

CURRICULUM VITAE

G. Robert Shelton, Ph.D.

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Education

University of North Texas, Denton, TX:

- **Post-Doctoral Research**, Theoretical Organic Chemistry 2006
Advisor: Weston T. Borden
Stability of small molecules and hydrogen tunneling

University of Florida, Gainesville, FL:

- **Doctor of Philosophy**, Physical Organic Chemistry 2004
Advisor: William R. Dolbier
Computational and experimental investigation of fluorinated cyclopropenes
Mentors: Merle Battiste, Adrian Roitberg, & Khalil Abboud

Southern Illinois University – Edwardsville, Edwardsville, IL:

- **Masters of Science**, Chemistry 1999
Advisor: Timothy B. Patrick
Synthesis of a Fluorinated Pheromone: (Z)5(1-Decenyl) dihydro2(3H)furanone
- **Bachelor of Science**, Chemistry; minor in Biology. 1997
Advisor: James R. Hunsley
Synthesis and application of boron rich products for neutron activation cancer therapy

Academic Appointments

Assistant Professor & Program Coordinator, 8/15 – Present
Texas A&M University-San Antonio (A&M-SA)

Director of International Education 9/16 – 8/19

Visiting Researcher, *University of Texas San Antonio* 6/17 – Present

“Visiting” Faculty, *Western Kentucky University* 8/15 – Present

- Taught Undergraduate Chemistry Lectures & Laboratories
 - Organic Chemistry I & II
 - Biochemistry I & II
 - General Chemistry I & II
 - History of Science / Study Abroad
- Developing Courses & Curriculum
 - Chemistry Program Proposal
- Served on Departmental and University Committees
 - Chaired and/or participated on numerous Hiring Committees (2015-Present)
 - Served on the Academic Technologies Advisory Council (2017)
 - Served on the Technology Advisory Council (2016-17)
 - Elected to Faculty Senate 2015
 - Secretary of the Senate (2016-17)

- Calendar Committee (2017)
- Faculty Co-Chair of the ACS affiliated Chemistry Club (2016-Present)

Associate Professor, *Austin Peay State University* 6/13 – 8/15

Assistant Professor, *Austin Peay State University* 8/10 – 6/13

- Served on Departmental and University Committees
 - Elected to Faculty Senate 2012
 - Chair of Nominations & Election Committee (2013-14)
 - Co-Chair of Nominations & Election Committee (2012-13)
 - University Assessment Analysis Council (2010-2015)
- Served on Undergraduate Thesis Committees
 - Joshua Hinckley, B.S. "A computational study of the fluoro-substituent effect of cyclopropene acidity and anion structure".
 - Ashley McNeill, B.S. "Computational Studies of Gas-Phase Peptide Acidities and Decomposition Mechanisms".
 - Covington, Cody, B.S. "Computational Analysis of Heterofullerene-esk Structures".
- Taught Undergraduate Chemistry Courses
 - Introductory Chemistry
 - General Chemistry
 - Organic Chemistry
 - Advanced Organic Chemistry
 - Introduction to Research
 - Senior Seminar
 - Selected Topics in Chemistry: Study Abroad London
- Taught Undergraduate Chemistry Laboratories
 - General Chemistry for Science Majors
 - Organic Chemistry
- Developing & Redesign of Courses
 - Computational Chemistry (New- Face to face)
 - Chemical Literature (Redesign - Hybrid)
 - Introductory Chemistry for Non-Science Majors (Online)
 - General Chemistry for Science Majors (Online)
 - General Chemistry for Science Majors Laboratory (Redesign)
- Developed New Courses
 - "Palladium, Rhodium & Niobium: Rediscovering Chemistry's British Roots"
 - 14-day inclusive study abroad course
- Directed Undergraduate Research
 - Directed students on projects ranging from computational studies, synthetic methodology, and formulation.
- Faculty Co-Chaired of the ACS affiliated Chemistry Club

Adjunct Assistant Professor, *University of North Texas* 1/07 – 8/11

- Summer Advisor for Freshman and Transfer Students
- Served on Graduate Dissertation/Thesis Committees
 - Manrique, Carissa, Ph.D. (May 2011). "Effects of Using Logic and Spatial Cybergames to Improve Student Success Rates in Lower-Division Chemistry Courses"
 - Powell, Cynthia, Ph.D. (August 2010). "Podcast Effectiveness as Scaffolding Support for Students Enrolled in First-Semester General Chemistry Laboratories"

- Mewhinney, Christina, Ph.D. (August 2009). "Predicting Chemical and Biochemical Properties Using the Abraham General Solvation model."
- Taught Undergraduate Chemistry Courses
 - General Chemistry for Science Majors
 - Organic Chemistry
- Undergraduate General Chemistry Laboratories
 - Lectured on experimental topics
 - Supervising teaching assistants
- Undergraduate Organic Laboratories
 - Lectured on experimental topics including theory, safety, and procedure
 - Curriculum development and scheduling
 - Supervising teaching assistants

Developing Online Laboratory Lectures

- Developing Online Supplemental Modules for Organic Chemistry
- Chemical Education Research
 - Game Theory & Gender Bias in 3-D visualization

Adjunct Associate Professor, *Texas Woman's University* 1/09 – 12/09

Adjunct Assistant Professor, *Texas Woman's University* 8/05 – 1/09

Taught Undergraduate Chemistry Courses

- Introductory Chemistry, lecture and laboratory
- Introductory Organic and Physiological Chemistry, lecture and laboratory
- General Chemistry for Science Majors
- Organic Chemistry, lecture and laboratory
- Biological Chemistry, lecture
- Developed online courses
 - Introductory Chemistry
 - Introductory Organic and Physiological Chemistry

Post-Doctoral Research Assistant, *University of North Texas* 1/05 – 1/07

Professor Weston Borden, Welch Chair in Chemistry

- Researched various topics related to organic and organometallic structural calculations
- Collaborated with experimentalists making qualitative and quantitative interpretations of results

Memberships, Honors, & Activities

Member of the American Chemical Society 1995 – Present

- San Antonio Local Section
 - Finance Committee 2016
 - President Elect 2017
 - President 2018
- Organic, Fluorine, & Chemical Education Division member
- Peer Reviewer for Journal of the American Chemical Society, Journal of Chemistry Education,
& Journal of Organic Chemistry

- Symposium Chair “Innovative use of technology in under-graduate chemistry course”
257th ACS National Meeting Orlando, FL, March 31-April 4, 2019.
 - ACS Science Coach 10/15 – 5/16
 - Fisher Elementary School with Science Coordinator Leah Clark
 - Meet monthly for a day with individual grade levels on various science topics
 - Symposia Committee “Chemistry Education Research”
BCCE 2016 - Northern Colorado University August 14-16, 2016.
 - Symposium Organizer “Mobile Technology in Undergraduate Chemistry Courses”
247th ACS National Meeting Dallas, TX, March 16-20, 2014.
 - BCCE 2012 Symposia Chair “Innovative Uses of Technology in Undergraduate Chemistry Courses” BCCE 2012 – The Pennsylvania State University July 29-August 2, 2012.
 - Symposium Organizer “Analysis of current trends that support preparing general chemistry students for new frontiers”
247th ACS National Meeting Dallas, TX, March 16-20, 2014.
 - 2010 Biennial Conference on Chemical Education (BCCE) 8/07 – 8/10
 - Chair of Publicity and Communications
 - General Planning Committee
- Regional Director of Associated Chemistry Teachers of Texas (ACT²) 8/15 – Present
- A&M-SA Regional Science Olympiad 2016 – Present
- Designed and administered chemistry related activities
- Jaguar Demo Team 8/15 – Present
- A locally touring chemistry demonstration program
 - *Career Day* 10/18
 - *Nichols Elementary School, Booking confirmed 8/18*
 - *Career Day* 12/18
 - *Fisher Elementary School, Booking confirmed 8/18*
 - Career Day 11/16
 - Fisher Elementary School, approx. 800 students in attendance
 - Career Day 11/15
 - Fisher Elementary School, approx. 800 students in attendance
 -
- 2nd Annual Researcher Development Conference 3/12
- Tennessee Board of Regents Office of Academic Affairs
- Member of the Council on Undergraduate Research (CUR) 2/11 – Present
- Attended CUR Dialogues, Washington D.C. (Grant Writing) 2/11
 - Attended CUR Dialogues, Washington D.C. (Grant Writing) 2/13
- Big Red Demo Team 8/10 – 8/15
- A locally touring chemistry demonstration program
 - Science Is Fun 5/14
 - Barsanti Elementary School, 2nd grade classroom, DoDEA
 - Invited by Kerri Patterson; Ft. Campbell, KY

- Career Day 4/14
 - Jackson Elementary School, 4th & 5th grade classroom, DoDEA
 - Invited by Carla Smith; Ft. Campbell, KY
- Chemistry for the new year 1/14
 - Title I Learning Center, K-5th grades, CMCSS
 - Invited by Tracy Dewese; Clarksville, TN
- Chemistry for the new year 1/13
 - Title I Learning Center, K-5th grades, CMCSS
 - Invited by Tracy Dewese; Clarksville, TN
- Science Is Fun 5/12
 - Barsanti Elementary School, K-5th grade assembly, DoDEA
 - Invited by Carla Smith; Ft. Campbell, KY
- Science Is Fun 1/12
 - Title I Learning Center, K-5th grade assembly, CMCSS
 - Invited by Tracy Dewese; Clarksville, TN
- Youth Leadership Clarksville 8/11
 - Ice Cream Social for 6th-8th Grades, Leadership Clarksville.
 - Invited by Sheila Bryant
- Career Day 4/11
 - Cumberland Height Elementary, CMCSS
 - K-5th grade assembly & 1st grade classroom
 - Invited by Rebecca Aldred, Clarksville, TN
- Career Day 4/11
 - Barsanti Elementary School, K-5th grade assembly, DoDEA
 - Invited by Carla Smith; Ft. Campbell, KY
- Science Fair Prep Day 1/11
 - Title I Learning Center, 4th-8th grade assembly, CMCSS
 - Invited by Tracy Dewese; Clarksville, TN
- Clarksville-Montgomery County School System (CMCSS) 11/10
 - Clarksville High School, 9th grade classroom
 - Invited by Sara Cochie; Clarksville, TN

- Chi Epsilon Mu (XEM) 8/10 – 8/15
 - APSU Student Affiliates of the American Chemical Society
 - Faculty Advisor

- Texas College and Career Readiness for Chemistry Symposium 7/09
 - Moderator of the “Interface Speed Lunch”

- Fort Worth Regional Science and Engineering Fair 12/07 – 5/09
 - 2009 IRB/SRC Chair 2009
 - 2008 Science Fair Judge 2008
 - 2008 General Planning Committee 2007

- Mean Green Demo Team 1/06 – 8/10
 - Nationally touring chemistry demonstration program

- Gene Pike Middle School Field Day 4/09
 - Invited by Northwest ISD; Justin, TX
 - Campus Chemistry, Girl Scouts 2/09
 - Invited by Teresa Overall; University of North Texas
 - National Convention of the Society of Hispanic Professional Engineers 11/08
 - Society of Hispanic Professional Engineers (SHPE)
 - Two shows in Phoenix, AZ
 - Reaching for the Stars 10/08
 - San Joaquin Delta College Stockton, CA
 - Invited by The Jose Hernandez Reaching For The Stars Foundation
 - Pilot Point Elementary School Summer Science Camp 08/08
 - Invited by Corey Haughton
 - Opening Ceremony at Association of Chemistry Teachers Texas (ACT₂) 08/08
 - ACT₂ Biennial Conference “Fueling The Future 2008” Tyler Texas
 - School Assembly at M.J. Miller Elementary, Lake Worth Texas 01/08
 - Invited by Brent McClain and Carla Smith
 - CHEM IS TRY at University of Texas at San Antonio 12/07
 - Invited by Carmen Fies and Kathleen Mittag
 - For in-service science and mathematics teachers
 - ScienceFEST at Winston Science 11/07
 - U.T. Southwestern Medical School Health Science Center Dallas, TX
 - National Convention of the Society of Hispanic Professional Engineers 11/07
 - Two shows in Philadelphia, PA
 - Blanche Dodd Intermediate School 10/07
 - Invited by Tara Hatford; Krum, TX
 - State Fair of Texas 10/07
 - League of United Latin American Citizens (LULAC), SHPE, & ExxonMobil
 - Reaching for the Stars 9/07
 - Program for disadvantaged eighth graders at University of the Pacific Stockton, CA
 - Invited by The Jose Hernandez Reaching For The Stars Foundation
 - Engaging Students with the Mean Green Top 10 9/07
 - Ft. Worth Independent School District's Professional Development Day
 - Campus Chemistry, Girl Scouts 2/07
 - Invited by Teresa Overall; University of North Texas
 - National Convention of SHPE 1/07
 - Denver, CO
 - Marilyn Janice Miller Elementary School 12/06
 - Invited by Carla Smith; Lake Worth, TX
 - Campus Chemistry, Girl Scouts 2/06
 - Invited by Teresa Overall; University of North Texas
- Alpha Chi Sigma (AXΣ) 1/06 – Present
- Faculty Advisor 2006
 - Bylaw & Constitutional Committee Member 2007

Illinois State and Regional Science Olympiad 1996 – 1998

- Coordinated, designed, and administration of activities

Invited Lectures & Workshops

Lecture: “The trouble with Texas students and vodkas.” 2/18

- Southern Illinois University Edwardsville, Chemistry Department

Workshop: “Implementing iPads in the Chemistry Curriculum”

- Chemistry Collaborations Workshops & Communities of Scholars (cCWCS)
 - Weekend workshop in Atlanta, GA 5/17
 - Weekend workshop in San Antonio, TX 5/16
 - Weekend workshop in Atlanta, GA 5/14
 - Weekend workshop in Atlanta, GA 5/13
 - Weekend workshop in Atlanta, GA 1/13

Workshop: “iPads in the Classroom and Laboratory”

- University of North Texas 3/13
 - Six hour workshop for High School and College teachers
 - Invited by the Texas College of Career Readiness Symposium for Chemistry
- University of Oklahoma 11/12
 - 4 hour workshop for Professors and Instructors
 - Invited by Dr. Mark C. Morvant - Executive Director, Center for Teaching Excellence. Professor, Department of Chemistry & Biochemistry
- University of North Texas 10/12
 - Six hour workshop for High School and College teachers
 - Invited by the Texas College of Career Readiness Symposium for Chemistry

Grants, Proposals, & Scholarship Awards

Funded

Passer Education Grant 2017

- Spatial metabolomic and molecular cartography using MALDI
 - \$860 to offset travel expenses, University of Texas San Antonio

NSF-sponsored Chemistry Collaborations, Workshops & Communities of Scholars 2017

- Implementing iPads in the chemistry curriculum
 - Workshop schedule for May 2017 in Atlanta, GA.
 - Approximately \$9000 for honorariums, accommodation & transportation, participant accommodation, materials and supplies.

NSF-sponsored Chemistry Collaborations, Workshops & Communities of Scholars 2016

- Implementing iPads in the chemistry curriculum
 - Workshop schedule for May 2016 in San Antonio, TX.

- \$9000 for honorariums, accommodation & transportation, participant accommodation, materials and supplies.
- NSF-sponsored Chemistry Collaborations, Workshops & Communities of Scholars 2014
- Implementing iPads in the chemistry curriculum
 - Workshop in the 2014 schedule for the period of May 16-18, 2014
 - \$7500 for honorariums, accommodation & transportation, participant accommodation, materials and supplies.
- APSU Technology Access Fee (TAF) Grant 2014
- Modernization of General Chemistry Laboratories (Part 2 of 3)
 - \$52,000 for the purchase of Apple iMacs and Vernier probes and sensors for the General Chemistry, Organic, and Biochemistry laboratories.
- APSU Technology Access Fee (TAF) Grant 2013
- Modernization of General Chemistry Laboratories
 - \$50,400 for the purchase of Apple iMacs and Vernier probes and sensors for the General Chemistry, Organic, and Biochemistry laboratories.
- Tennessee EPSCoR ROA: 2013
- In silico de novo development and design of ligands for organometallic biomimetic catalysts
 - \$20,000 Start up grant for collaborative project with University of Memphis
 - Collaboration with Drs. Xuan Zhau, C. Edwin Webster, & Nathan DeYonker
- NSF-sponsored Chemistry Collaborations, Workshops & Communities of Scholars 2013
- Implementing iPads in the chemistry curriculum
 - Workshop in the 2013 schedule for the period of May 17-19, 2013
 - \$7500 for honorariums, accommodation & transportation, participant accommodation, materials and supplies.
- NSF-sponsored Chemistry Collaborations, Workshops & Communities of Scholars 2012
- Implementing iPads in the chemistry curriculum
 - Workshop in the 2013 schedule for the period of January 11-13, 2013
 - \$7300 for honorariums, accommodation & transportation, participant accommodation, materials and supplies.
- APSU Technology Access Fee (TAF) Grant 2012
- Modernization of General Chemistry Laboratories
 - \$50,400 for the purchase of Apple iMacs and PASCO probes and sensors for the General Chemistry, Organic, and Biochemistry laboratories.
 - Partially funded due to lack of funds as a result of campus construction projects.
- APSU Annual Equipment Award 2012
- Academic Affairs Annual Equipment Award

- \$21,409.99 for the purchase of 30 Apple iPads, applications, and support materials for the development of pedagogy using this emerging technology

APSU Summer Fellows Research Program 2011

- Computational investigation of organometallic complexes as catalysts for the production of polycarbonates from biorenewable resources
 - \$5000 to support research endeavors

APSU Annual Equipment Award 2010

- Academic Affairs Annual Equipment Award
 - \$6456 for the purchase of 12 Apple iPads and applications for the development of pedagogy using this emerging technology

Learning Enhancement Grant 2008

- Success in Organic Chemistry an Individually Assessed Learning (SOCIAL) Program
 - \$13,000 for the development of various online modules for organic chemistry classes and labs

Lifelong Learning Trial Project

- Creating online problem-solving exercises with visual cues and audio explanations 2007
 - \$1,000 for hardware and software

Pending

None

Unfunded

ACS Petroleum Research Fund Undergraduate Research Proposal

- Fundamental aspects of structural organization in novel hybrid thin glass-polymer composites
 - PI Andriy Kovalsky (Physics, APSU); co-PI G. Robert Shelton (APSU, Chemistry)
 - \$70,000 Proposal Submitted October 2013

NSF DUE - Improving Undergraduate STEM Education

- Bench Research Instrumental and Technology Training (BRITT) for future Research Experiences for Undergraduates (REU)
 - PI G. Robert Shelton; co-PIs Nathan DeYonker, Paul Simone (U-Memphis, Chemistry), and William Acree (UNT, Chemistry)
 - \$860,000 Proposal Submitted February 2014

NSF CBET – Catalysis and Biocatalysis

- The synthesis and evaluation of PDVB-IV as a heterogeneous catalyst in manufacturing biodiesel
 - PI Phillip Hall (MEng, APSU); co-PIs G. Robert Shelton and Chester Little (APSU)
 - \$300,000 Proposal Submitted February 2014

NSF DBI Advances in Bio Informatics

- ABI Innovation: Protein secondary structure prediction using BLAST and exhaustive RT-RICO
 - PI Leong Lee (APSU, Math); co-PIs Ronald Frank (MST, Biology), and Jennifer Leopold (MST, CS)
 - \$455,000 Proposal Submitted August 2013

NSF Computing Education for the 21st Century (CE21)

- CS10K: Tennessee Teaching Excellence in Computer Science (TTECS)
 - PI Leong Lee (APSU, Math)
 - \$880,000 Proposal Submitted April 2013

NSF STEM Talent Expansion Program (STEP) 2012

- ASPIR²ES: APSU STEP Program Innovations for Recruiting and Retaining Engineers and Scientists
 - PI along with Jennifer Fillingim (Math); co-PIs Loretta Griffy (Math & Title III), and Cindy Taylor (Biology & Associate Dean CoSM)
 - \$2,500,000 Proposal

NSF Math and Science Partnership 2012

- Collaborative Redesign of Science in Tennessee (CReST)
 - Awardee Organization would be Middle Tennessee State University
 - co-PI for APSU with Ann Assad (Math)

TRIO Program: Upward Bound Math-Science

- \$250,000 Proposal submitted July 2012, Author only

Tennessee First to the Top: 2012

- Collaborative STEM Professional Development for High School Teachers
- \$198,000 Proposal with Dr. Sheila Pirkle (Education)

Tennessee EPSCoR ROA: 2012

- In silico de novo development and design of ligands for organometallic biomimetic catalysts
- \$20,000 Start up grant for collaborative project with University of Memphis
- Drs. Xuan Zhau, C. Edwin Webster, & Nathan DeYonker

NSF Science, Technology, Engineering, and Mathematics Talent Expansion Program 2011

- ASPIRES: APSU STEP Program Inspiring and Recruiting for Employment in STEM
 - Collaborative including APSU Ft. Campbell, and 3 area Community Colleges
 - \$1,900,000 Proposal over 5 years
 - CoPI with Dr. Fillingim (Math)

APSU Annual Equipment Award 2010

- Academic Affairs Annual Equipment Award

- \$2420 for the purchase of an Apple iPads and PASCO probes and sensors for the development of pedagogy and future labs using real time data collection technology
- ACS Petroleum Research Fund Undergraduate New Investigator Proposal 2010
- Computational and experimental investigation of cyclic systems
 - \$50,000 for the development and implementation
- NSF Math and Science Partnership (MSP) 2010
- Collaborative Redesign of Science in Tennessee (CReST)
 - Potential Chemistry sub-contact position
 - Awardee Organization would be Middle Tennessee State University
- NSF: National STEM Education Distributed Learning (NSDL) Grant 2009
- College Readiness for In-Service STEM Teacher Workshops Using ALEKS and NSDL Resources for Mathematics and Chemistry Content.
 - P.I.s include Drs. Mason (Chemistry) and Teel (Math)
 - Empirical research proposal for \$150,000 over one year.
- NSF: Research and Evaluation on Education in Science and Engineering (REESE) Grant 2009
- Empirical Research on Emerging Cyberlearning Topics (ERECT): Impacts and corollaries of spatial ability interventions on persistence and success for STEM undergraduates
 - P.I.'s include Drs. Mason (Chemistry); Hughes (Biology); Chen (Education); and Saylor (Education)
 - Empirical research proposal for \$1,000,000 over three years
- NIH Challenge Grant: Connecting College Readiness to Research Careers 2009
- Identify the FOCUS group of high-need students and enroll them in a registration restricted recitation section for general chemistry. Weekly monitor their progress on ALEKS. Successful completers of ALEKS will be employed the following semester as peer Teaching Assistants (pTAs) for the next group of general chemistry students and enter a research lab at the end of the 2-year program furthering their individual accomplishments as future scientists.
 - P.I.'s include Drs. Mason (Chemistry) and Hughes (Biology)
 - Empirical research proposal for \$1,000,000 over two years

Letters of Intent

- In progress: Charles Koch Foundation. Co-PIs: Broadway, S.; Mamiya, B.; Petros, A.; Powell, C.; Shelton, G.R.; Walker, D.; Weber, R.; Williamson, V. "STEM BRANCHES (Boosting Retention and Numerical Competency for Higher Education Success) workshops, \$288,000.
- Pending: The Brown Foundation, Inc. Co-PIs: Broadway, S.; Mamiya, B.; Petros, A.; Powell, C.; Shelton, G.R.; Walker, D.; Weber, R.; Williamson, V. "LIMBS for STEM" (LIMBs = Leveling & Identifying Mathematics Blocks), mailed December 19, 2017, \$53,000/institution, \$318,000.

- Rejected: Alfred P. Sloan Foundation, STEM Higher Education. Co-PIs: Broadway, S.; Mamiya, B.; Petros, A.; Powell, C.; Shelton, G.R.; Walker, D.; Weber, R.; Williamson, V. "LIMBS for STEM" (LIMBs = Leveling & Identifying Mathematics Blocks), submitted November 30, 2017, \$475,000.
- Rejected: Lyle Spencer Research Awards (10011989) Co-PIs: Broadway, S.; Mamiya, B.; Petros, A.; Powell, C.; Shelton, G.R.; Walker, D.; Weber, R.; Williamson, V. "Texas STEM BRANCHES" (BRANCHES = Boosting Retention And Numerical Competency for Higher Education Success), submitted October 12, 2017, \$750,000-1,000,000 (category).

Publications (Peer Reviewed)

Impact of basic arithmetic skills on success in first-semester general chemistry. Williamson, V.M., Walker, D.R., Chuu, E., Broadway, S., Mamiya, B., Powell, C. B., Shelton, G. R., Weber, R., Dabney, A. R. Mason, D., *Chem. Educ. Res. Pract.*, 2019, Advance Article.

ConfChem Conference on Mathematics in Undergraduate Chemistry Instruction: MUST-Know Pilot Study—Math Preparation Study from Texas. Albaladejo, J., Broadway, S., Mamiya, B., Petros, A., Powell, C.B., Shelton, G.R., Walker, D.R., Weber, R., Williamson, V.M., Mason, D., *J. Chem. Educ.*, 2018, 95 (8), pp 1428–1429.

ICT in Teaching and Learning Chemistry Activities on the iPad. Shelton, G.R.; Mason, D. *African Journal of Chemical Education*; 2014; 4(3); 182-188.

Green Lights that Engage Chemistry Students. George, A.; Smith, C.; Shelton, G.R.; Mason, D. *Chimica nella Scuola*. (edited by the Italian Chemical Society); 2012; 34(3); 232-236.

Calculations of the Effect of Tunneling on the Swain-Schaad Exponents (SSEs) for the 1,5-Hydrogen Shift in 5-Methyl-1,3-Cyclopentadiene. Can SSEs Be Used to Diagnose the Occurrence of Tunneling? Shelton, G. R.; Hrovat, D. A.; Borden, W. T. *J. Am. Chem. Soc.*; 2007; 129(51); 16115-16118.

Oxidation of Tertiary Silanes by Osmium Tetroxide. Valliant-Saunders, K.; Gunn, E.; Shelton, G. R.; Hrovat, D. A.; Borden, W. T.; Mayer, J. M. *Inorg. Chem.*; 2007; 46(13); 5212-5219.

Tunneling in the 1,5-Hydrogen Shift Reactions of 1,3-Cyclopentadiene and 5-Methyl-1,3-Cyclopentadiene. Shelton, G. R.; Hrovat, D. A.; Borden, W. T. *J. Am. Chem. Soc.*; 2007; 129(1); 164-168.

Why Does Perfluorination Render Bicyclo[2.2.0]hex-1(4)-ene Stable toward Dimerization? Calculations Provide the Answers. Shelton, G. R.; Hrovat, D. A.; Wei, H.; Borden, W. T. *J. Am. Chem. Soc.*; 2006; 128(36); 12020-12027.

Cooperative and Competitive Effects of Substituents at C1 and C4 on the Barriers to Ring Inversion of 5,5-Difluorobicyclo[2.1.0]pentanes. Shelton, G. R.; Hrovat, D. A.; Borden, W. T. *J. Org. Chem.*; 2006; 71(8); 2982-2986.

Rate Constants For Hydrogen Abstraction From Alkoxides By A Perfluoroalkyl Radical. An Oxyanion Accelerated Process. Cradlebaugh, J.A.; Zhang, L.; Shelton, G.R.; Litwiniendo, G.; Smart, B.E.; Ingold, K.U.; Dolbier, W.R. *Organic & Biomolecular Chemistry*; 2004; 2(14); 2083-2086.

4,5-Dehydrooctafluoro[2.2]paracyclophane: Facile Generation And Extraordinary Diels-Alder Reactivity. Battiste, M.A.; Duan, J.X.; Zhai, Y.A.; Ghiviriga, I.; Abboud, K.A.; Roitberg, A.; Shelton, G.R.; Dolbier, W.R.; *Tetrahedron Letters*; 2002; 43(39): 7047-7049.

Computational Discovery of a Novel Automerization Process for 1-Fluorocyclopropene. Dolbier, W. R., Jr.; Shelton, G. R.; Battiste, M. A.; Stanton, J. F.; Price, D. R. *Org. Lett.*; 2002; 4(2); 233-235.

Publications (Apps and Flash Modules)

Chemistry Gears, version 1.0; iTunes: Austin Peay State University, Clarksville, TN 2014;
<https://itunes.apple.com/us/app/chemistry-gears/id894357469?mt=8>

3d Spinner, version 1.0; Flash: University of North Texas Center for Learning Enhancement, Assessment, and Redesign (UNT-CLEAR), Denton, TX 2008;
http://web3.unt.edu/cdl/course_projects/CHEM/3D_Spinner/3D_Spinner2.html

Anions & Cations, version 1.0; Flash: UNT-CLEAR, Denton, TX 2007;
http://web3.unt.edu/cdl/course_projects/CHEM/gear%20game/AnionsCations.html

Chunking Game, version 1.0; Flash: UNT-CLEAR, Denton, TX 2007;
http://web3.unt.edu/cdl/php/course_projects/Chunking/PlayerWindow.html

Publications (Invited Articles)

MnyOx Baggie Series; Mason, D.; Shelton, G. R.; Chem13 News.

The following series of articles have been accepted and are awaiting publication.

Para- and diamagnetic properties of manganese.

Physical properties, periodicity and bonding of manganese.

Physical and chemical properties of the transition metal manganese.

Signature Mugs Series; Shelton, G. R.; Casao, B; Mason, D.; Chem13 News.

Firsts. April 2016.

Tragedies of oxygen. May 2016.

Texas connections. September 2016.

Across the pond. October 2016.

Across the pond – Continental Europe. December 2016.

Signature Mugs: Seaborg group. February 2017.

Presentations

Shaken not stirred, y'all: A comparison of Texas vodkas, part two (Oral). Shelton, G.R., Samenuk, G., Montoya, M., Bach, S., Mason, D.S., ACS National Meeting & Exposition. New Orleans, LA, March 18-22, 2018.

Mathematics competency of males and females in general chemistry and STEM retention (Oral). Shelton, G.R., Simpson, J., ACS National Meeting & Exposition. New Orleans, LA, March 18-22, 2018.

MUST-Know Pilot—Math Preparation Study from Texas (Invited Online). Petros, A., Weber, R., Broadway, S., Ford, R., Powell, C., Hunter, H., Williamson, V., Walker, D., Mamiya, B., Del Pilar, J., Shelton, G.R., Mason, D., 2017 Fall ConfChem: Mathematics in Undergraduate Chemistry Instruction

Workshop: cCWCS- sponsored workshop on the use of iPads in teaching college chemistry. BCCE 2016, University of Northern Colorado, CO, August 1, 2016.

A computational study of the fluoro-substituent effect on cyclopropane acidity and anion structure (poster). Shelton, G.R., Hinckley, J., ACS National Meeting & Exposition. San Diego, CA, March 13-17, 2016.

Balancing RTP at a PUI (Oral). Shelton, G.R., BCCE 2014, Grand Valley State University, MI, August 6, 2014.

Trouble with undergrads – getting them interested in graduate school (Oral). Shelton, G.R., BCCE 2014, Grand Valley State University, MI, August 3, 2014.

Project iPad: Evaluating impact on student learning across multiple campuses (Oral). Shelton, G.R., Jones, R.M., ACS National Meeting & Exposition. New Orleans, LA, April 7-11, 2013.

Project iPad: Behind the scenes and lessons learned (Oral). Shelton, G.R., Jones, R.M., BCCE 2012, State College, PA, July 31, 2012.

Project iPad: Integrating iPads into general chemistry (Oral). Jones, R.M., Shelton, G.R., BCCE 2012, State College, PA, July 31, 2012.

The iPad Project: Integrating iPads into General Chemistry (Oral). Jones, R.M., Shelton, G.R., Abstracts of Papers of the ICCE ECRICE, Rome Italy July 2012.

Green Lights that engage chemistry students (Oral). Smith, C.G., Mason, D, Shelton, G.R.; Abstracts of Papers of the ICCE ECRICE, Rome, Italy July 2012.

iPad project: Behind the scenes and lessons learned (Oral). Shelton, G.R., Jones, R.M., Abstracts of Papers of The American Chemical Society 243: 1525-CHED March 2012.

iPad project: Integrating iPads into general chemistry (Poster). Jones, R.M., Shelton, G.R., Abstracts of Papers of The American Chemical Society 243: 63-CHED March 2012.

21st BCCE: The CaNe Roundup

Diana Mason, G.R. Shelton:

Abstracts of Papers of The American Chemical Society 239 March 2010.

Abstracts of Papers of The American Chemical Society 238 August 2009.

Abstracts of Papers of The American Chemical Society 237 March 2009.

64th Southwest Regional Meeting (SWRM) A.C.S. October 2008.

Invited Speaker: The Richard Stockton College of New Jersey; Pomona, NJ. "Purely Experimental Indications of Tunneling in Organic Reactions - Calculations Tell Experimentalists Where to Look and What to Look For." March 2009.

Invited Speaker: Western New England College; Springfield, MA. "Teaching Organic Chemistry By Guided Inquiry" February 2009.

Invited Speaker: Georgia Gwinnett College; Lawrenceville, GA. "Teaching General Chemistry with Demos" January 2009.

Invited Speaker: The City College of New York; New York, NY. "Teaching Organic Chemistry by Guided Inquiry" December 2009.

Invited Speaker: Western New Mexico University; Silver City, NM. "Teaching Organic Chemistry by Guided Inquiry" December 2009.

Workshop: National Convention of the Society of Hispanic Professional Engineers; Phoenix, AZ "Clip Clues." November 2008.

Workshop: Clip Clues. Diana Mason, G. Robert Shelton; 64th Southwest Regional Meeting (SWRM) A.C.S. October 2008.

Invited Speaker: Trinity University; San Antonio, Texas. "Teaching Acid/Base Chemistry with Demos" May 2008.

Invited Speaker: Eureka College; Eureka, IL. "Experimental Indications of Tunneling in Organic Reactions - Calculations Tell Experimentalists Where to Look and What to Look For" April 2008.

Invited Speaker: College Of New Rochelle; New Rochelle, NY. "Experimental Indications of Tunneling in Organic Reactions - Calculations Tell Experimentalists Where to Look and What to Look For" March 2008.

Invited Presenter: Qatar Symposium on Science Teaching & Learning, Qatar University, Doha Qatar. "Lone Star Solutions for Engaging Students." (Plenary Session) February 2008.

Workshop: Qatar Symposium on Science Teaching & Learning, Qatar University, Doha Qatar.
“Clip Clues.” February 2008.

Workshop: Qatar Symposium on Science Teaching & Learning, Qatar University, Doha Qatar.
“Teaching Science Using Discrepant Events.” February 2008.

Invited Speaker: Qatar University; Doha, Qatar. “Calculations of the Effect of Tunneling on the Swain-Schaad Exponents for the 1,5-Hydrogen Shift Reactions of 1,3-Cyclopentadiene and 5-Methyl-1,3-Cyclopentadiene.” Shelton, G.R. February 2008.

Schizophrenic Effects of Geminal Fluorination on the Kinetic Stabilities of Molecules Containing Strained Rings: Calculations, Predictions, and Experimental Tests.
Borden WT, Hrovat DA, Shelton GR, Isborn C, Lewis SB, Getty SJ.; Abstracts of Papers of The American Chemical Society 230: U3184-U3184 279-ORGN August 2005.

Investigation of Substituted 1-Fluorocyclopropene Carbene Rearrangements.
Shelton, G.R., Dolbier, W.R., and Battiste M.A.; 79th Annual Florida Annual Meeting and Exposition May 2003.

Computational Discovery of a Novel Automerization Process for 1-Fuorocyclopropene.
Shelton, G.R., Battiste, M.A., Dolbier, W.R.; Abstracts of Papers of The American Chemical Society 223: 336 April 2002.

DFT Investigation of the Electrocyclic Ring Opening of Fluorinated Cyclopropenes.
Shelton, G.R.; Dolbier, W.R.; Battiste, M.A.; 15th Annual Winter Fluorine Conference, 2001.

Chemistry club on campus and in the community: Activities of the 1997-1998 Southern Illinois University at Edwardsville Student Affiliate chapter.
Shelton G.R., Henrickson H.P., Westhoff J., Khayyat A., Davidson T., Johnson K.; Abstracts of Papers of The American Chemical Society 215: 577 March 1998.

Student Presentations of Mentored Research Projects

Stacey Barnett

- “The Texas Tea Challenge: YETI™ vs. RTIC™.”
 - Poster presentation: TAMUSA Research Symposium. April 2016.

Joshua Hinckley

- “A computational study of the fluoro-substituent effect of cyclopropene acidity and anion structure.”
 - Poster presentation: ACS National Meeting. Dallas, TX. March 2014.
 - APSU Research and Creativity Forum. April 2014.

Kayla Milano

- “Synthesis and fluorination of the sex pheromone for *Drosophila ananassae*.”
 - Poster presentation: ACS National Meeting. Dallas, TX. March 2014.
 - APSU Research and Creativity Forum. April 2014.

Linh Nguyen

- “In silico de novo development and design of ligands for organometallic biomimetic catalysts.”
 - Poster presentation: ACS National Meeting. Dallas, TX. March 2014.
 - APSU Research and Creativity Forum. April 2014.

Molly Silkowski

- “Synthesis and characterization of ligands for organometallic biomimetic catalysts.”
 - Poster presentation: ACS National Meeting. Dallas, TX. March 2014.
 - APSU Research and Creativity Forum. April 2014.

Virginia Winstead

- “Project iPad: Breaking teaching boundaries in organic chemistry.”
 - Oral presentation: BCCE2014 Grand Valley State University. August 2014.
 - Oral presentation: 34th annual Undergraduate Research Conference University of Memphis. March 2014.
 - Poster presentation: ACS National Meeting. Dallas, TX. March 2014.
 - APSU Research and Creativity Forum. April 2014.

Yakshin Konstantin

- “Mechanisms of ozonolysis: A density functional theory study.”
 - Poster presentation: ACS National Meeting. Dallas, TX. March 2014.
 - APSU Research and Creativity Forum. April 2014.

Samantha Monk

- “A computational investigation of 1-fluorocyclopropene”
 - APSU Research and Creativity Forum. April 2012
- “Ab initio study of the acidity and chemistry of fluorocyclopropenes”
 - Poster presentation: ACS National Meeting. New Orleans, LA. April 2013.
 - APSU Research and Creativity Forum. April 2013.

J. Bailey Thompson

- “Fluorinated derivative of the Japanese beetle sex pheromone”
 - Poster presentation: ACS National Meeting. New Orleans, LA. April 2013.
 - APSU Research and Creativity Forum. April 2013.

Wendy L. Borland

- “Modeling the unique hapticity of cyclooctatetraene in $\text{Fe}_3(\text{COT})_3$ ”
 - Poster presentation: ACS National Meeting. San Diego, CA. March 2012.