

## Curriculum Vitae

William S. Taylor  
Professor of Chemistry  
University of Central Arkansas  
10/8/2014

### EDUCATION

Ph.D., Physical Chemistry, Louisiana State University, August 1988.

*Dissertation*

“Gas Phase Reactions of Ligating Anions with Selected Lewis Acids as Potential Energy Surface Probes,” 1988.

B.A., Chemistry, with distinction; Hendrix College, 1983

*Senior Research Project*

“Synthesis and Resistivity Evaluations of Charge-Transfer Complexes of 7,7,8,8-Tetracyanoquinodimethane,” 1983.

### PROFESSIONAL ORGANIZATIONS

American Chemical Society

### WORK EXPERIENCE

2009-present; Professor of Chemistry, University of Central Arkansas

2005-2009; Professor and Chair of Chemistry, University of Central Arkansas.

2002-2005; Professor of Chemistry, University of Central Arkansas.

1994-2002; Associate Professor of Chemistry, University of Central Arkansas.

1990-1994; Assistant Professor of Chemistry, University of Central Arkansas.

1988-1990; Developmental Scientist, Extrel Corporation.

### COURSES TAUGHT

Chemistry 1301 – Fundamentals of Chemistry

Chemistry 1400 – Chemistry in Society

Chemistry 1450 – College Chemistry I

Chemistry 1451 – College Chemistry II

Chemistry 4385 – Advanced Topics: Kinetics and Dynamics

Chemistry 4451 – Advanced Analytical Chemistry

Chemistry 4460 – Physical Chemistry II

### AWARDS AND HONORS

Dow Fellowship in Chemistry, 1984-1987.

Finalist for the Research, Scholarship, and Creative Activity Award, University of Central Arkansas, 1997.

Finalist for the Research, Scholarship, and Creative Activity Award, University of Central Arkansas, 2000.

Recipient of the Research, Scholarship, and Creative Activity Award, University of Central Arkansas, 2001.

Outstanding Service Award, Central Arkansas Section of the American Chemical Society, 2009.

### PUBLICATIONS

1. Babcock, L. M.; Taylor W. S.; Herd, C. R. "Ion- Molecule Association Reactions: Cl<sup>-</sup> Addition to SiF<sub>4</sub> in He and N<sub>2</sub>," *Int. J. Mass Spec. Ion Proc.* **1987**, *81*, 259-272 .
2. Cho, S. G.; Fronczek, F. R.; Taylor, W. S.; Watkins, S. F. "Structure of 2,2',5,5'-Bis(butanobisthio)di-1,3,4-thiadiazole," *Acta Crystallographica* **1988**, *C44*, 769-771.
3. Taylor, W. S.; Dulak, J. G. "Applications of a New Glow Discharge Quadrupole Mass Spectrometer,"

*Spectroscopy* **1989**, 4(4), 41-46.

4. Taylor, W. S.; Ketkar, S. N.; Dulak, J. G. "Characterization of a Glow Discharge Plasma as a Function of Sampling Orifice Potential," *J. Amer. Soc. Mass Spec.* **1990**, 1, 448-454.
5. Taylor, W. S.; Everett, W. R.; Babcock, L. M.; McNeal, T. L. "Application of a Glow Discharge Ion Source in a Flowing Afterglow Study of Transition Metal Ion Chemistry," *Int. J. Mass Spectrom. Ion Proc.* **1993**, 125, 45-54.
6. Taylor, W. S.; Babcock, L. M. "Reactions of Catecholate and Related Anions with SiF<sub>4</sub> and BF<sub>3</sub>," *J. Am. Chem. Soc.* **1995**, 117, 6497-6503.
7. Taylor, W. S.; Campbell, A. S.; Barnas, D. F.; Babcock, L. M.; Linder, C. B. "Thermal and Near-Thermal Reactions of Pt<sup>+</sup>, and Au<sup>+</sup> with Small Alkenes," *J. Phys. Chem. A* **1997**, 101, 2654-2661.
8. Taylor, W. S.; Spicer, E. M.; Barnas, D. F. "Metastable Metal Ion Production in Sputtering DC Glow Discharge Plasmas: Characterization by Electronic State Chromatography," *J. Phys. Chem. A* **1999**, 103, 643-650.
9. Taylor, W. S.; May, J. C.; Lasater, A. S. "Reactions of Cu<sup>+</sup> (<sup>1</sup>S, <sup>3</sup>D) and Au<sup>+</sup> (<sup>1</sup>S, <sup>3</sup>D) with CH<sub>3</sub>Br" *J. Phys. Chem. A* **2003**, 107, 2209-2215.
10. Taylor, W. S.; Matthews, C. C.; Parkhill, K. S. "Reactions of Cu<sup>+</sup> (<sup>1</sup>S, <sup>3</sup>D) with CH<sub>3</sub>Cl, CH<sub>2</sub>ClF, CHClF<sub>2</sub>, and CClF<sub>3</sub>" *J. Phys. Chem. A* **2005**, 109, 356-365.
11. Taylor, W. S.; Matthews, C. C.; Hicks, A. J.; Fancher, K. G.; Chen, L. C. "Near-Thermal Reactions of Au<sup>+</sup> (<sup>1</sup>S, <sup>3</sup>D) with CH<sub>3</sub>X (X = F, Cl)" *J. Phys. Chem. A* **2012**, 116, 943-951.
12. Taylor, W. S.; Abrams, M. L.; Matthews, C. C.; Byers, S.; Musial, S.; Nichols, C. M. "State-Specific Reactions of Cu<sup>+</sup> (<sup>1</sup>S, <sup>3</sup>D) with CH<sub>3</sub>X and CF<sub>3</sub>X (X = Cl, Br, I): Exploring the Influence of Dipole Orientation on Association and C-X Bond Activation" *J. Phys. Chem. A* **2012**, 116, 3979-3988.
13. Taylor, W. S.; Fancher, K. G.; Chen, L. C.; Ward, B. K.; Cameron, C. A. "Probing Ni<sup>+</sup> Metastable State Production in Sputtering Glow Discharges with the Use of Diagnostic Reactions" *Int. J. Mass Spectrom.* **2013**, 352, 29-36.
14. Taylor, W. S.; Manion, J. M.; Church, C. M.; Redmon, X. S.; Scheuter, B. A. "State-Specific Reactions of Cu<sup>+</sup> (<sup>1</sup>S, <sup>3</sup>D, <sup>1</sup>D) with the Super Greenhouse Gas SF<sub>5</sub>CF<sub>3</sub>," *J. Phys. Chem. A* (submitted).

## PRESENTATIONS

- \* Research involving undergraduates
- † Presentation made by undergraduate

## TALKS BY DIRECT INVITATION

- 1.\* "State-Resolved Gas Phase Reactions of Transition Metal Ions: Determining the Electronic Nature of the Reactant and the Source(s) of the Products." Taylor, W.S., 1 hour oral presentation made to the Physical Chemistry Division of the Department of Chemistry, University of Florida, September 14, 1999.
- 2.\* "State-Resolved Gas Phase Reactions of Transition Metal Ions: Determining the Electronic Nature of the Reactant and the Source(s) of the Products." Taylor, W.S., 1 hour oral presentation made to the Analytical Chemistry Division of the Department of Chemistry, University of Arkansas, November 12, 1999.
- 3.\* "State-Resolved Gas Phase Reactions of Transition Metal Ions: Determining the Electronic Nature of the Reactant and the Source(s) of the Products." or "Sustainable Research on a Shoestring." Taylor, W.S., 1 hour oral presentation made to the Department of Chemistry, Louisiana State University, October 22, 2001.

- 4.\* "Bond-Activation in the Gas Phase Reactions of  $\text{Cu}^+$  and  $\text{Au}^+$  with Halogenated Methanes: Requirements for State-Specificity." Taylor, W.S., 1 hour oral presentation made to the Analytical Chemistry Division of the Department of Chemistry, University of Arkansas, September 30, 2005.
- 5.\* "State-Specific, Near-Thermal Transition Metal Ion Chemistry: Ion-Molecule Chemistry on a Shoestring," Taylor, W.S., Invited presentation to the ion-molecule "supergroup" at the University of Colorado, Boulder, CO, Nov. 1, 2011.

#### NATIONAL/INTERNATIONAL MEETINGS

1. "Reactions of the Catecholate Anion with Selected Lewis Acids," Taylor, W.S.; Babcock, L.M., 35<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Denver, CO, May 24-29, 1987. (poster).
2. "Reactions of the Catecholate Anion with Selected Lewis Acids," Taylor, W.S.; Babcock, L.M., 5<sup>th</sup> International Swarm Seminar, Birmingham, UK, July 29-31, 1987. (poster).
3. "Reactions of the Catecholate Anion with Selected Lewis Acids," Taylor, W.S.; Babcock, L.M., 194<sup>th</sup> National Meeting of the American Chemical Society, New Orleans, LA, August 30-Sept. 4, 1987. (poster).
4. "Applications of the EXT-1000 Glow Discharge Quadrupole Mass Spectrometer," Taylor, W.S., Pittsburgh Conference, Atlanta, GA, March 6-10, 1989. (oral).
5. "Characterization of a Glow Discharge Plasma as a Function of Sampling Orifice Potential," Taylor, W.S.; Dulak, J.G.; Ketkar, S.N., 37<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Miami, FL, May 21-26, 1989. (poster).
6. "Reactions of Bidentate Ligand Anions with Lewis Acids as Probes of Potential Energy Surfaces," Babcock, L.M.; Taylor, W.S., 37<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Miami Beach, FL, May 21-26, 1989. (poster).
7. "Analysis of Metals and Metal Alloys using Glow Discharge Quadrupole Mass Spectrometry," Taylor, W.S.; Schaeffer, R.A.; Jorissen M.S., American Vacuum Society 12th Symposium on Applied Surface Analysis, Albuquerque, NM, April 25-27, 1990. (oral).
8. "Analysis of Metals and Metal Alloys using Glow Discharge Quadrupole Mass Spectrometry," Taylor, W.S., Pittsburgh Conference, New York, NY, March 5-9, 1990. (oral).
9. "Enhancement of Ion Transmission in Glow Discharge Quadrupole Mass Spectrometry," Taylor, W.S.; Marecic, T.C.; Schaeffer, R.A., 38<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Tucson, AZ, June 3-8, 1990. (poster).
10. "Gas Phase Reactions of Dithiolate Anions with Selected Lewis Acids," Taylor, W.S.; Babcock, L.M., 39<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Nashville, TN, May 19-24, 1991. (poster).
- 11.\* "Application of a Sputtering Glow Discharge Ion Source to a Flowing Afterglow Study of Transition Metal Ion Chemistry." Taylor, W.S.; Everett, W.R.; Babcock, L.M.; McNeal, T.L., 40<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Washington, D.C., May 31-June 5, 1992. (poster)
- 12.\* "Gas Phase Reactions of the Group 11 Ions with Small Alkanes," Ward, E.E.; Taylor, W.S.; Babcock, L.M.; McNeal, T.L., 41<sup>st</sup> ASMS Conference on Mass Spectrometry and Allied Topics, San Francisco, CA, May 30-June 1, 1993. (poster)
- 13.\* "Evidence of Excited States in the Reactions of Metal Ions Produced by a Sputtering Glow Discharge," Taylor, W.S.; Barnas, D.F.; Alexander, B.K., Gordon Research Conference on the Structures, Energetics and Dynamics of Gaseous Ions, Ventura, CA, Feb. 26-Mar. 3, 1995. (poster)

- 14.\* "Gas Phase Reactions of Pt<sup>+</sup>, Au<sup>+</sup>, and Hg<sup>+</sup> with Small Hydrocarbons," Taylor, W.S.; Campbell, A.S.; Babcock, L.M.; Linder, C.B., 43rd ASMS Conference on Mass Spectrometry and Allied Topics, Atlanta, GA, May 21-26, 1995. (poster).
- 15.\* "Electronic Effects in the Gas Phase Reactions of Ta<sup>+</sup>, Pt<sup>+</sup> and Au<sup>+</sup> with Small Alkenes," Taylor, W.S.; Campbell, A.S.; Babcock, L.M.; Linder, C.B., 44th ASMS Conference on Mass Spectrometry and Allied Topics, Portland, OR, May 12-16, 1996 (poster).
- 16.\* "Characterization and Manipulation of Metastable Excited State Metal Ion Production in a Sputtering DC Glow Discharge," Taylor, W.S.; Barnas, D.F.; Spicer, E.M., 45th ASMS Conference on Mass Spectrometry and Allied Topics, Palm Springs, CA, June 1-5, 1997 (poster).
- 17.\*\* "State-Specific Gas Phase Reactions of Cu<sup>+</sup>," Holcomb, H.; Lasater, A.; Taylor, W.S., 215<sup>th</sup> National Meeting of the American Chemical Society, March 29-April 2, 1998, Dallas, TX. (poster).
- 18.\* "Metastable State Distributions of Sputtered Third-Row Metal Ions Extracted from a Glow Discharge," Taylor, W.S.; Spicer E.M., 46th ASMS Conference on Mass Spectrometry and Allied Topics, Orlando, FL, May 31- June 4, 1998 (poster).
- 19.\* "State-Specific Gas Phase Association Reactions of the Group 11 Ions," Taylor, W.S.; Lasater, A.S.; Babcock, L.M.; Linder, C.B., Gordon Research Conference on Gaseous Ions, Structures, Energetics and Reactivity, Ventura, CA, Feb. 28-Mar. 5, 1999. (poster)
- 20.\*\* "State-Specific Gas-Phase Reactions of the Group 11 Ions with Small Organic Molecules," Lasater, A.S., Holcomb, H.B.; Taylor, W.S., 217<sup>th</sup> ACS National Meeting, Anaheim, CA, March 21-25, 1999 (poster).
- 21.\*\* "Experimental and Theoretical Study of Gas-Phase Organometallic Reactions Involving Cu<sup>+</sup> and Au<sup>+</sup>," Taylor, W.S.; May, J.C., 219<sup>th</sup> ACS National Meeting, San Francisco, CA, March 26-30, 2000 (poster).
- 22.\* "State-Specific Reactions of Ground and Excited State Cu<sup>+</sup> and Au<sup>+</sup> Ions with CH<sub>3</sub>Cl and CH<sub>3</sub>Br," Taylor, W.S.; May, J.C., Gordon Research Conference on Gaseous Ions, Structures, Energetics and Reactivity, Ventura, CA, Feb. 25-Mar. 2, 2001 (poster).
23. "Illustrating Mass Spectrometer Function in an Undergraduate Instrumentation Course using Computer Simulations," Taylor, W.S., 30<sup>th</sup> Annual Meeting of the Federation of Analytical Chemists and Spectroscopists Society, October 19-23, 2003 (oral).
- 24.\*\* "Chemical Switches: State-Specificity in the Gas Phase Reactions of Cu<sup>+</sup>, Ag<sup>+</sup>, and Au<sup>+</sup> with Halogenated Methanes," Matthews, C.C.; Parkhill, K.S.; Taylor, W.S. , 18<sup>th</sup> National Conference on Undergraduate Research, Indianapolis, IN, April 15-17, 2004 (oral).
- 25.\* "Reactions of Cu<sup>+</sup>(<sup>1</sup>S, <sup>3</sup>D) with CF<sub>3</sub>X (X=Cl, Br, I)," Taylor, W.S.; Abrams, M.L.; Matthews, C.C.; Musial, S.R., Gordon Research Conference on Gaseous Ions, Structures, Energetics and Reactivity, Ventura, CA, Feb. 25-Mar. 2, 2007 (poster).
- 26.\*\* "Reactions of Cu<sup>+</sup>(<sup>1</sup>S, <sup>3</sup>D) with CF<sub>3</sub>X (X=Cl, Br, I)," Taylor, W.S.; Abrams, M.L.; Matthews, C.C.; Musial, S.R., 235<sup>th</sup> ACS National Meeting, New Orleans, LA, April 6-11, 2008 (poster).
- 27.\*\* "Reactions of Zn<sup>+</sup>(<sup>2</sup>D) with CF<sub>3</sub>X and CH<sub>3</sub>X (X=Br,I): Investigating Mechanisms for C-X Bond Activation," Taylor, W.S.; Nichols, C.M.; Berry, K.M.; Ward, B.K., 239<sup>th</sup> ACS National Meeting, San Francisco, CA, March 21-25, 2010.
- 28.\*\* "Reactions of Ni<sup>+</sup> with CH<sub>3</sub>X and CF<sub>3</sub>X (X=Cl, Br, I)," Taylor, W.S.; Fancher, K.G.; Chen, L.; Cooper, A. J.; 241<sup>st</sup> ACS National Meeting, Anaheim, CA, March 27-31, 2011.

29. \*\*† “Near-Thermal Reactions of Au<sup>+</sup>(<sup>1</sup>S, <sup>3</sup>D) with CH<sub>3</sub>X (X=F,Cl),” Taylor, W.S.; Matthews, C.C.; Hicks, A.J.; Fancher, K.G. 242<sup>nd</sup> ACS National Meeting, San Diego, CA March 25-29, 2012.
30. \*\*† “A Computational Exploration of Mechanisms for σ-Bond Activation in the Reactions of Au<sup>+</sup>(<sup>1</sup>S) with CF<sub>3</sub>X (X=Cl,Br),” Ward, B.K.; Taylor, W.S.; 243<sup>rd</sup> ACS National Meeting, San Diego, CA March 25-29, 2012.
31. \*\*† “Determination of Excited State Ni<sup>+</sup> Production in Sputtering Glow Discharges Using Diagnostic Thermometer Reactions,” Chen, L.C.; Cameron C.A.; Fancher, K.G.; Ward, B.K.; Taylor, W.S.; 245<sup>th</sup> ACS National Meeting, New Orleans, LA, April 7-11, 2013.
32. \*\*† “Decomposition Pathways for a Super Greenhouse Gas: Reactions of SF<sub>5</sub>CF<sub>3</sub> with Cu<sup>+</sup>(<sup>1</sup>S, <sup>3</sup>D),” Church, C.M.; Redmon, X. S.; Scheuter, B. A.; Taylor, W. S.; 247<sup>th</sup> ACS National Meeting, Dallas, TX, March 16-20, 2014.

#### REGIONAL MEETINGS

1. “Gas Phase Ion-Molecule Reactions of Oxo-Anions with Selected Lewis Acids,” Taylor, W.S.; Babcock, L.M., Southwest Regional Meeting of the American Chemical Society, Little Rock, AR, Dec. 2-4, 1987. (oral).
- 2.\*\*† “The Use of a Sputtering Glow Discharge Ion Source in the Study of Gas Phase Transition Metal Ion Chemistry,” Everett, W.R.; Taylor, W.S.; Babcock, L.M.; McNeal, T.L., Fifth Annual Baylor University Undergraduate Research Symposium, Waco, TX, Nov. 15, 1991. (oral).
- 3.\*\*† “Gas Phase Reactions of Au<sup>+</sup> with C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, and *n*-C<sub>4</sub>H<sub>10</sub>,” Ward, E.E.; Taylor, W.S.; Babcock, L.M.; McNeal, T.L., Fifth Biennial Chemical Education Conference, University of Arkansas, Fayetteville, AR, Oct 30-31, 1992. (poster) *awarded first place.*
- 4.\*\*† “Gas Phase Reactions of Au<sup>+</sup> with C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, and *n*-C<sub>4</sub>H<sub>10</sub>,” Ward, E.E.; Taylor, W.S.; Babcock, L.M.; McNeal, T.L., Thirteenth Annual Undergraduate Chemistry Conference, Memphis State University, Memphis, TN, Feb. 26, 1993. (oral)
- 5.\*\*† “Drift Cell Studies of Gas Phase Ta<sup>+</sup>,” Bollinger, J.; Barnas, D.F.; Taylor, W.S., Sixth Biennial Chemical Education Conference, University of Arkansas, Fayetteville, AR, Oct 13-14, 1995. (poster)
- 6.\*\*† “Gas Phase Reactions of Au<sup>+</sup> and Pt<sup>+</sup> with Small Alkanes and Alkenes,” Campbell, A.S.; Taylor W.S., 47th Southeast/51st Southwest Joint Regional Meeting of the American Chemical Society, Nov. 29-Dec. 1, 1995. (oral).
- 7.\*\*† “Characterization of Excited State Metal Ion Production by a Sputtering Glow Discharge via Electronic State Chromatography,” Barnas, D.F.; Taylor, W.S., 47th Southeast/51st Southwest Joint Regional Meeting of the American Chemical Society, Nov. 29-Dec. 1, 1995. (oral).
- 8.\*\*† “State-Specific Gas Phase Reactions of Cu<sup>+</sup>,” Vermeulen, A.; Taylor, W.S., Seventeenth Undergraduate Chemistry Conference held at the University of Memphis, March 1, 1997. (oral), *awarded 1<sup>st</sup> place in Physical/Analytical Session.*
- 9.\*\*† “Characterization and Manipulation of Excited State Ion Production in a Sputtering Glow Discharge,” Spicer, E.M.; Taylor, W.S., Seventeenth Undergraduate Chemistry Conference held at the University of Memphis, March 1, 1997. (oral), *awarded 2<sup>nd</sup> place in Physical/Analytical Session.*
- 10.\*\*† “State-Specific Gas Phase Reactions of Cu<sup>+</sup>,” Lasater, A.; Taylor, W.S., 53<sup>rd</sup> Southwest Regional Meeting of the American Chemical Society, Oct. 1-3, 1997. (oral).

11. <sup>\*\*†</sup> "Characterization and Manipulation of Excited State Ion Production in a Sputtering Glow Discharge," Spicer, E.M.; Taylor, W.S., 53<sup>rd</sup> Southwest Regional Meeting of the American Chemical Society, Oct. 1-3, 1997. (oral).
12. <sup>\*\*†</sup> "Statistical Reaction Methods: Application to Gas Phase Transition Metal Ion-Alkane Reactions," Ruckles, M.; Taylor, W.S.; Draves, J., W.S., 53<sup>rd</sup> Southwest Regional Meeting of the American Chemical Society, Oct. 1-3, 1997. (oral).
13. <sup>\*</sup> "State-Resolved Gas Phase Reactions of Cu<sup>+</sup>, Ag<sup>+</sup>, and Au<sup>+</sup>," Taylor, W.S.; Lasater A.S.; Holcomb H.B., 51<sup>st</sup> Southeast Regional Meeting of the American Chemical Society, Oct. 17-20, 1999. (invited oral).
14. <sup>\*</sup> "Metastable Metal Ion Production in Sputtering DC Discharge Plasmas: Characterization by Electronic State Chromatography," Taylor, W.S.; Spicer, E.M.; Barnas, D.F., 51<sup>st</sup> Southeast Regional Meeting of the American Chemical Society, Oct. 17-20, 1999. (oral).
15. <sup>\*\*†</sup> "State-Specific Gas Phase Reactions of Cu<sup>+</sup>(<sup>3</sup>D) and Cu<sup>+</sup>(<sup>1</sup>S) with Halogenated Methanes," Matthews, C.C.; Willis, K; Taylor, W.S., 57th Southeast / 61st Southwest Joint Regional Meeting of the American Chemical Society, November 1 - 4, 2005. (oral).
16. <sup>\*\*†</sup> "Dipole Orientation Effects on Reactions of Cu<sup>+</sup>(<sup>3</sup>D) with Substituted Methanes," Byers, S.D.; Nichols, C.; Musial, S.R.; Taylor, W.S., 64<sup>th</sup> Southwest Regional ACS Meeting, Little Rock, AR, Oct. 1-4, 2008. (poster).
17. <sup>\*\*†</sup> "Dipole Orientation Effects on Reactions of Cu<sup>+</sup>(<sup>3</sup>D) with Substituted Methanes," Musial, S.R.; Byers, S.D.; Nichols, C.; Taylor, W.S., 29<sup>th</sup> Annual Undergraduate Research Conference, University of Memphis, Feb. 28<sup>th</sup>, 2009.
18. <sup>\*\*†</sup> "Near-Thermal Reactions of Au<sup>+</sup>(<sup>1</sup>S, <sup>3</sup>D) with CH<sub>3</sub>X (X=F,Cl)," Taylor, W.S.; Matthews, C.C.; Hicks, A.J.; Fancher, K.G., 66<sup>th</sup> Southwest Regional ACS Meeting, Baton Rouge, LA, Nov. 4-7, 2012.
19. <sup>\*\*†</sup> "Determination of Excited State Ni<sup>+</sup> Production in Sputtering Glow Discharges Using Diagnostic Thermometer Reactions," Cameron, C.A.; Fancher, K.G.; Chen, L.C.; Ward, B.K.; Taylor, W.S., 66<sup>th</sup> Southwest Regional ACS Meeting, Baton Rouge, LA, Nov. 4-7, 2012.

#### STATE MEETINGS

1. "An X-Ray Fluorescence Lab for Advanced Analytical Students," Taylor, W.S.; Rapp, M.W., 75th Annual Meeting of the Arkansas Academy of Science, Fayetteville, AR, April 5-6, 1991. (oral).
2. <sup>\*\*†</sup> "The Use of a Sputtering Glow Discharge Ion Source in the Study of Gas Phase Transition Metal Ion Chemistry," Everett, W.R.; Taylor, W.S.; Babcock, L.M.; McNeal, T.L., 76th Annual Meeting of the Arkansas Academy of Science, Conway, AR, April 3-4, 1992. (oral).
3. <sup>\*\*†</sup> "Gas Phase Reactions of Au<sup>+</sup> with C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, and n-C<sub>4</sub>H<sub>10</sub>," Ward, E.E.; Taylor, W.S.; Babcock, L.M.; McNeal, T.L., 77th Annual Meeting of the Arkansas Academy of Science, Arkadelphia, AR, April, 1-2, 1993. (oral).
4. <sup>\*\*†</sup> "Characterization of Excited State Metal Ion Production by a Sputtering Glow Discharge via Electronic State Chromatography," Taylor, W.S.; Barnas, D.F.; Alexander, B.K., 79th Annual Meeting of the Arkansas Academy of Science, April, 7-8 1995. (oral).
5. <sup>\*\*†</sup> "State-Specific Gas Phase Association Reactions of the Group 11 Ions with Small Organic Molecules," Lasater, A.S.; Holcomb, H.B.; Taylor, W.S. Arkansas Undergraduate Research Conference and Space Grant Symposium, Henderson Sate University, Arkadelphia, AR April 23-24, 1999. (oral).

6. \*\* "Experimental and Theoretical Study of Gas-Phase Organometallic Reactions Involving  $\text{Cu}^+$  and  $\text{Au}^+$ ," Taylor, W.S.; May, J.C., 7<sup>th</sup> Annual Arkansas Undergraduate Research Conference, Henderson State University, Arkadelphia, AR April 28-29, 2000. (oral).
7. \*\* "State-Specific Gas Phase Reactions of  $\text{Au}^+$  with  $\text{CH}_3\text{Cl}$ ," McDonald, A.C.; Parkhill, K.S.; Choinard, E.; Brannon, D.; Matthews, C.C.; Taylor, W.S. 10<sup>th</sup> Annual Arkansas Undergraduate Research Conference, Henderson State University, Arkadelphia, AR April 18-19, 2003. (oral).
8. \*\* "Gas Phase Reactions of CFC Ion Fragments with Small Organic Molecules," Parkhill, K.S.; McDonald, A.C.; Taylor, W.S. 10<sup>th</sup> Annual Arkansas Undergraduate Research Conference, Henderson State University, Arkadelphia, AR April 18-19, 2003. (oral).
9. \*\* "Chemical Switches: State-Specificity in the Gas Phase Reactions of  $\text{Cu}^+$ ,  $\text{Ag}^+$ , and  $\text{Au}^+$  with Halogenated Methanes," Matthews, C.C.; Parkhill, K.S.; Taylor, W. S. 2003 Biomedical Research Infrastructure Network Research Symposium, University of Arkansas, Fayetteville, AR, September 19-20, 2003. (poster), *recipient of "best poster" award.*
10. \*\* "Dipole Orientation Effects on Reactions of  $\text{Cu}^+(^3\text{D})$  with Substituted Methanes," Nichols, C.; Byers, S.D.; Musial, S.R.; Taylor, W.S., 16<sup>th</sup> Annual Arkansas Undergraduate Research Conference, Henderson State University, Arkadelphia, AR, April 17-18, 2009.
11. \*\* "Design of an Electrospray Ionization (ESI) Source for the Study of Gas-Phase Reactions of Ligated Transition Metal Ions," Chen, L.C.; Taylor, W.S., 96<sup>th</sup> Meeting of the Arkansas Academy of Science, Southern Arkansas University, Magnolia, AR, April, 13-14, 2012. (oral)
12. \*\* "State-Specific Reactions of Gas Phase  $\text{Ni}^+$  with  $\text{CH}_3\text{X}$  and  $\text{CF}_3\text{X}$  ( $\text{X}=\text{Br},\text{I}$ ): Evidence of Selective Halogen Abstraction," Fancher, K.G.; Chen, L.C.; Hicks, A.J.; Cameron, C.A.; Taylor, W.S., 96<sup>th</sup> Meeting of the Arkansas Academy of Science, Southern Arkansas University, Magnolia, AR, April, 13-14, 2012. (oral), *awarded 3<sup>rd</sup> place in the undergraduate physical science division.*
13. \*\* "Determination of Excited State  $\text{Ni}^+$  Production in Sputtering Glow Discharges Using Diagnostic Thermometer Reactions," Cameron, C.A.; Fancher, K.G.; Chen, L.C.; Ward, B.K.; Taylor, W.S., Arkansas INBRE Conference, Fayetteville, AR, Oct. 5-6, 2012. (poster).
14. \*\* "A Computational Exploration of Mechanisms for  $\sigma$ -Bond Activation in the Reactions of  $\text{Au}^+(^1\text{S})$  with  $\text{CF}_3\text{X}$  ( $\text{X}=\text{Cl},\text{Br}$ )," Ward, B.K.; Taylor, W.S., Arkansas INBRE Conference, Fayetteville, AR, Oct. 5-6, 2012. (poster).
15. \*\* "Near-Thermal Reactions of  $\text{Au}^+(^1\text{S}, ^3\text{D})$  with  $\text{CH}_3\text{X}$  ( $\text{X}=\text{F},\text{Cl}$ )," Fancher, K.G.; Hicks, A.J.; Matthews, C.C.; Chen, L.C.; Taylor, W.S., Posters at the Capitol. Little Rock, AR, Feb. 6, 2013. (poster).

#### LOCAL MEETINGS

1. \* "Gas Phase Transition Metal Ion Chemistry," Taylor, W.S.; Everett, W.R., presented to the Hendrix College student affiliate of the ACS. Jan. 21, 1992. (invited 1 hour oral presentation).
2. \* "Ion-Molecule Chemistry at UCA," Taylor, W.S., presented to a group of faculty in the College of Natural Sciences and Mathematics, Oct. 14, 1994. (invited 1 hour oral presentation).
3. \*\* "Evidence of Excited State Ion Production in a Sputtering Glow Discharge," Taylor, W.S.; Barnas, D.F.; Alexander, B.K., UCA College of Natural Sciences and Mathematics Student Research Symposium, Conway, AR, March 29, 1995. (poster).
4. \*\* "Determination of Reaction Energetics in a Drift Cell Reactor via Heavy-Ion Mobility Studies," Spicer, E.M., Taylor, W.S. UCA College of Natural Sciences and Mathematics Student Research Symposium,

- Conway, AR, March 25, 1996. (poster).
- 5.\* “Ion Chromatography: Probing Gaseous Ion Energetics via Ion Mobility Studies,” Taylor, W.S.; Spicer, E.M.; Barnas, D.F. (invited one-hour oral presentation to the UCA physics department, Fall 1996.).
  - 6.\*† “State-Specific Gas Phase Reactions of  $\text{Cu}^+$ ,” Vermeulen, A.; Taylor, W.S. UCA College of Natural Sciences and Mathematics Student Research Symposium, Conway, AR, March 28, 1997. (poster).
  - 7.\*† “State-Specific Gas Phase Reactions of  $\text{Cu}^+$ ,” Lasater, A.S.; Holcomb, H.B.; Taylor, W.S. UCA College of Natural Sciences and Mathematics Student Research Symposium, Conway, AR, March 28, 1998. (poster).
  - 8.\*† “State-Specific Gas Phase Association Reactions of the Group 11 Ions,” Lasater, A.S.; Holcomb, H.B.; Taylor, W.S. UCA College of Natural Sciences and Mathematics Student Research Symposium, Conway, AR, May 1, 1999. (poster).
  - 9.\*† “Experimental and Theoretical Study of Gas-Phase Organometallic Reactions Involving  $\text{Cu}^+$  and  $\text{Au}^+$ ,” Taylor, W.S.; May, J.C., UCA College of Natural Sciences and Mathematics Student Research Symposium, Conway, AR, May 5, 2000. (poster).
  10. “Managing Undergraduate Research using WebCT” Taylor, W.S. UCA Techfest, Spring 2002.
  11. “Managing Undergraduate Research with WebCT: Extending Student Involvement Beyond the Lab,” Taylor, W.S. UCA Techfest, Spring 2003.
  - 12.\*† “Chemical Switches: State-Specificity in the Gas Phase Reactions of  $\text{Cu}^+$ ,  $\text{Ag}^+$ , and  $\text{Au}^+$  with Halogenated Methanes” Taylor, W.S.; Matthews, C.C.; Parkhill, K.S., 10<sup>th</sup> Annual CNSM Research Symposium, April 9, 2004.
  - 13.\* “Ion-Molecule Chemistry at UCA: A Brief Retrospective.” Taylor, W.S., 1 hour oral presentation given to the Department of Chemistry, University of Central Arkansas, Spring 2005.
  - 14.\*† “Analysis of Doubly-Charged Transition Metal Ions: Reactions of  $\text{M}^{2+}$  with Chlorofluorocarbons” Taylor, W.S.; Matthews, C.C., 11<sup>th</sup> Annual CNSM Research Symposium, April 22, 2005.
  - 15.\* “State-Specific Transition Metal Ion Chemistry: The Evolution of a Research Project.” Taylor, W.S., 1 hour oral presentation given to the Department of Chemistry, Hendrix College, October 2007.
  - 16.\*† “Reactions of  $\text{Cu}^+(^1\text{S}, ^3\text{D})$  with  $\text{CF}_3\text{X}$  ( $\text{X}=\text{Cl}, \text{Br}, \text{I}$ )” Taylor, W.S.; Abrams, M.L.; Musial, S.R.; Matthews, C.C., 13<sup>th</sup> Annual CNSM Research Symposium, April 20, 2007.
  - 17.\*† “Reactions of  $\text{Cu}^+(^1\text{S}, ^3\text{D})$  with  $\text{CF}_3\text{X}$  ( $\text{X}=\text{Cl}, \text{Br}, \text{I}$ )” Taylor, W.S.; Abrams, M.L.; Musial, S.R.; Byers, S.D., 14<sup>th</sup> Annual CNSM Research Symposium, April 18, 2008.
  - 18.\*† “Reactions of  $\text{Zn}^+(^2\text{D})$  with  $\text{CF}_3\text{X}$  and  $\text{CH}_3\text{X}$  ( $\text{X}=\text{Br}, \text{I}$ )” Taylor, W.S.; Nichols, C.M.; Berry, K.M.; Ward, B.K., 16<sup>th</sup> Annual CNSM Research Symposium, April 23, 2010.
  - 19.\*† “State-Specific Reactions of Gas Phase  $\text{Ni}^+$  with  $\text{CH}_3\text{X}$  and  $\text{CF}_3\text{X}$  ( $\text{X}=\text{Cl}, \text{Br}, \text{I}$ ): Evidence of Selective Halogen Abstraction,” Taylor, W.S.; Fancher, K.G.; Cooper, A.J.; Chen, L.C., 17<sup>th</sup> Annual CNSM Research Symposium, April 22, 2011.
  - 20.\*† “Computational Exploration of Mechanisms in the Reactions of  $\text{Au}^+(^1\text{S})$  with  $\text{CH}_3\text{Cl}$  and  $\text{CF}_3\text{Cl}$ ,” Taylor, W.S.; Ward, B.K., 17<sup>th</sup> Annual CNSM Research Symposium, April 22, 2011.
  - 21.\*† “Determination of Excited State  $\text{Ni}^+$  Production in Sputtering Glow Discharges Using Diagnostic Thermometer Reactions,” Cameron, C.A.; Fancher, K.G.; Chen, L.C.; Ward, B.K.; Taylor, W.S., 18<sup>th</sup>



Annual CNSM Research Symposium, April 20, 2012.

22. \*† “Near-Thermal Reactions of  $\text{Au}^+(\text{}^1\text{S}, \text{}^3\text{D})$  with  $\text{CH}_3\text{X}$  ( $\text{X}=\text{F}, \text{Cl}$ ),” Taylor, W.S.; Matthews, C.C.; Hicks, A.J.; Fancher, K.G., 18<sup>th</sup> Annual CNSM Research Symposium, April 20, 2012.
23. \*† “A Computational Exploration of Mechanisms for  $\sigma$ -Bond Activation in the Reactions of  $\text{Au}^+(\text{}^1\text{S})$  with  $\text{CF}_3\text{X}$  ( $\text{X}=\text{Cl}, \text{Br}$ ),” Ward, B.K.; Taylor, W.S., 18<sup>th</sup> Annual CNSM Research Symposium, April 20, 2012.
24. \*† “Decomposition Pathways for a Super Greenhouse Gas: Reactions of  $\text{SF}_5\text{CF}_3$  with  $\text{Cu}^+(\text{}^1\text{S}, \text{}^3\text{D})$ ,” Church, C.M.; Redmon, X. S.; Scheuter, B. A.; Taylor, W. S.; Manion, J. M.; 20<sup>th</sup> Annual CNSM Research Symposium, April 18, 2014.

### GRANTS FUNDED BY OUTSIDE AGENCIES

1. "Gas Phase Association Reactions of the Group IB Ions with Small Alkanes," Arkansas Science and Technology Authority, 1/92 - 3/93, \$18,897.
2. "Elucidation of Exoergic Elimination Channels in the Gas Phase Reactions of  $\text{Pt}^+$ ,  $\text{Au}^+$ , and  $\text{Hg}^+$  with Small Alkanes," Research Corporation, 6/93 - 6/95, \$28,075.
3. "Characterization of Excited State Ion Production in a Sputtering Glow Discharge Ion Source via Electronic State Chromatography," American Chemical Society Petroleum Research Fund, 6/96 - 6/98, \$24,210.
4. "State-Specific Gas Phase Reactions of  $\text{Au}^+$  with Small Hydrocarbons," Research Corporation, 6/97 - 6/99, \$31,650.
5. "Gas Phase Reactions of Excited State Transition Metal Ions," National Science Foundation Research at Undergraduate Institutions program. 8/00 – 7/04. \$169,201.
6. "RUI: Exploring Mechanistic Parameters Regulating Bond-Activation in the State-Specific Reactions of Gas Phase Transition Metal Ions with Halogenated Molecules," National Science Foundation Research at Undergraduate Institutions program. 9/10 – 8/13. \$173,413.

### GRANTS FUNDED INTERNALLY

1. "Use of a Glow Discharge Ion Source in the Study of Gas Phase Metal Ion Chemistry," 1/91 - 12/91; \$9502.
2. "Gas Phase Association Reactions of the Group IB Ions with Small Alkanes," 1/92 - 12/92; \$13,036. (matching funds for ASTA Grant which was funded in 1992: see "Grants Funded by Outside Agencies" #1)
3. "Elucidation of Exoergic Elimination Channels in the Gas Phase Reactions of  $\text{Pt}^+$ ,  $\text{Au}^+$ , and  $\text{Hg}^+$  with Small Alkanes," 1/93 - 12/94; \$14,400. (Matching funds for Research Corp. Grant which was funded in 1993: see "Grants Funded by Outside Agencies" #2)
4. "A Mechanistic Examination of  $\text{H}_2$  Elimination in the Reactions of  $\text{Pt}^+$  with Butene Isomers," 1/95 - 12/95; \$3,675.
5. "Gas Phase Structural Studies of Catalytic Metal-Hydrocarbon Systems," 1/99 - 12/99; \$7,949.
6. "Exploring the Role of Electron-Transfer in Halide Abstraction Reactions by Gas-Phase Metal Ions." 1/09 - 12/09; \$7,530.