes: potential anticancer agents*." Presented at the Arkansas BRIN Research Day, UAMS, July **2003**.

48. **Beckford, F.A.**, Dasgupta, T. P., Maragh, P.T., and Lui, J. S. S. L. "*Mechanistic studies of reactions of $[Fe_2(CN)_{10}]^{4-}$ with sulfite ions in slightly acidic aqueous solutions.* Poster presentation at the 222nd ACS National Meeting, Chicago, **2001**.

REVIEWING

- Chapters for a text book on Environmental Chemistry
- Reviewed a proposal for a text book on Instrumental Analysis for John Wiley and Sons Publishers
- Served as a reviewer for the Journal of Undergraduate Chemistry Research, Journal of the Arkansas Academy of Sciences, Dalton Transactions, Metallomics, Molecular Biology Reports, Molecules, European Journal of Medicinal Chemistry, Organometallics, Journal of Molecular Structure, Bioinorganic Chemistry and Applications, and the Journal of Inorganic Biochemistry
- Reviews research proposals for the American Chemical Society's Petroleum Research Fund and the National Science Foundation.
- Reviewed proposal for the Croatian Science Foundation

PROFESSIONAL ORGANIZATIONS

American Chemical Society
Royal Society of Chemistry (Chartered Chemist)
Virginia Academy of Sciences
Arkansas Academy of Sciences

COLLEGE SERVICE

- At UVa Wise, I currently serve on the Lecture Committee, the Institutional Review Board and the Promotion and Tenure Procedures.
- Also serve as the pre-pharmacy advisor for chemistry majors.

During my time at Lyon College, I served on a wide variety of committees that impacted the College community. I chaired a number of high profile committees as well.

- Curriculum Committee, Chair
- Faculty Personnel Committee, Chair
- Promotion and Tenure, Chair
- Member of the Steering Committee for the College's Self-Study (in preparation for re-accreditation)
- Chemical Safety Committee
- Athletic Committee

- Served as vice-president of the Faculty Assembly
- I was also a faculty advisor to the Honor Council.
- I was the Faculty advisor for the American Chemical Society Student Affiliates. In this position I served as a liaison between the students and the ACS. I mentored the students and provide expertise and experience for various activities the affiliates undertake. I was also an advisor to the International Student Association.

HONORS AND AWARDS

Academic

- 2009-2010 Lyon College Professor of the Year
- University of the West Indies Postgraduate Scholarship, 1990 - 1993
- Vice-president of the Chemical Society, University of the West Indies (Mona), 1992 - 1993
- Postgraduate student representative to the Academic staff of the Chemistry Department, 1991 - 1992