

2-E. Refereed publications

Book Chapters:

S. Bililign, B Hattaway, "Energy Transfer and Reactions In Li(np) –Ar, H₂, CH₄ Collisions," Recent *Research Developments in Chemical Physics*, **39** (2002) 249-269, Transworld Research Network.

I. Wallace, D. J. Funk, J. G. Kaup, **Solomon Bililign**, M. D. Morse and W. H. Breckenridge. "Half-Collision Studies of Singlet-to-Triplet Energy Transfer within Electronically Excited CdH₂ and CdD₂ Complexes." *The Chemical Dynamics and Kinetics of Small Radicals*, Eds B.Liu and A. Wagner (World Scientific, 1996).

Solomon Bililign and P. D. Kleiber. "Reaction Dynamics of Na (4²P) + H₂: Effects of Reactant Orbital Alignment on product State distribution," *Spectral Line Shapes*, **V6**, Editors: Lothar Frommhold and John Keto, (AIP Press, NY 1990)

Journal Articles:

Israel Begashaw, Marc N. Fiddler, **Solomon Bililign**, Steven Brown, "Measurement of the fourth O-H overtone absorption cross section in acetic acid using cavity ring-down spectroscopy" *The Journal of Physical Chemistry A*, **2011**, *115*, 753-761

Bililign, S., Lin, Y-L., Kurkalova, L., Rastigeyev, Y., Schimmel, K., Bae, S., Davis, R., Ilias, S., Kyei, Y., Uzochukwu, G., "CLIMATE AND WATER RESOURCES: A CHALLENGE TO INTEGRATED SCIENCE/SOCIAL POLICY FORMULATION", *Convergence Review*, **2** (2009).

Marc M. Fiddler; Israel Begashaw ; Matthew A. Mickens; Michael S. Collingwood Zerihun Assefa' and **Solomon Bililign**, "Laser Spectroscopy for Atmospheric and Environmental Sensing," *Sensors*. **2009**, *9*, 10447-10512.

Natanael Semmineh¹ and **Solomon Bililign** Denis Hagebaum-Reignier and Gwang-Hi Jeung "Experimental Studies of Collisions of excited Li (4P) atoms with C₂H₄, C₂H₆, C₃H₈, and Theoretical interpretation of the Li-C₂H₄ System." *Chemical Physics* **355** (2009) 157–163,

*Kevin Weddburn, Mel Levy, **Solomon Bililign**, Robert Gdanitz, "Geometries and stabilities of 3d-transition metal-cation benzene complexes, M+Bz_n (M = Sc-Cu, n = 1, 2)," *Chem. Phys.* **326**, 600 (2006)

*Komaragiri, Vivek; McCarter, Benjamin; **Bililign, Solomon**; Hagebaum-Reignier, Denis; Ledentu, Vincent; Jeung, Gwang-Hi Jeung, "Experimental and Theoretical Studies of the Quenching of Li (3p, 4p) by N₂," *Journal of Chemical Physics*, **123**, 24303 (2005).

James Tucker Swindell II, Benjamin McCarter, Vivek Koramagiri and **Solomon Bililign** "QUENCHING OF Li (3P) BY CH₄, C₂H₄, C₂H₆, C₃H₈," *Chem. Phys.* **305**,299 (2004)

*Brian C. Hattaway, **Solomon Bililign**, Lionel Uhl, V. Ledentu and Gwang-Hi Jeung, "Energy transfer in Li (4p) + (Ar, H₂ and CH₄) Collisions," *J. Chem. Phys.*, **120**, 1739 (2004)

*N. Vaval and **S. Bililign**, and Robert J. Gdanitz "Density functional study on the structure and stability of positive iron rare-gas complexes, Fe+Xn (X = Ar, Xe; n=1-6," *Chemical Physics* **290**/2-3,171 – 176 (2003).

***S. Bililign**, B. C. Hattaway, and Gwang-Hi Jeung" Nonradiative Energy Transfer in Li (3p) + CH₄ Collisions." *J. Phys. Chem.* **A106**, 222, (2002).

S. Bililign, B. C. Hattaway, T. L. Robinson, and Gwang-Hi Jeung "Far-Wing Scattering Studies on the Reaction Li* (2p, 3p) + H₂ → LiH (v'= 1, 2, J'') + H", *J. Chem. Phys.* **114**, 7052 (2001).

***S. Bililign**, B. C. Hattaway, Neri Geum and Gwang-Hi Jeung, "Energy Transfer in Li (3p) - H₂ Collisions" *J.*

Phys. Chem. **A104**, 9454-9458 (2000).

C. S. Feigerle, **S. Bililign** and John C. Miller, "Nanochemistry: Chemical Reactions of Iron and Benzene within Molecular Clusters," *Journal of Nanoparticle Research*. **Volume 2(2)** 147-155 (June 2000).

B. E. McCarter, **S. Bililign**, C. S. Feigerle, J. C. Miller "Nanochemistry: Iron Cluster Reactions with Methyl Iodide," *J. Phys. Chem.* **103**, 6740 (1999).

S. Bililign, C. S. Feigerle, and John C. Miller. "Inverse Laser Ablation Formation and Chemistry of Nanoparticles from Gaseous Precursors." *Applied Surface Science*. **127**, 344 (1998).

S. Bililign, C. S. Feigerle, John C. Miller and M. Velegrakis. "Non-Statistical Bond Breaking in the Multiphoton Ionization/Dissociation of $[\text{Fe}(\text{CO})_5]_m\text{Ar}_n$ Clusters." *J. Chem. Phys.* **108**, 6312 (1998).

J.T. Bahns, L. Lynds, W.C. Stwalley, V. Simmons, T. Robinson and **S Bililign**. "Airborne Mercury Detection by Resonant UV Laser Pumping." *Optics Letters*. **22**, 727 (1997).

S. Bililign, L. Liu, C. S. Feigerle and John C. Miller. "Metal ion Chemistry Initiated by Ionization/Dissociation of Organo- Metallic Precursors." *J. Phys. Chem.* **101**, 4569 (1997).

***Solomon Bililign**, J.G. Kaup and W.H. Breckenridge. "Full and Half-Collision Studies of Metal Atom Singlet -to Triplet Deactivation Induced by Rare Gas Atoms." *J. Phys. Chem.* **99**, 7878 (1995).

***Solomon Bililign**, Maciej Gutowski, Jack Simons and W.H. Breckenridge. "Potential Energy Curves and Van der Waals Bonding in $M(\text{np}^2\text{P})$. $\text{RG } ^2\Pi$ Excited State and M^+ . RG Ground States. ($M=\text{Li Na}$; $\text{RG}=\text{He, Ne}$)." *J. Chem. Phys.* **100**, 8212, (1994).

***Solomon Bililign**, Maciej Gutowski, Jack Simons and W. H. Breckenridge. "Singlet-to-Triplet transfer via $^1\Pi_1/{}^3\Sigma^+_1$ curve crossing in Group II and XII Metal Atom/Rare Gas Systems." *J. Chem. Phys.* **99**, 3815, (1993).

***Solomon Bililign**, M. D. Morse and W. H. Breckenridge. "Predissociation Life Times of Vibrational Levels of excited $1B_1$ ($K'a=0$) Electronic States of CdH_2 and CdD_2 Complexes." *J. Chem. Phys.* **98**, 2115 (1993).

P. D. Kleiber, T. H. Wong and **Solomon Bililign**. "Collisional Energy Transfer in $\text{Na}(4p-3d)\text{-He}$, and H_2 collisions." *J. Chem. Phys.* **98**, 1101 (1993)

W.C. Stwalley, P. D. Kleiber, K. M. Sando, A. M. Lyyra, L. Li, S. Ananthamurthy, **Solomon Bililign**, H. Wang, J. Wang and Z. Zafurpulos. "Metal-Metal and Metal-Hydrogen Reactive Transition State Faraday." *Discussion of the Chemical Society*. **91**, 97 (1991).

Solomon Bililign and P. D. Kleiber "Initial Rotational Quantum State Distribution of NaH (NaD) in the reaction of $\text{Na}(4^2\text{P})$ with H_2 , D_2 , and HD ." *J. Chem. Phys.* **96**, 213 (1992).

Solomon Bililign, P. D. Kleiber, W. R. Kearney and K. M. Sando. "Reactive Collision Dynamics of $\text{Na}(4^2\text{P}) + \text{H}_2$, D_2 and HD : Experiment and Theory." *J. Chem. Phys.* **96**, 218 (1992).

Solomon Bililign and P. D. Kleiber. "Reaction Dynamics of $\text{Na}(4^2\text{P}) + \text{H}_2$: Effects of Reactant Orbital Alignment on Reactivity and Product Rotational State Distribution." *Phys. Rev.* **A42**, 6938 (1990).

Refereed Proceeding Articles and Reports:

Solomon Bililign "Scattering State Spectroscopy as a probe of Chemical Reaction Dynamics and Non-Radiative Energy Transfer: $\text{Li}(\text{np}) + \text{M}$ System ($\text{M} = \text{H}_2, \text{N}_2, \text{CH}_4$, ($n = 2, 3, 4$)). [In Press: Refereed Proceeding: Proceedings of the 22nd Course of the International School of Atomic and Molecular Spectroscopy Erice, Sicily, Italy June 5-21, 2005 by Editor: Baldassare Di Bartolo

X.M.Zhao, M.Gulley, H.C.Bryant, C.E.M.Strauss, D.J.Funk, A.Stinz, . D.Risolve, G. Kyrala, W. Ingalls and **S.Bililign**. "Excess Photon Detachment of Negative Hydrogen Ions" Contributed paper to the 1996 QELS Conference.

I. Wallace, D. J. Funk, J.G. Kaup, **Solomon Bililign**, M. D. Morse and W. H. Breckenridge. "Half-Collision Studies of Singlet-To triplet Energy Transfer: Action Spectroscopy and Predissociation Dynamics of Electronically Excited CdH₂ and CdD₂ complexes." *Proceedings of SPIE-Int.Soc.Opt. Eng.* 1858, (247) Editor: Cheuk.Yi.Ng. April (1993).

P. D. Kleiber and **Solomon Bililign**. "Excited State reactions of Alkali with Hydrogen." *Proceedings of the Conference on Atomic and Molecular Collisions in Excited State*. Edited by B. Stumpf [Moscow, Idaho: University of Idaho,], p. 123 (1991).

P. Mikusik and **Solomon Bililign**. "Influence of Argon Ion Sputtering and Annealing on the Surface Composition of Amorphous Alloy Fe₄₀Ni₄₀B₆Si₄ by XPS." **Internal Report**, ICTP, Trieste, Italy, (1987).

2-F. Presentations (Research conference bulletin abstracts and seminars)

Solomon Bililign: Study of Climate Forcing Caused by Aerosols and Chemical Products of Biomass Burning-Laboratory Spectroscopic Studies. *Seminar given at Bahir Dar University, Ethiopia and Mekelle University, Ethiopia*

Solomon Bililign: Research and education for sustainable development : The need for interdisciplinary approach to address problems of global significance. *Seminar given at Bahir Dar University, Ethiopia and Mekelle University, Ethiopia*

Schimmel, K., Watlington, S., Worrell, T., Jost, M., Bohn, J., Bililign, S. "Enhancing STEM Education in Guilford County Schools through Teacher Research Experiences," The Naval STEM Forum, Alexandria, VA, June 15-16, 2011.

Bililign, S., Bohn, J., Schimmel, K., "NOAA ISET Cooperative Science Center: An Innovative University/Federal Agency STEM Education Partnership," The Naval STEM Forum, Alexandria, VA, June 15-16, 2011.

Bohn, J., Schimmel, K., Bililign, S., "ISETCSC's Outreach to Increase Participation and Diversity of STEM Pipeline," The Naval STEM Forum, Alexandria, VA, June 15-16, 2011.

Marc N. Fiddler, Stefan Boskovic and Solomon Bililign, "Measurement of the Absorption Coefficient of the Fourth O-H overtone of Peracetic Acid using Cavity Ring-down Spectroscopy," *NOAA-ISETCSC Day*, Greensboro, North Carolina, February 11, 2011. (poster)

Marc N. Fiddler, Stefan Boskovic and Solomon Bililign, "Characterizing the Fourth O-Overtone of Peracetic Acid using Cavity Ring-down Spectroscopy," *The 25th Annual Ronald E. McNair Symposium*, Greensboro, North Carolina, January 26-28, 2011. (poster, awarded Certificate of Merit)

Solomon Bililign, Israel Begashaw and Marc N. Fiddler, "Measurement of the Fourth O-H Overtone Absorption Cross Section in Acetic Acid using Cavity Ring-down Spectroscopy," *77th Annual Meeting of the Southeastern Section of the American Physical Society*, Baton Rouge, Louisiana, **October 20-23, 2010**, published in the Bulletin of the American Physical Society, 55(10), GC-2. (oral)

Solomon Bililign, Session Chair for "The Role of Physics in Atmospheric, Ocean, and Earth Sciences," *77th Annual Meeting of the Southeastern Section of the American Physical Society*, Baton Rouge, Louisiana, **October 20-23, 2010**.

Solomon Bililign, "Research and Education in Geosciences – The Need for an All-Inclusive Interdisciplinary Approach to Address Problems of Global Significance," University of Iowa, Physics Department, Iowa, **September 24, 2010.** (invited lecture)

Anthony K. Cochran, James M. Roberts, Ranajit Talukdar, Patrick Veres and Solomon Bililign, "Measurement of the Henry's Law Coefficient and First Order Loss Rate of Isocyanic Acid in Water Solutions," *American Geophysical Union*, San Francisco, California, **December 2010. (poster)**

Marc N. Fiddler and Solomon Bililign, "Selection of an Optimal Reagent Ion for the Chemical Ionization of Atmospherically Relevant Carboxylic Acids," *Proceedings of the 58th ASMS Conference on Mass Spectrometry and Allied Topics*, Salt Lake City, Utah, **May 23-27, 2010.**

Anthony K. Cochran, Marc N. Fiddler and Solomon Bililign, "Development of Negative Ion Proton Transfer Reaction Time-of-Flight Mass Spectrometry (NI-PTR TOF MS) for the Measurement of Organic Acids in the Troposphere," *Proceedings of the 58th ASMS Conference on Mass Spectrometry and Allied Topics*, Salt Lake City, Utah, **May 23-27, 2010.**

DEVELOPING A PIPELINE OF UNDERREPRESENTED MINORITY STUDENTS FOR THE GEOSCIENCES THROUGH AFRICA-ARRAY" Abstract submitted to 2010 GSA Denver Annual Meeting (31 October –3 November 2010)

Begashaw Israel, Collingswood, M.; Bililign, S. "Absorption cross section for the ν_{OH} stretch of acetic acid and peracetic acid" *Eos Trans. AGU*, 2009, 90(52), Fall Meet. Suppl. Abstract A21C-0255, 2009.

Israel Begashaw, Michael Collingswood, Solomon Bililign "Absorption cross section for the ν_{OH} stretch of acetic acid and peracetic acid" *Poster Presentation: A21C-0255* December 15, 2009 AGU Fall Meeting 2009

Israel Begashaw, Michael Collingswood, Solomon Bililign "Measuring the ν_{OH} stretch absorption cross section of acetic acid and peracetic acid by cavity ring-down spectroscopy" *Poster Presentation: P1.41 NOAA-EPP Fifth Education and Science Forum*, Howard University, November 12, 2009

Marc N. Fiddler, NCAT, Greensboro, NC; and A. K. Cochran and S. Bililign "Characterization of oxidized volatile organic compounds using proton transfer reaction time-of-flight (PTR-ToF) mass spectrometry and ion/molecule reactions" *Poster Presentation: P1.41 NOAA-EPP Fifth Education and Science Forum*, Howard University, November 12, 2009

Anthony K. Cochran, NCAT, Greensboro, NC; and S. Bililign, C. Melvin, and M. Fiddler "Development of Negative ion proton transfer reaction time-of-flight mass spectrometry (NI-PTR TOF MS) for the measurement of gas phase acids in the troposphere" *Oral Presentation: P1.41 NOAA-EPP Fifth Education and Science Forum*, Howard University, November 12, 2009.

HANSEN, Samantha E., NYBLADE, Andrew A., BILILIGN, Solomon, **DEVELOPING A PIPELINE OF UNDERREPRESENTED MINORITY STUDENTS FOR THE GEOSCIENCES THROUGH AfricaArray**" accepted for the 2009 Portland GSA Annual Meeting (18-21 October 2009)

Israel Begashaw, Solomon Bililign, "Cavity ring down spectroscopy for atmospheric research," *Bulletin of the American Physical Society*, Volume 53, No. 13, 2008.

Cochran, A K; Begashaw, I; Jessamy, C Bililign, S; Development of Negative Ion Proton Transfer Reaction Time-of-Flight Mass Spectrometry (NI-PTR TOFMS) for the Measurement of Gas Phase Acids in the Troposphere; *Eos Trans. AGU*, 2008, 89(53), Fall Meet. Suppl; A21B-0157

Organized and Chaired a session “Forefront Atmospheric Physics and Geophysics” at the 75th Annual Meeting of the Southeastern Section of APS Thursday–Saturday, October 30–November 1 2008; Raleigh, North Carolina.

The following presentations were made at this meeting:

“NOAA Interdisciplinary Scientific Environmental Technology Cooperative Science Center”

Invited Speaker: Solomon Bililign

“Cavity Ring Down Spectroscopy for Atmospheric Research”

Israel Begashaw, Solomon Bililign, Anthony Cochran, Christopher Jessamy

Since 2007, Organized and chaired three sessions on **“Earth and Planetary System Science”** at the National Society of Black Physicists and National Society of Hispanic Physicists” and member of organizing committee of these conferences

Boston: February: 2007

Washington DC: February 2008

Nashville TN- February: 2009

Invited talk in 2008: “Spectroscopic techniques for atmospheric analysis”

“Far Wing Scattering Spectroscopy to Study chemical reaction and non-reactive energy transfer processes”
Chemistry Department colloquium, Oct 4, 2007.

“Understanding Climate Change- Capstone Interdisciplinary Problem of the Century.” 3rd National Conference on Environmental Science and Technology, Sept. 12., 2007

“Towards an Integrated Approach to the Earth System Study” presentation at the AfricaArray workshop on the campus of NCA&T, Feb 13, 2008.

“Development of Negative Ion-Proton Transfer Reaction Mass Spectrometry (NI-PTRMS) for Gas-Phase Measurement of Acids in the Atmosphere” Poster presentation at the National Society of Black Physicists and National Society of Hispanic Physicist, Feb 21, 2008, Washington DC, and Chemical Sciences Symposium, NCA&T, Feb. 28, 2008. Oral presentation at the EBAL 2008 (Environmental and Biological Applications of Lasers) Cairo, Egypt, Jan 2008.

“Spectroscopic Techniques for Atmospheric Applications” Invited talk at the National Society of Black Physicists and National Society of Hispanic Physicist, Feb 21, 2008, Washington DC

“ Spectroscopic techniques to study chemical reaction and non reactive energy transfer processes and environmental applications” Invited lecture at the EBAL 2008 (Environmental and Biological Applications of Lasers) Cairo, Egypt, Jan 2008.[Was unable to travel due to personal problems, but talk was sent to the organizers)

“Scattering State Spectroscopy as a probe of Chemical Reaction Dynamics and Non-Radiative Energy Transfer: Li(np)+ M System (M = H₂, N₂,CH₄, (n = 2,3,4).” Presented at the NATO Advanced Study Institute, International School of Atomic and Molecular Spectroscopy, 22nd Course: New developments in Optics and Related Fields Ettore Majorana Center for Scientific Culture Erice, Sicily, ITALY: June 6-21, 2005.

“Scientific Revolutions and Social Change” FUTURES Retreat, NCA&T, April 2005, Aggie Report, 2005

“The social, ethical and educational challenges of nanotechnology.” Cultural Studies Symposium, NCA&T State University, march 19, 2005

Collisional Energy Transfer in Li(np, n = 2,4) + N₂ and Li(4p) + CH₄, C₂H₄, C₂H₆, C₃H₈ Interactions. 71st Annual Southeastern Section meeting of the American Physical Society, Oak Ridge, TN, Nov, 2004; Bulletin of the American Physical Society, V. 49, No. 7, 2004

Density Functional Theory Studies of Transition metal-Ion-Benzene Sandwich Complexes. 71st Annual Southeastern Section meeting of the American Physical Society, Oak Ridge, TN, Nov, 2004; Bulletin of the American Physical Society, V. 49, No. 7, 2004

Physical and Chemical quenching of Li(3p) by several gases. Colloquium at Morgan State University, Department of Chemistry and Physics, March 2004

Nonradiative Energy Transfer in Li (4p) + (Ar, H₂, CH₄) Collisions, Presented at the National Conference of Black Physicist, Washington DC, Feb. 2004

Energy Transfer in Li(4p) + (Ar, H₂, CH₄) Collisions Presented at the SESAPS meeting, Wilmington, NC Nov. 2003.

Reactive and non reactive quenching of Li(3p) by CH₄, C₂H₄, C₂H₆, C₃H₈. Presented at the SESAPS meeting, Wilmington, NC Nov. 2003.

Reactive and non-reactive quenching of Li(np) by Ar, H₂, CH₄, C₂H₆, C₃H₈. *Colloquium*, at Laboratoire de Chimie Théorique et Modélisation Moléculaire Université de Provence - Marseille Cedex 20, 2003.

Chemical Physics Research at NCA&T: Reactive and non reactive quenching of Li(np) by several Gases. Colloquium at the Department of Physics, Addis Ababa University, Ethiopia, July 2003.

Research and Education in Chemical Physics at A&T, talk given at the annual meeting of the National Society of Black Physicists, Atlanta, GA, February, 14, 2003, at the National Science Foundation, Division of Chemistry, December 11, 2002, at the NC AAPT meeting March 22, 2003, and at the Annual Life and Physical Sciences Symposium, NC A&T Biology Dept., April 5, 2003.

DFT Studies of the Structure of Fe⁺ R_n (R = Ar, Xe, n = 1 – 6) Clusters. Presented at the American Physical Society Division of Atomic, Molecular and Optical Physics Meeting, May 29-June 1, 2002, Williamsburg, VA.

Red-Wing scattering Studies of Li(4p) + Ar, H₂ and CH₄ Collisions. Presented at the American Physical Society Division of Atomic, Molecular and Optical Physics Meeting, May 29-June 1, 2002, Williamsburg, VA.

Energy Transfer in Li(3p) + Ar, H₂ and CH₄ Collisions: A comparative study. Presented at the American Physical Society Division of Atomic, Molecular and Optical Physics Meeting, May 29-June 1, 2002, Williamsburg, VA.

Energy Transfer and Reactions in Li*(3p) + H₂ Collisions. A seminar presented at the Department of Physics, East Tennessee State University, Johnson City, TN, Oct. 30,2000

Scattering State Spectroscopy of the reaction Li*(3p) + H₂ ---LiH (v'' = 1, 2, J'') + H APS April 2001 meeting, Washington D.C., April 28, 2001

From Diatomic Molecules to Clusters and Beyond: Theory and Experiment. A seminar presented at the Department of Computer Science, Duke University, Durham, NC, Oct. 19,2000

Quenching of Li(3p) by H₂ and Ar. Presented at the LS-NCAMP Research Conference, Winston Salem State University, NC , Feb. 2000

Formation of LiH by Far Wing Scattering of the Li*(2p)+H₂ complex. Presented at the 66th SESAPS meeting Nov 7-9, 1999, Chapel Hill, NC.

Formation and Chemistry of Nanoparticles from Gaseous Precursors by Multiphoton Ionization/Dissociation. Presented at the Gordon Research Conference On Clusters, Nanocrystals, & Nanostructures Connecticut College July 24 - July 29, 1999.

Multiphoton Ionization/Dissociation Studies of Iron Reactions in Gas Phase. Presented at the American Chemical Society Southeast Regional Meeting, Knoxville, TN, Oct. 17- 20, 1999

Multiphoton Ionization/dissociation of Benzene-Fe (CO)₅ and Methanol-Fe (CO)₅ Clusters . Presented at the APS (American Physical Society) Meeting in Atlanta GA., March 1999

Model Potentials for Group II Metal-atom-Rare-Gas atom Interaction .Presented at the APS (American Physical Society) Meeting in Atlanta GA., March 1999

Laser-induced transition metal chemistry within clusters Presented at the 9th International Symposium on Resonance Ionization Spectroscopy: New Directions and Applications June 21 - June 25, 1998, The University of Manchester Institute of Science and Technology.

Organometallic Nanochemistry in Gas-Phase Clusters. Presented at the American Chemical Society Southeastern Regional Meeting, Nov 4-7, 1998, RTP, NC

Ab initio studies of the Na(3s).Ar, ²Σ Na (3p).Ar , ²Σ and Na(4p).Ar, ²Σ states. Presented at the Second Annual NCAMP Research Conference, UNC Charlotte, April 4, 1998.

A New Model Potential for Excited State Metal Atom-Rare Gas Interactions. Presented at the Second Annual Life and Physical Sciences Research Symposium, Feb 21, 1997, NCA&T.

Laser Induced Organometallic Chemistry Within Clusters. Presented at the sixth Annual Consortium on Nanostructured Materials, University of Kentucky, Lexington KY, Oct. 24-26, 1997.

Inverse Laser Ablation: Formation and Chemistry of Nanoparticles from Gaseous Precursors. Presented at the fourth International Conference on Laser Ablation (COLA 97), Asilomar, CA July 20-25, 1997

Metal ion Chemistry Initiated by Ionization/Dissociation of Organo-Metallic Precursors. Presented
1. Fourth Winter Gordon Research Conference on Structures, Energetics and Dynamics of Gaseous Ions. Feb. 22-28, 1997, Ventura CA. 2. The Fifth Workshop Consortium for Nanostructured Materials, Nashville, Tennessee, Oct. 17-19, 1996. 3. Joint APS/AAPT Meeting, April 17-21, 1997 Washington D.C

Metal-Ion Chemistry in Clusters Initiated by Ionization/Dissociation of Organometallic Precursors," presented at the 17th International Symposium on Molecular Beams, Paris, France, June 2, 1997 (Invited).

Non-Resonant Excess Photon Detachment of H- Ions. Presented at the 1996 Joint Meeting of Texas Section of APS, AAPT & Zone 13 of SPS, March 15-16, 1996

Excess Photon Detachment of H- Ions with 1.17 eV Photons. Presented at the 1996 Annual Meeting of DAMOP, May 15-18, 1996, Ann Arbor MI.

Excess Photon Detachment of Negative Hydrogen Ions. Contributed paper to the 1996 QELS Conference. Anaheim, CA, June 2-7, 1996.

Airborne Mercury Detection by Resonant UV Laser Pumping. Presented at Connecticut Microelectronics and Optoelectronics Symposium, Storrs, Connecticut, 1996.

Full and Half-Collision Studies of Metal Atom Singlet -to Triplet Deactivation Induced by Rare Gas Atoms. Presented at the Annual Meeting of the Optical Society of America and XIth Interdisciplinary Laser Science Conference. Portland, OR, Sept. 1995.
Presented at the annual meeting of the National Society of Black Physicists, April 12-15, 1995 Atlanta GA.

Spectroscopy, Energy Transfer, and Dynamics in Metal atom- rare gas system and Metal-Hydrogen Systems. Colloquium presented at the Departments of Physics of Clemson University (Nov. 1993) and University

of North Carolina in Greensboro (April 1994)

Potential energy Curves of M (Na^{2p}). RG (²Π) excited state and M+. RG ground states (M=Li, Na; RG=He, Ne. Presented at the Annual Meeting of the Optical Society of America and the XTh Interdisciplinary Laser Science Conference, Dallas, Texas, Oct. 1994.

Alignment effects in the Reaction of Na (4p) +H₂. Presented at the Seventh Interdisciplinary Laser Science Conference, Monterey, California, 1991

Reaction Dynamics of Na (4p) + H₂. Presented at the 10th International Conference on Spectral Line Shapes, Austin, Texas, 1990.