# 2018 ANNUAL REPORT

TRINITY UNIVERSITY
DEPARTMENT OF CHEMISTRY

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REPORT FROM THE CHAIR

Greetings Alumni and Friends of the Chemistry Department!

We trust that 2018 was a good year for you and your family.

For the Trinity University chemistry department, this past year was rather busy and challenging. We hired a new Assistant Professor (analytical) – Dr. Ryan Davis joined the faculty in Fall 2018. He is from New Mexico and earned his BS chemistry degree at the Colorado State University and his PhD at the University of Colorado. His research involves analytical and physical chemistry applied to microenvironments. We were also successful in hiring a new Semmes Distinguished Professor – Dr. Jason Shearer also joined the faculty in Fall 2018. He is from Maryland and earned his BS chemistry degree from the University of Maryland and his PhD at the University of Washington. We were able to attract him from the University of Nevada – Reno, where he spent the first 14 years of his independent academic career. Dr. Shearer’s area of expertise includes bioinorganic chemistry, computational chemistry and x-ray spectroscopy. Also in the Fall 2018, we hired a new lecturer – Dr. Kyralyssa Hauger-Sanchez. She is from Texas, attended St. Edward’s University in Austin and earned her PhD at Texas Christian University. She had previously taught for us as a visiting assistant professor.

We are very excited to be fully staffed and are looking forward to a new era of chemical education excellence.

As always, we enjoy hearing from our alumni and friends. When you have time, send us an email update. And, when you are in San Antonio, please let us know – we would love to visit, catch up, and show you the Center for the Sciences and Innovation (CSI). It really is a beautiful building and a great place to work, teach and do research!

We continue our efforts to develop better forms of communication and networking of chemistry alumni, along with establishing some form of mentoring of present students by former students. Please make sure you join the TU Chemistry Linkedin group, the departmental Facebook group, and the alumni email distribution list.

Always wishing you the very best,

Chris Pursell
Professor and Chair of Chemistry
cpursell@trinity.edu
(210)999-7381
Department of Chemistry
Class 2018

Bachelor of Science in Chemistry
Nicholas Morrison

Bachelor of Science in Biochemistry
Taylor Devlin
Aaron Knopp
Jemima Sackey-Addo
Claire Warkentin

Bachelor of Science in Biochemistry and Molecular Biology
Zachary Allen
Cassandra Alvarado
Matthew Bender
Pierre Ferrer
Kevin Lee
Julia Matsuo Dapaah
Janett Munoz Guerrero
Maia Ogembo
Thomas Oster
Suzanne Roberts
Christian Schreib
Addison White
Zeina-Christina Zayat

Bachelor of Art in Chemistry
Daniel Elizondo
Alexander Han
Gabriel Levine
Christine Peterson
2018 CHEMISTRY DEPARTMENT AWARDS

CRC Freshman Achievement Award
  Erin Cha  Lois Warden

Achievement in Organic Chemistry
  Alexander Bradley

John A. Burke Award in Inorganic Chemistry
  Zoheb Harani

Undergraduate Award in Analytical Chemistry
  Zoheb Harani

Undergraduate Award in Organic Chemistry
  Zachary Allen

Undergraduate Award in Physical Chemistry
  Zoheb Harani

Outstanding Student Assistant Award
  Ben Sawyer
2018 SENIOR AWARDS

McGavock Award for Outstanding Research
Taylor Devlin and Christian Schreib

Award for Academic Excellence in Chemistry
Jemima Sackey-Addo

American Institute of Chemists Award
Gabriel Levine

ACS Division of Organic Chemistry Undergraduate Award
Zachary Allen

McGavock Poster Award
Taylor Devlin and Christian Schreib

Matt Rowan Award
Taylor Devlin

Senior Service Award
Julia Matsuo Dapaah
Additional Awards and Student Honors

2018 McGavock Award Winner
Taylor Devlin

2018 McGavock Award Winner
Christian Schreib

William Crews McGavock Scholarship Recipient
2017-2019
Grace Lee

Ina Beth McGavock Scholarship Recipient
2018-2019
Isabelle Pacheco

James Augustus McCloskey, Jr. Scholarship Recipient
2018-2019
Cristina Hofman
BOARD OF ADVISORS
MEMBERSHIP 2018

The individuals listed below meet each Spring on the Trinity campus to advise the department on a variety of matters. The Board has been instrumental in assisting the department in fund-raising efforts, particularly for equipment. The Board members serve each spring as judges for the senior poster competition that are part of the McGavock program.

We all owe these folks a great deal of thanks for their unselfish work on our behalf.

Dr. Judy Guy-Caffey
Dr. Jay Conyers
Dr. Hannah Crampton
Dr. Yolanda Fintschenko
Dr. Shirley Moy
Dr. Andy Rusinko
Dr. Jason Tedrow
Dr. Alexis Thompson
Dr. Andy Vance
Dr. Sue Weintraub
Dr. Josh Woody
GIFTS AND DONATIONS

As most of you know, for over 30 years our summer research program has been supported primarily by external funding agencies. The funding environment is becoming ever tighter, so we will increasingly rely on donations from alumni and friends of the Department to continue offering one of the best undergraduate Chemistry research experiences in the country.

We very much appreciate the generosity of the donors who contributed to the Chemistry Department this year. As gifts come in and we are able, we transfer these donations into an endowment so that your gifts will help to serve students for years to come.

I would particularly like to thank the many recent graduates – many of whom are still in graduate school – who have contributed to the Department. We understand the realities of graduate school, and your support shows us that your time here was important to you.

Your gifts and donations allow us to further support Trinity students and their chemical education. Please consider “giving back” and making a gift today or becoming a “regular giver” (using the link below). We appreciate your commitment to Trinity University and the Chemistry Department.

http://new.trinity.edu/advancement
ALUMNET
Alumni Connections

Please stay connected with us! We have a LinkedIn group called “Trinity University Chemistry Department”, along with a Facebook group called “Trinity University Chemistry Department Alumni and Friends”. Please join!

We also have an email distribution list called chemalum@trinity.edu. Please contact Dr. Pursell (cpursell@trinity.edu) to join.

Finally, if you would like to contact any of the faculty directly, here are their emails:

Bert Chandler bert.chandler@trinity.edu
Christina Cooley ccooley@trinity.edu
Ryan Davis rduavisi@trinity.edu
Laura Hunsicker-Wang laura.hunsickerwang@trinity.edu
Corina Maeder cmaeder@trinity.edu
Chris Pursell cpursell@trinity.edu
Jason Shearer jshearer@trinity.edu
Adam Urbach aurbach@trinity.edu
DEPARTMENTAL SEMINARS

SPRING SEMINARS 2018

Jan 18  Presentation of Summer Research Opportunities

Feb 1  Wei Lin (University of Texas Rio Grande Valley)
        “Spectroscopic Characterization of several fluorinated carboxylic acids and their hydrogen bonded complexes”

Feb 8  Steve Abel (University of Tennessee Department of Chemical and Biomolecular Engineering)
        “Deconstructing antigen recognition at the T cell surface”

Feb 22 Tom Goodwin (Hendrix College Department of Chemistry)
        “Adventures in Research with undergraduate and other mammals”

Mar 8  Teresa Bandosz (candidate The City of New York Department of Chemistry)
        “Nanoporous carbons: looking beyond their perception as adsorbents, catalyst supports and supercapacitors”

Mar 22 Jason Shearer (candidate University of Nevada Reno Department of Chemistry)
        “Proton coupled electron transfer from the Ni-(SH=)_Cys moiety of NiSOD metallopeptide based mimic: If it walks like a duck and talks like a duck, can we be sure its really a duck?”

Apr 4  Jeff Coffer (candidate Texas Christian University Fort Worth Department of Chemistry and Biochemistry)
        “Nanostructured porous silicon from accumulator plants: morphological control and drug delivery”

Apr 20 McGavock Jeffrey Bode (TU class of 1996 Nogoya University Institute of transformative bio-molecules and laboratory of organic chemistry department of chemistry and applied biosciences ETH Zurich, Switzerland)
        “A few Good Reactions”
FALL SEMINARS 2018

Aug 30  Welcome Back Reception

Sept 6  John A. Keith (University of Pittsburgh, PA Department of Chemical & Petroleum Engineering, Swanson School)
“Computational elucidation of local solvation effects in chemistry”

Sept 6  Karen Wooley (Texas A&M University Department of Chemistry of Chemical Engineering, Department of Materials Science & Engineering College Station)
“Interfaced-promoted assembly and disassembly process for rapid manufacture and transport of complex hybrid nanomaterials, origination from natural products with designs for advanced applications and sustainability”

Sept 27 Raymond Edward Schaak (Penn State In the Eberly College of Science Chemistry Department)
“A designer’s toolkit for construction complex nanoparticles libraries”

Oct 4  Kevin G. Pinney (Baylor University Waco TX Chemistry Department and Biochemistry Institute of Biomedical Studies)
“Small-molecule inhibitors of tubulin polymerization as promising vascular disrupting agents for the treatment of cancer”

Oct 18 Carlos R. Baiz (University of Texas at Austin Chemistry Department)
“Investigating membranes with ultrafast two-dimensional infrared spectroscopy”

Nov 1  Paul Floreancig (University of Pittsburgh Chemistry Department)
“Applications of basic organic chemistry principles in designing Re207 catalyzed rearrangement reactions”

Nov 8  David A. Colby (University of Mississippi Medicinal Chemistry)
“New Methods for synthesis of difluorinated organic molecules”
CHEMISTRY CLUB

Chemistry Club Officers

Co-Presidents: Hayden Anderson & Madeline Hopps  
Vice President of Outreach: Lois Warden  
Vice President of On Campus Events: Danielle Jamison  
Vice President of Social Events & Public Relations Chair: Joseph Anderson  
Vice President of Green Chemistry: Breanna Brietske  
Volunteer Coordinator: Nick Pittner  
Fundraising Coordinator: Wilford Lee  
Secretary: Jordan McMurry  
Treasurer: William Skinner

In 2018, Chemistry Club received an American Chemical Society (ACS) student chapter Honorable Mention award for our work advancing the club's mission of exposing students to different career options, fostering student-faculty interactions, and giving back to the Trinity and San Antonio community. For National Chemistry Week in October 2018, we organized several campus events, including serving liquid nitrogen ice cream to students, showcasing chemistry demonstrations on Mole Day, and creating a periodic table out of elements decorated by students and faculty to be hung near the Chemistry Department offices. Chemistry Club has developed an ongoing partnership with the Witte Museum to provide interactive science demonstrations for people of all ages at their Super Saturday events, most recently at their “Build It!” day in February. Please contact Madeline Hopps (mhopps@trinity.edu) or Hayden Anderson (handers1@trinity.edu) if you would like to reach out to the Chemistry Club and follow our new Instagram account @tu_chemclub to stay updated. We look forward to another great year!
STUDENT RESEARCH ACTIVITIES

Chandler Research Group

Grayson Goza, Janene Goza, Dr. Bert Chandler, CJ Guzman, Todd Whittaker, Mary Bajomo, Dr. James Bruno, Rochelle Hand, Alexander Bradley, Allison St. John

CJ Guzman (2019) worked on alkyne hydrogenation studies with Au and bimetallic Ni-Au catalysts, as well as developing our methods for measuring surface acidity & basicity. He is looking forward to graduate school in Physics this fall.

Rochelle Hand (2020) studied support effects on alkyne partial hydrogenation and began developing new synthesis methods for bimetallic Ni-Au catalysts. She also firmly established herself as the group’s resident expert in artistic expression through PowerPoint animations.

Allison St. John (2020) is developing a new UV-visible thiol titration for Au nanoparticles and continued to contribute to our benzyl alcohol oxidation efforts.

Mary Bajomo (2020) developed new methods for measuring benzyl alcohol
and 2-phenyl ethanol oxidation, dramatically improving the quality of our data in these reactions.

**Alex Bradley** (2019) used H2 oxidation to evaluate support effects on H2 adsorption equilibrium constants.

**Isabel Paccecho** (2020) worked on surface acid-base titrations

**Aaron Knopp** (2019) developed methods for phenyl acetylene hydrogenation studies, and began studying support effects on liquid phase partial hydrogenation. He is looking forward to graduate school in the fall.

**Erin Tsai** (2019) explored her love of nanoparticles and began developing methods for preparing supported Co nanoparticle catalysts.

**Natalia Gonzalez** (2022) began learning about heterogeneous gold catalysts and is developing a new solution phase reaction to evaluate O2 binding to Au.
Zachary Allen (2018) worked as a technician in the lab and during his final year finishing his degree. He finished the initial study on fluorogenic polymerization, which led to first authorship on our recent publication. He also started some exploratory projects for potential applications of our fluorogenic polymerization method. He started medical school at the UT Health San Antonio in Fall 2018.

Dr. Tyler Graf assisted with mentoring students on summer research projects before leaving the lab to pursue a research postdoc in Chemical Engineering at Bucknell University during the summer of 2018.

Danyal Tahseen (2019, not pictured) spent part of the summer with us and continued during the academic years working on his project related to fluorogenic polymerization directly from modified proteins. He will start medical school this in Fall 2019 at McGovern in Houston.
Jonathan Palmer (2019) continued his work on the synthesis and evaluation of ROS-activatable prodrugs of stress-responsive signaling pathway activators for treatment following ischemia-reperfusion injury. He is working on writing up these results for a first author publication. He is interested in attending medical school following graduation.

Madeline Hopps (2020) was selected as a Beckman Scholar in the spring. Her Beckman project expands the fluorogenic polymerization method to a new type of controlled polymerization, Reversible Addition-Fragmentation Chain-Transfer (RAFT). She is developing the first fluorogenic RAFT reaction and exploring its utility for biodetection. She plans to attend medical school.

Joseph Anderson (2020) continued his work on the design and synthesis of new fluorogenic polyaromatic hydrocarbon probe monomers for polymerization. He plans to attend medical school.

Breanna Brietske (2020) continued work on the synthesis and evaluation of ROS-activatable prodrugs of stress-responsive signaling pathway activators for treatment following ischemia-reperfusion injury. She plans to explore a career in the health professions, possibly as a Physician’s Assistant.

Tyler Bate (2020) joined the lab in the spring of 2019 and has contributed extensively to the design and synthesis of our ROS-activatable prodrugs project. Notably, he has synthesized a negative control compound crucial for biological analysis. He plans to attend medical school.

Cara DeWitt (2020) joined the lab in the spring of 2019 and has explored new ways to miniaturize and workup our fluorogenic polymerization method and taken on a project to apply the fluorogenic polymerization method to detect ligand binding. She plans to attend medical school.

Jordan McMurry (2021) joined the lab in the spring of 2019 and has explored the role and optimization of the surfactant in the fluorogenic polymerization reaction. She has identified a superior alternative to the surfactant in our original method and is continuing to optimize the fluorogenic polymerization process for detection. She plans to attend medical school.
David Research Group

David Richards (2020) joined the Davis Research Group in Fall of 2018. He was instrumental in helping set up the Davis Group’s research lab, and helped setup the dual-stage electrodynamic balance to study the interesting chemistry and physics that occurs in confined microdroplets. In his first semester with research, he began collecting data on emergent self-assembly of small organic molecules in aqueous microdroplets.
Taylor Devlin (2018) completed an Honors Thesis on her work with chemically modifying the Cu$_A$ protein. Her first author paper on this topic was accepted in December. Taylor is attending graduate school at Johns Hopkins.

Janett Muñoz (2018) attended the ASBMB meeting in spring of 2018. Janett is currently a Senior Data Analyst Position at University Hospital.

Victoria Henderson (2019) has been working to probe how the reduction potential of the Rieske protein, within Complex III, correlates with formation of reactive oxygen species (ROS). She has successfully cloned the Rieske gene into two vectors that will allow us to purify isolated protein to measure reduction potential and to study the amount of ROS produced \textit{in vivo} when mutant of Rieske are produced. She has begun to express and purify the isolated protein and has been working with Rudy on measuring how much ROS is produced in an \textit{in vivo} study. Victoria plans on attending medical school after taking a gap year.

Rudy Jarero (2019) has been working with Victoria examining how the Rieske reduction potential affects for the formation of ROS. He has predominately
been working to develop and optimize the in vivo assay to monitor the formation of ROS by yeast. Rudy intends to go to medical school.

**Cristina Hofman** (2019) has been continued her work on the Sco and Cuₐ projects. Her first paper was published this summer that examined the formation of a Mixed Disulfide Intermediate (MDI) between Sco and Cuₐ in the reduction of the Cuₐ. Her second paper also was just published where she examined the effect of changing the number of DEPC equivalents that will react with Cuₐ. She is currently finishing up the data for a third paper on the metal binding characteristics of Sco. Cristina intends to go to graduate school after taking a gap year.

**Kelsey Kohler** (2019) has continued her work on the Rieske project finishing up various projects. She has been reacting the wild type Rieske with different equivalents of MBA and finishing up the pH-dependent CD with L135A/G156S. Her work with Dr. Kevin Hoke, our reduction potential collaborator, resulted in authorship on our Cuₐ paper where we monitored the chemical modification of Cuₐ with DEPC using electrochemistry. They showed that the reduction potential of the protein increases by nearly 70 mV as it is reacting with DEPC. Kelsey intends to go to medical school.

**Benjamin Sawyer** (2019) joined the lab in fall 2018. He has been learning to express and purify proteins and is now working with Rachel on examining the effects of distal charges on the reduction potential of the Rieske protein. Ben intends to go to graduate school.

**Emmanuella Oduguwa** (2019) joined the lab in spring of 2018. She is working on a completely new project in the lab which is exploring what happens to the Rieske protein when it is subjected to a microdroplet environment. She has developed a low tech way to produce microdroplets and measure the UV-Visible spectrum of the resultant protein. What we have found is that the protein spontaneously reduces in the environment and then quickly reoxidizes! Emmanuella intends to go to medical school.

**Rachel Lopez** (2020) has continued her work on the effect of distal charges on the Rieske protein reduction potential. She has expressed and purified several proteins and determined the pKₐ values for our triple mutant, K100E/R161A/R173A. She is now working to determine pKₐ values for R173A and K100A. She has also produced three new mutants, Q141K, Q165K and the double mutant Q141K/Q165K which alter netural residues to positive residues. Rachel intends to go to medical school.

**Zach Acevedo** (2020) has continued his work on Cuₐ, azurin and a new set of
model proteins, G4Fsc. He has been working on modifying these proteins in their apo form (without metal) with DEPC to determine what the maximum number of sites are. He has also been working on reacting these proteins with HNE and ONE, lipid peroxidation products. Zach intends to go to medical school.

Raheed Sunesra (2021) and Mitch Beito (2021) both joined the lab in fall 2018. He and Mitch will be taking over the yeast ROS project. They both have been learning how to express and purify protein and learn how to culture yeast. Raheed plans on going to graduate school and Mitch plans on going to medical school.

Lambert Research Group

Tayde Contreras carried out two projects during the summer of 2018. She began a synthetic project to prepare 3,3-dimethylpiperididine in order to compare the conformational properties of the lone pair on nitrogen with those of unsubstituted piperidine. The latter molecule provides an interesting equilibrium for the hydrogen atom and the lone pair on nitrogen, which can exist either as axial or equatorial groups in the molecule. We want to test whether a van der Waals attraction in the parent compound results in a predominant axial position for the hydrogen, or a van der Waals repulsion in the 3,3-dimethyl compound results in a predominant equatorial position for the hydrogen. The synthesis involves four steps, of which only the last remains to be carried out.

In addition, Contreras continues throughout the year the ongoing project of recording proton NMR spectra of worldwide amber and plant exudates. She recorded the spectra of some 200 such samples. In addition, she recorded improved solution-phase $^{13}$C spectra of amber and plant exudates, completing that project and readying it for publication. These results will be presented at the Spring 2019 ACS meeting. Many results are possible and still are in progress, but two have resulted in publications to date. In collaboration with a geologist and an infrared spectroscopist, we reported the full characterization of the first amber from Texas, a result that should be of special interest to the Welch Foundation. The 2019 ACS symposium will have a resulting published volume, in which the first solution-phase $^{13}$C spectra of amber will be presented.

Contreras will be graduating in 2019 and will attend optometry professional school.
Maeder Research Group

Front: Brianna Yarberry, Gabby Orr, Rachel Goldstein, Danielle Jamison, Garrison Meeks, Nicholas Pittner.
Back: Dr. Addie Embry, grace Lee, Camille Potts, Dr. Corina Maeder, Caitlyn Turner

Grace Lee (2019) and Garrison Meeks (2019) Grace continued her work focusing on the unusual auto-cleavage properties that Dib1 possesses and was joined by Garrison on the project in the summer. Grace created a series of yeast with Dib1 truncations to test the effects of splicing in vivo. Garrison established an in vitro auto-cleavage using purified Dib1 protein. Grace and Garrison will be taking gap years and then applying to medical school.

Camille Potts (2019) Camille worked on two projects in the lab. First, she explored U5 snRNA and Dib1 interactions. Second, Camille traveled to Ann Arbor, MI with Nick Pittner at the end of summer and over winter break to work with our collaborator performing single molecule fluorescence experiments examining Dib1 interactions with splicing components. In the fall, Camille was in Denmark for a study abroad semester. Camille plans to attend graduate school.

Rachel Goldstein (2020) Rachel has worked both on the experimental and computational projects in the lab. Experimentally, she performed in vitro splicing assays for several mutants in the lab to determine if they affected splicing. Computationally, she has been working on our collaborative project
with Dr. Kelvin Cheng in Physics. We are using molecular dynamic simulations to examine the interactions of Dib1 with neighboring protein and RNA components. Rachel plans to graduate school.

**Caitlyn Turner** (2020) is working on performing a yeast genetic screen to identify new mutants in Dib1. Over the summer and fall, she optimized her clone library and performed screen trials. She will be working on the screen with the help of Danielle Jamison this spring. Caitlyn plans to attend graduate school.

**Nick Pittner** (2020) joined the lab in the summer. During the summer, he optimized the purification of yeast splicing protein Prp6. He then trialed assays to examine the binding of Prp6 and Dib1. Nick also joined the single molecule fluorescence project and traveled to Michigan with Camille Potts. Nick plans to attend graduate school.

**Danielle Jamison** (2021) joined the lab in the summer. She works on understanding the interactions of the Prp6 with Dib1. Additionally, she is working with Caitlyn Turner on her yeast screen and Camille Potts on U5/Dib1 interactions.

**Gabby Orr** (2021) worked with our group and Dr. Kelvin Cheng in Physics performing computation studies of the B complex of the spliceosome.

**Pursell Research Group**

**Isabelle Pacheco** (2020) – started examining metal-support interactions associated with the adsorption of hydrogen on metal nanoparticle catalysts. Future plans: chemistry graduate school.
Hayden Anderson (2020) worked in research the entire year. He made good progress on the monofunctionalization of cucurbit[8]uril and is now working to complete a study on the recognition of modified insulin. Hayden plans to pursue a PhD.

Emily Babcock (2019) worked in research the entire year. She made good progress on the development of hydrogels for controlled drug release. Emily plans to enroll in a chemistry PhD program in the fall of 2019.

Elena Boms (2019) worked in research during the summer. She made good progress on the genetic incorporation of minimal protein affinity tags. Elena plans to pursue an MD.

Erin Cha (2021) worked in research in the fall. She is starting a project on measuring the release of small molecules from hydrogels. Erin plans to pursue an MD.

Zoheb Hirani (2019) worked in research the entire year. He completed his collaborative project on the molecular recognition of methionine-terminated
peptides by cucurbit[8]uril, now published in JACS. Zoheb is finishing an honors thesis and plans to enroll in a chemistry PhD program in the fall of 2019.

**Will Skinner** (2020) worked in research the entire year. He made good progress on the development of high-affinity reversible complexes.

**Hailey Taylor** (2019) worked in research the entire year. She completed her collaborative project on the molecular recognition of methionine-terminated peptides by cucurbit[8]uril, now published in JACS. Hailey is finishing an honors thesis and plans to enroll in a chemistry PhD program in the fall of 2019.

**Caroline Tran** (2019) worked in research during the summer. She made good progress on the development of hydrogels for controlled drug release.

**Lois Warden** (2021) worked in research the entire year. She made good progress on the monofunctionalization of cucurbit[8]uril and is now working on a point-of-care insulin sensor. Lois is interested in a career in medical research.

**Tim Wheatley** (2020) worked in research the entire year. He made good progress on the development high-affinity reversible complexes.
2018 SUMMER STUDENT RESEARCHERS IN CHEMISTRY

Front: Zach Acevedo, Victoria Henderson, Rachel Goldstein, Caitlyn Turner, Tayde Contreras, Caroline Tran, Addie Embry, Briahna Yarberry, Gabby Orr

2nd: Cristina Hoffman, Christina Cooley, Camille Potts, Danielle Jamison, Tim Wheatley

3rd: Laura Hunsicker-Wang, Grace Lee, Nicholas Pittner, Madeline Hopps, Emily Babcock, Hayden Anderson, Will Skinner

4th: Corina Maeder, Rudy Jarero, Garrison Meeks, Jordan McMurry, Keturah Odoi, Breanna Brietske.

5th: Mary Bajomo, Alexander Bradley, Rochelle Hand, Isabelle Pacheco, Cara Dewitt, Allison St John, Elena Boms, Zoheb Hirani

6th: Bert Chandler, Zach Allen, Tyler Bate, Joseph Anderson, Johnny Palmer,

7th: Todd Whittaker, Jimmy Bruno, Tyler Graf, Adam Urbach
STUDENT RESEARCH PRESENTATIONS
Students indicated by asterisks


Zoheb Hirani,* Hailey Taylor, Andrew Bockus, Emily Babcock, Elena Boms, and Adam R. Urbach “Pair-Inclusion Motif for Sequence-Specific Peptide Recognition by Cucurbit[8]uril” (poster)

255th National Meeting of the American Chemical Society, New Orleans, LA, March 12, 2018 (poster).


Tayde A. Contreras* and Joseph B. Lambert, “First Survey of Carbon-13 NMR Spectra of Ambers,” (poster)


Hailey Taylor,* Zoheb Hirani, Andrew T. Bockus, Elena Boms,* and Adam R. Urbach “Pair-Inclusion Motif for Sequence-Specific Peptide Recognition by Cucurbit[8]uril”

Peterson, C; Kumar, S; Whittaker, T; Pollock, M; Pursell, CJ; Grabow, LC; Chandler, BD; “Kinetic investigation into the mechanism for H₂ activation on supported Au nanoparticles”


Whittaker, T; Peterson, C; Pollock, M; Pursell, CJ; Chandler, BD; “Understanding the Role of H₂O in H₂ Activation on Metal Oxide Supported Au” (poster)
Experimental Biology 2018, San Diego, CA, April 21, 2018


Annual Meeting of the Botanical Society of America, Fort Worth, TX, June 24-28


13th International Symposium on Macrocyclic and Supramolecular Chemistry, Quebec City, Canada, July 9, 2018


256th National American Chemical Society Meeting, Boston MA, August 14, 2018.


2018 Arnold Beckman Symposium, Irvine, CA, August 14, 2018

C. Potts*, E. Bowman, C. Schreib, J. Widom, N. Walter, and C. Maeder, “Exploring Interactions of Spliceosomal Protein Dib1”


Fall Undergraduate Research Symposium (FURS), University of Texas at Austin, Austin, TX, September 29, 2018.

Danyal Tahseen,* Jemima Sackey-Addo, Zachary Allen, and Christina B. Cooley, “Fluorogenic ATRP as a Strategy for Biomolecular Detection” (talk)
Gulf Coast Undergraduate Research Symposium (GCURS), Rice University, Houston, TX, October 6, 2018.


Zachary Acevedo * and Laura M. Hunsicker-Wang “Chemical Modification of Electron Transfer Metalloproteins” (talk)

Cristina Hofman * and Laura M. Hunsicker-Wang “Functional Analysis and Characterization of the Metal Bound Sco Protein from *Thermus thermophilus*” (talk)

Rudy Jarero * and Laura M. Hunsicker-Wang “Establishing the Role of Rieske Protein Reduction Potential in the Formation of Reactive Oxygen Species” (talk)

SACNAS The National Diversity in STEM Conference, San Antonio, TX., October 10-13, 2018

G. Lee*, G. Meeks and C. Maeder, “Exploring the Tail Region of the Premessenger RNA Spliceosomal Protein Dib1” (poster)

6th Annual San Antonio Postdoctoral Research Forum, San Antonio, TX, Sept 2018

GRANTS FOR EDUCATION AND RESEARCH


The Welch Foundation “Chemistry at Trinity University: Research as the Key to Chemical Education”, $135,000, June 1, 2018-May 31, 2021 (departmental grant to support summer research students).
FACULTY RESEARCH GRANTS

Bert Chandler

Inaugural Research Corporation for Science Advancement SEED Award: “Metalloenzyme-Inspired Heterogeneous C-H Activation Catalysts” $50,000 2016 - 2018.

Christina Cooley


Laura Hunsicker-Wang

Corina Maeder


Chris Pursell

Jason Shearer
National Science Foundation ”Influence of Cysteinate Protonation on Biologically Relevant Nickel Mediated Reactions”, (2016 –2020), $425,000 (direct costs)
National Institutes of Health “Cysteinate Protonation at Metalloenzyme Active-Sites”, (2016 –2019), $300,000 (direct costs)

**Adam Urbach**
NIH-R15 (PI, Adam Urbach 87%, CoPI Lyle Isaacs 13%) “Supramolecular Strategies for the Controlled Release of Protein Drugs” $400,281, 9/19/17-9/18/20 (R15-GM126511-01); $245,439 direct costs to Urbach; $50,922 subcontract to Lyle Isaacs, UMD.

NSF-MRI (PI, Adam Urbach; coPIs, Christina Cooley, Laura Hunsicker-Wang, Corina Maeder), “Acquisition of an ESI-TOF Mass Spectrometer by Trinity University” $274,770, 8/14/17-8/13/20 (CHE-1726441)

Research Grant, Welch Foundation (PI, Adam Urbach), “Multivalent Cucurbit[n]urils for High-Affinity Reversible Binding” $240,000, 6/1/16-5/31/19 (W-1640)

Cottrell Scholars Collaborative, Research Corporation for Science Advancement (PI, Adam Urbach; Co-PIs Andriy Nevidomskyy at Rice University, Penny Beuning at Northeastern University, Robert Berger at Western Washington University, Shane Ardo at University of California at Irvine, and Yan Xia at Stanford University), “Training Faculty to Assist Students in Career Planning” $25,000, 9/1/2017-8/31/2019
Bert Chandler
Hello friends and alumni! Every year seems to get busier, but I’m always grateful to hear from past group members students. Several stopped by this year, and I loved hearing how each and every one of you are doing. Please let me know if you will be in town, especially for alumni weekend! In 2018, the Chandler lab reloaded for the future, with a lot of help from the guiding hands of Jimmy Bruno and Todd Whittaker. We had an exciting publication year, wrapping up some old projects and pushing some new ideas forward. We are really excited about the new directions for our research. We are working a bit more on understanding hydrogenations over Au right now and have some interesting new insight into these systems.

The highlight of my professional year was giving the plenary lecture at the Au2018 International Conference in Paris. We followed this with a week of vacation, which included Gentsefeesten in Ghent, Belgium; the highlight of the music festival was a heavy metal band (maybe not by Todd’s standards) dressed in Amish attire who had a small barn-raising during their show. It was a sight to behold.

I’m now very much looking forward to an academic leave in Zurich, Switzerland for the 2019-2020 academic year, so please email me to stay in touch!

Christina Cooley
2018 was an exciting, roller coaster of a year. The lab has continued to grow and progress, and we were able to get out our first publication on the development of our fluorogenic polymerization technology for detection in the interdisciplinary chemical journal, Chemical Science. We are pushing forward ongoing projects to optimize, expand and apply this fluorogenic polymerization platform. We have also made some exciting progress on our ROS-activatable prodrug project and are working on our first publication in this research area. It helps to have wonderful, motivated students who make running a research lab such a joy!

I always enjoy teaching and have enjoyed working closely with other
department members this year, co-teaching Biochemistry Lab with Corina Maeder and Organic Chemistry I with Dr. Marie El Arba Pino, a fantastic addition to our department this year as a Visiting Assistant Professor. Working with students and advising is always a highlight of my week, and this year I had the particular joy of watching some of my first advisees graduate and move on to the next steps of their careers.

Personally, this has been a busy year. I have rekindled my passion for music and have enjoyed playing my flute for church and in the community. I had the dream liberal arts experience with Laura Hunsicker-Wang (a fellow flutist) and John Keith, a cellist and chemist at the University of Pittsburgh, where we opened his chemistry seminar in September with a two flutes and cello trio! It was so much fun to play with my colleagues and bring my love of music to the students and the department. I have also enjoyed singing this year in the church choir. The kids (Cohen, 6 and Claire, 4) are growing up so fast and are such a joy to come home to. Cohen started kindergarten this year and both kids are starting some extracurricular activities so they are keeping us busy! My husband Scott has been expanding his role in sports media PR and enjoys his work. Our biggest challenge this year stemmed from the sudden passing of Scott’s father in March 2018. I have appreciated all of the support from my colleagues as we continue to stay busy transitioning his father’s business and supporting his mother through this difficult time. While bittersweet, we were able to spend a lot of time with family this year and reflect on what is truly important. We are hopeful and ready for new adventures in 2019!

Ryan D. Davis
Fall 2018 marked my first semester as an Assistant Professor here at Trinity. It was a busy but exciting semester in which I taught the first semester Analytical Chemistry course (CHEM 3432), began setting up section of my research laboratory, had my first research student join the group, and collected preliminary data on our first research project. I coming to Trinity after receiving my PhD from the University of Colorado-Boulder and a postdoctoral position at Lawrence Berkeley National Lab. Much of my teaching philosophy is guided by 1) the fact that in my research career, I have seldom (if ever) used a piece of equipment that was not either homebuilt or modified in some way, and 2) my personal belief that interdisciplinarity and a broad skill set, including the ability to develop instrumentation, will be necessary to address many chemistry questions relevant to the future. Thus, as a teacher, I am incorporating more principles of engineering and physics into my analytical courses to teach
students the invaluable skills of modifying and building instrumentation to pushes the boundaries of what is possible.

My research is largely motivated by atmospheric science. I study the complex chemical and physical properties that can occur in microdroplets, where it is possible to observe deviations from bulk thermodynamic expectations. Our first project involves self-assembly of simple monosaccharides in microdroplets in the presence of inorganic ions. The goal is to understand the physico-chemical properties of these systems in order to more accurately predict the effect of ocean-derived particles on air quality and climate. Early in 2019, we will begin another project on the production of reactive oxygen species in microdroplets. More on the Davis Research Group can be found at sites.trinity.edu/davis-lab.

San Antonio has felt like home since moving here; I am a native of New Mexico (born and raised in Albuquerque) and there are many cultural similarities between Albuquerque and San Antonio that have made the transition easy. My spouse, two children (3 and 6 years old) and two dogs moved here to San Antonio with me, and everyone loves it here. My oldest kid is in first grade, with the youngest in pre-K. After a successful career in the insurance business, my wife is back in school to get her Montessori teaching certificate; sometime in 2019, there will likely be two teachers in the family! I welcome anyone to reach out that would like to get to know me and my family better. My family and I are excited to be a part of the larger Trinity community!

Marie El Arba-Pino
Hi everyone! This year was my first here at Trinity University as a Visiting Professor. In the Fall 2018 I got to teach my very first Organic Chemistry I class and Organic Synthesis Laboratory. I had a blast working closely with two of my colleagues, Christina Cooley and Marilyn Wooten, and learned a ton through their experiences and mentorship. This Spring 2019 I am teaching Organic Chemistry II and Organic Synthesis Laboratory. I have particularly enjoyed this semester because I get to interact with the same group of students I taught in the Fall 2018. I find it fascinating to see how some of my students have grown to appreciate and enjoy Organic Chemistry. Working here at Trinity has made me realize how much I love teaching Chemistry and I cannot wait for another year of teaching at this wonderful institution!
Kyralyssa Hauger-Sanchez
Greetings! During the spring semester, I returned to Trinity as a Visiting Assistant Professor. I taught in our lower level courses, including General Chemistry, General Chemistry laboratory and Advanced Chemical Principles laboratory. For the summer, I was not on campus but returned in August rejuvenated after spending time with family. In the fall, I taught General Chemistry laboratory, Advanced Chemical Principles laboratory and a new prep of Introduction to Chemistry. It was great to teach a new class, working with students on problem solving and critical thinking skills, plus some foundational chemistry topics. In December 2018, I received the offer and title of Lecturer! This was an exciting way to end the year and I am very thankful for the opportunity to continue teaching at Trinity.
On the family front, all is well. My husband, David, and I welcomed our daughter Annabelle (now 1) in Fall 2017 and our son Brody (now 6) has become an awesome big brother. Brody thrived in kindergarten and is now working on becoming an awesome reader in first grade. 2018 was a busy, enjoyable, growing year. Looking forward to see what 2019 brings.

Laura Hunsicker-Wang
During calendar year 2108, I was on sabbatical. I chose to spend my time at Trinity working on focusing on writing papers, grants and moving my research agenda ahead. I continued to work with students in the research lab and had one student complete her honors thesis. It was great to be able to focus on research without the demands of teaching, but I still had much more planned than I accomplished. The time goes by incredibly fast! It was a wonderful sabbatical.

On a personal note, Lilian is now in 6th grade. It has actually been a great transition in that she is thoroughly enjoying the rigor of junior high. She also started playing the flute (like me!) and is loving her band class. She continues to excel in dance and is still part of the dance competition team (Insight Dance Ensemble). This year, for the first time, she competed in a trio, which has been a great learning experience for her. Lauren is now in 2nd grade and has been exceling in math. She has the title “Math Queen” in her room for being able to complete a set of addition or subtraction problems all correctly in a very short time. Lauren also dances and for the first time this year, she joined the competition team. She is so expressive on the stage and she just loves
performing. David is still with USAA as a wealth manager and was recently promoted to Senior Wealth Manager. I still continue to sing and playing the flute with the praise band (One Voice) at our church.

Joseph B. Lambert

Two papers and one book review were published, one paper is in press, one paper is submitted, production of the new edition of our NMR book and its solution manual are completed, one lecture was presented at an international symposium, and co-workers presented three posters. The first paper describes the discovery and characterization of the first documented sample of amber from the state of Texas. The second paper examines the anisotropic effect of double bonds. We provide evidence that reverses the commonly accepted geometry for this affect. We examined the proton spectra of alkenes with rigid structures such as the pinenes, which placed a probe proton in a geometrically defined position with respect to a double bond. We then determined the chemical changes in comparison with models lacking the double bond. My co-authors and I have completed proofing the second edition of our 2004 book “Modern Nuclear Magnetic Resonance Spectroscopy: An Introduction to Principles, Applications, and Experimental Methods,” which will be published in early 2019 along with the solution manual. I attended the 25th Amberif symposium in Gdańsk, Poland, Mar. 21-24, 2018, and presented the plenary lecture. This conference brings together not only scientists who study amber but also almost a thousand vendors who present displays of amber in every form and purpose. Our personal travel this year took us to Nashville for the total eclipse of the sun, Yosemite, Aspen, Alaska, Venice, Sudan, Guatemala, El Salvador, Algeria, and Tunisia.
Brittany Long

2018 was an incredible year! I can’t believe I’ve been here now for 4.5 years. I’ve had a title change recently and am now a lecturer in the department and I serve as the General Chemistry coordinator. I mostly teach General Chemistry and General Chemistry Lab. It has been great fun working with the students in lecture and lab and I’m always working on ways to be more intentional with my teaching and helping students to take ownership of their learning.

I started advising in 2018. My first 4 advisees will graduate in May 2019! This past summer I had the incredible opportunity to be an instructor in the Summer Bridge Math program which started its second summer here at Trinity. We piloted some ALEKS placement software and spent a total of 9 days with 34 incredible students. I also served on the Quantitative Reasoning and Skills Center committee in 2018 which is being developed as part of the university’s QEP. We worked on hiring the director who will start in February 2019. Outside of Trinity, 2018 was a big year for me. I bought a house in May on the North East side of San Antonio. It’s been an adjustment but I absolutely love it! My youngest brother AJ got married last August to the wonderful Katie. I traveled a lot to Florida during the year for their wedding and various wedding related events. It was such a great summer to spend with family and celebrate AJ and Katie.

Corina Maeder

This past year was a whirlwind! Having been here for five years, last spring I got to see the students I taught in their first year in General Chemistry graduate! It is so much fun seeing students grow during their time at Trinity. It reminds me what it was like when I graduated from Trinity.

In the spring, I taught Biochemistry I and Biochemistry II. This was my first time teaching Biochemistry II. It was quite a lot to prepare, but I have a new love for metabolism. Seeing how the material we teach in Biochemistry I is utilized in Biochemistry II was fun. In the fall, I taught Biochemistry I and Biochemistry Lab. Biochemistry Lab was taught with Christina Cooley, since Laura Hunsicker-Wang was on leave. In the lab, we developed a new mass spectrometry experiment using our beautiful new mass spec. The goal of the lab was to determine the identity of mutants proteins from my research lab. It was a great success!

My students continue to help push forward the research agenda. Our current
focus is a small, essential protein Dib1 that must depart for the spliceosome to assemble. However, what triggers this departure is unknown. We use a combination of biochemistry, biophysical, genetic and molecular biology experiments to address this question. These would certainly not be possible without outstanding students and collaborators.

On the family front, life is great! Gerard’s teaching and research in the biology department of Trinity keeps him busy. The kids (Ben-11 and Maddy-9) are doing great. They still love their school, the Advanced Learning Academy, which is the Trinity partner school. You can’t go wrong when you have teachers who are excited to teach! Thank you to the Trinity education department for that! Ben is a theatre kid, participating in every school production. Maddy is busy with too many after-school clubs to count, including helping to design the new pergola for their school campus. So much to do in so little time!! I guess that is why the year was a whirlwind.

Chris Pursell
As the years go by, it is harder to remember what happened last year! It seems that 2018 was less eventful and busy. Our two new hires, Dr. Ryan Davis (Analytical, Assistant Professor) and Dr. Jason Shearer (Inorganic, Semmes Distinguished Professor), started in the Fall. We conducted no searches – thankfully. We now appear to be fully staffed with a mix of tenured faculty, tenure-track faculty, lecturers, and visiting assistant professors. This is a good group of people who seem to enjoy one another’s company, based upon the number of times each week that they gather together for lunch in our lunch room!

I continue to serve as departmental chair, which has taken on greater responsibilities as Academic Affairs has asked chairs to be more “academic leaders” and less “managers” of the department business. I have therefore been more intentional in mentoring the junior faculty and in supporting our students and faculty. It gives me joy to be helping others.

Regarding teaching and research, I still teach physical chemistry lectures and laboratory. Thankfully I still love the material! My research efforts have turned away from previous collaborative projects, and returned to more independent research. This has involved examining metal-support interactions in metal nanoparticle catalysts. I felt good about submitting an ACS – PRF grant proposal last Fall. Now we will hope for a favorable funding decision!
In terms of our family, Kathy and I celebrated our 35th wedding anniversary in August with a trip to Alaska (not a cruise). We had a great time. We have now visited every State in the Union! Our kids and grandkids (now 7 of them) are doing well. We enjoyed visiting them all over the Christmas holiday. Our youngest, Jacob (24) got married in March to his Trinity University girlfriend Rachel. They are waiting to make a decision about attending graduate school in Fall 2019 (Masters in Applied Theatre). All in all, God continues to bless the Pursell family!

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**Jason Shearer**
Hello everyone! Some of you may have guessed that I am new here. This summer I moved from The University of Nevada, Reno (UNR) to Trinity University. I was on the faculty at UNR for 14 years where I had an active research program in physical and bioinorganic chemistry studying biologically relevant metal-sites. I am still in the process of transferring equipment and setting up a new lab, which is actually a blessing in disguise as I have a backlog of data that has been keeping me busy since the move. In addition to getting my research back on track, this year I taught general chemistry and have been in the process of developing a course in bioinorganic chemistry.

Overall, I am incredibly pleased with the move to Trinity. The research facilities at Trinity are fantastic. What I am especially pleased by are the engaged and enthusiastic students I have had the pleasure to teach thus far.

My wife, Athena, 11-year old son, Eoin (pronounced like Owen without the “w” sound), and I love the area, and are settling in well following a rather hectic spring and early summer. As a break from things, in between leaving Reno and moving to the area we lived a quasi-transient lifestyle for two months. After we sold our house in Reno we spent a month in Germany, the Czech Republic and Poland and then another month on Kent Island, which is in Maryland on the Chesapeake Bay. We then moved to San Antonio in the Encino Park area in mid-August, where our dog and two cats grudgingly allow us to share the house with them.
Kristin Trevino
Hello alumni and students. I have been at Trinity for the last 2 years and I absolutely love it! I started out as an adjunct faculty member in the fall of 2017 teaching organic chemistry I labs. Since then I have been hired on in the department as a visiting professor. I continue to teach organic chemistry I labs, but have added organic chemistry II labs and introductory chemistry to my list of qualified courses. In the fall of 2018 I enjoyed teaching introductory chemistry and using the POGIL pedagogy method with incoming freshman and watching their learning methods grow. In organic chemistry I lab we have implemented new labs to bring more of the real world into the lab experience and to learn more about our students on a personal level through discussions and lab reports.

On a more personal note I have a 14-year-old son named Kily who attends Central Catholic High School and is a very dedicated student. He boulders competitively and I try to keep up with him as much as possible without getting hurt. We love hiking and playing outside, doing anything with water or snow, relaxing and watching movies, and going out of town whenever we have free time. I also volunteer on the weekends as a master wildlife rescuer in and around the San Antonio area for Wildlife Rescue and Rehabilitation. We have two dogs, Buster and Benny, and a cat, Larry. I have had a fantastic year at Trinity and find great joy in coming to work everyday, I look forward to 2019 and it is a pleasure to work at such a fine university.

Adam Urbach
Hi Folks. I had a very active year in teaching, scholarship, and service, and as husband to Dana and father to Sebastian (12), Violet (7), and Kai (1). I continue to enjoy teaching organic chemistry, and the awesome advanced topics course on structure-based drug design had 17 students! My group swelled to 10 this summer, and spread out to a second laboratory; that was an interesting experience. We have some excellent collaborations now with the Scripps Research Institute and Harvard Medical School pursuing some exciting avenues of applied research. The group is well funded right now (NIH R15, Welch, and NSF MRI), and let’s keep fingers crossed that federal for science survives a few more years at least. I look forward to co-hosting (with Eric Masson) the next international conference on cucurbiturils (ICCB 2019) this summer at Ohio University. I wish you and yours the very best for 2019.
Marilyn Wooten

2018 was a different kind of year as I took a leave of absence in the Spring. In the summer I attended a workshop titled “Increasing Diversity in the STEM Pipeline through the Incorporation of Culturally and Socially Responsive Pedagogy in the Organic Chemistry Laboratory”. The Fall brought on the coordination of the two organic chemistry lab courses. I taught Lab Methods in Organic Chemistry with Kristina Trevino and it was a fun challenge to others based on ideas from the summer workshop. incorporate a couple of new experiments and tweak. Furthermore it was a pleasure to teach Chemical Synthesis with Marie El Arba, a cohort from my alma mater. All in all the fall turned out to be a wonderful way to get back in to the groove of teaching. First Year Student advising included a new and larger cohort of pre-health candidates due to the large enrollment Trinity experienced Fall 2018.
PART-TIME FACULTY AND POST DOCTORAL ASSOCIATES

James Bruno
Dr. Jimmy Bruno has been busy managing the alkyne partial hydrogenation studies and developing a new reactor system.

Addie Embry
Dr. Addie Embry was in her second year as a postdoc in the lab. She has continued to explore protein-protein interactions in the spliceosome. In the spring, she taught an Integrative Biology lab section to gain some broad teaching experience. Additionally, she has been working with a couple of undergraduates in the lab.

Sravan Kumar, a current graduate student at the University of Houston, has helped us out with DFT calculations and continues to develop his experimental expertise.

Keturah Odoi
Dr. Keturah Odoi worked with Prof. Urbach throughout the year, pursuing a project on the genetic incorporation of minimal affinity tags, and pursuing important professional development toward a professorship at a primarily undergraduate institution. In January 2019, Prof. Odoi started her independent faculty career as a tenure-track assistant professor at her alma mater, Southwestern Oklahoma State University.

Todd Whittaker (2017) continues working on H2 oxidation and has become our go-to guy for catalyst synthesis. He’s continuing to take classes at Trinity as he prepares for graduate school in Chemical Engineering.
EMERITUS FACULTY

Nancy Mills
I continue to enjoy retirement in Eugene, Oregon. I am the chair of the Board of Directors for the Eugene Science Center, including a successful year of fund raising for a $200,000 planetarium camera. I am also the chair of the Music Selection Committee for the Women’s Choral Society and involved in the League of Women Voters. Further afield, I continue to be in charge of the Undergraduate Award in Organic Chemistry from the Division of Organic Chemistry of the ACS and to be the chair of the External Advisory Committee for the South Carolina INBRE site, an NIH funded program that is similar to the EPSCOR program of NSF, both of which are designed to increase the research infrastructure in states receiving lower amounts of federal funding. I enjoy the last two activities because it keeps me connected to the scientific community.

While I love being in Eugene, the walkability of the town, the great local wines and craft beers, the music scene, the lectures on interesting topics, etc., we do manage to get to San Antonio regularly. In addition to our grandson Milo who will be three in April, he has a new brother, Baby Mark, who arrived in January of 2019. I will be spending 5 weeks in San Antonio taking care of him when his mother Carrie returns to teaching at LEE high school.

Life is really fun and I encourage folks to visit the Pacific Northwest and to come visit us if they are anywhere close.
Ben Plummer

In April Gail and Ben joined graduate school colleagues Terry and Louise Weidner on a cruise around Greece and its many islands. We flew to Athens and saw the Parthenon and Acropolis. We embarked on the ship on May 1 and visited a partially restored Santorini. We walked down into the ancient caldera crater of Stefanos on Nisyros to view steam vents. The island tour ended at Delos and Mykonos Greece, an archeological site that once housed 20000 inhabitants. Adam Benjamin Litch, son of Suzanne and stepson of James Clark graduated from Trinity University in May with a major in neuroscience. Ben, as Professor Emeritus, handed Adam his diploma. This event will be a cherished family memory. Alex and John Clark, our twin grandsons, are choosing among colleges that have admitted them. The entire family enjoyed an early celebration of Gail’s 80th birthday July 8-15. We rented a 7-bedroom 6½-bath cottage on Wells Beach Maine. The grandsons for a meal collected fresh mussels from the rocky shore. And a trip to York Beach to buy pounds of salt-water taffy was also necessary. The drive to Maine and return home was too long. We probably will not do that again. At The Ohio State University in Columbus Professor Susan Olesik, chair of the department gave us a tour of the new chemistry building. Ben was depressed to learn that the brand new lab in which he pursued his graduate studies in 1960s is fated for demolition. He was equally amazed that the chemistry department teaches 10000 students a year. From 8/28-9/4 we took a Road Scholar tour of Iceland. Upon our morning arrival in Keflavik airport Reykjavik we were taken to our hotel. We changed into swimming trunks and swam in the Blue Lagoon steam pool while cold icy wind pelted our heads. The geothermal nature of heating and electric power generation is a marvel. We visited the northern city of Akureyri. We visited an agricultural university, saw Icelandic horses perform, and saw a Fish factory. Several spectacular waterfalls were viewed. We cruised into the largest fjord on the northern coast and saw several whales surfaced, spouting, and diving for food. We saw the original geysir in Iceland that gave name to our geysers here in the USA. We celebrated Thanksgiving and Christmas with most of our children in Austin TX. Scott, Doug, Suzanne, and Jeffrey all continue to do well in their businesses. We remodeled our master bath and deck. So it was a busy year for us.
Matt Hymer
It is hard to believe that I will start my seventh year at Trinity serving as CSI Laboratory/Stockroom manager this Fall. I welcome my new role as Radiation Safety Officer officially this Fall and I look forward to the challenges that this new role may present. My goals for 2018-2019 school year will be to prepare the teaching labs to the highest standards and to ensure that the labs are equipped with the supplies and equipment our students need to succeed. I have set many goals for 2018 and look forward to the future at Trinity and will embrace the many changes and challenges that are on the horizon. My wife Beverly and I have two sons, Jackson age 12 and Gavin age 9. My wife was promoted to Response to Intervention (RTI) Campus Facilitator at her elementary school and will help students with math and reading. My sons are active in their schools and in sports, especially golf. My hobbies include house remodeling, landscaping, cooking, and golf.

Alexis Logan Baum
My name is Alexis Baum and I am a CSI Laboratory Technician. I primarily work in the Chemistry Department setting up chemistry teaching labs and I also maintain the chemical suite. My job title is fairly diverse and it keeps me busy helping and working in other departments in CSI as well. I strive to provide the best support to faculty while they perform research and teach. I am always happy to assist anyone who has questions or needs anything to be done.

Some personal information about myself is that I am married to my husband, Trevor Baum, for two years and we are both huge animal lovers. There never is a dull moment in our house with a dog and two playful kitties scampering about. My hobbies are hiking, painting, gardening, and writing on my science fiction novel.
FACULTY PUBLICATIONS, students indicated by asterisks

Kumar, G; Tibbitts, L*; Newell, J*; Panthi, B; Mukhopadhyay, A; Pursell, CJ; Rioux, RM; Janik, M; Chandler, BD “Evaluating differences in the active-site electronics of supported Au nanoparticle catalysts using Hammett and DFT studies” Nature Chemistry, 2018, v10, p268–274 (doi:10.1038/nchem.2911).

Whittaker, T*; Kumar, S; Peterson, C*; Pollock, MN*; Grabow, LC; Chandler, BD; “H₂ Oxidation over Supported Au Nanoparticle Catalysts: Evidence for Heterolytic H₂ Activation at the Metal-Support Interface” Journal of the American Chemical Society, 2018, v140, p3712–3723 (DOI: 10.1021/jacs.7b12758).


FACULTY PRESENTATIONS AT SCIENTIFIC MEETINGS AND AT UNIVERSITIES

Bert Chandler

The plenary lecture at the Au2018 conference is a significant honor. I was also elected to be the SouthWest representative to the North American Catalysis Society.

Christina Cooley

Departmental Seminar, Department of Chemistry and Biochemistry, University of Texas San Antonio, San Antonio, TX, October 5, 2018.

Laura Hunsicker-Wang

“Investigating the reactivity of ligating histidines in the CuA site of cytochrome c oxidase” (poster) Gordon Conference - Metals in Biology, Ventura, CA, Poster Presentation Jan 2018

Joseph Lambert


V. Friedman, J. B. Lambert, A. Bugarin, S. Kaur, and E. Stout, “Amber in Texas,” (poster), 25th International Amberif Symposium, Gdańsk, Poland, Mar. 21-24, 2018, p. 117

Jason Shearer


Invited Lecture “Poising Reactivity at Biological Ni-Cysteinate Sites via Coordinated Sulfur Protonation Events.” Department of Chemistry, Cornell University, April 12th, 2018.

Invited Lecture “Poising Reactivity at Biological Ni-Cysteinate Sites via Coordinated Sulfur Protonation Events.” Department of Chemistry, University of Rochester, April 9th, 2018.

Adam Urbach

“Sequence-Predictive Recognition of Peptides and Proteins” (poster), 13th International Symposium on Macrocyclic and Supramolecular Chemistry, Quebec City, Canada, July 10, 2018.
“Sequence-Predictive Recognition of Peptides and Proteins” (short oral presentation), 13th International Symposium on Macrocyclic and Supramolecular Chemistry, Quebec City, Canada, July 12, 2018.

Seminars Scripps Research Institute and University of Wisconsin at Madison
Major instrumentation, Department of Chemistry

**NMR Spectroscopy**
Varian 500 MHz NMR spectrometer (2010)
Varian Mercury 300 NMR Spectrometer (2002)

**Circular Dichroism Spectroscopy**

**Fluorescence Spectroscopy**
Applied Photophysics Stopped Flow Spectrometer with Absorbance and Fluorescence (2014)
Tecan F200 Pro Fluorescence Plate Reader (2014)
Tecan M200 Pro Fluorescence Plate Reader (2010)
Bruker Tracer III-DS Handheld XRF (2010)
PTI Fluorescence Spectrometer QM- 7 (2004)
PTI LS-100 Fluorescence Spectrometer (1990)

**UV-Visible Spectroscopy**
Agilent CARY 5000 UV-vis-NIR Spectrometer (2018)
Thermo Nanodrop 2000c (2014)
Thermo Scientific Biomate 5 UV-VIS Spectrophotometer (2007)
Jasco UV-Visible Spectrometer (2005)
Cary 100 Bio UV-Visible Spectrometer (2001)
Hitachi U-2900 UV-Visible Spectrometers (x3) (1997)

**Infrared Spectroscopy**
Nicolet iS50 FT-IR (x2) (2014)

**Atomic Emission Spectroscopy**
Varian 720-ES ICP-OES (2010)

**Mass Spectrometry**
Agilent 6230 LC-ESI-TOF Mass Spectrometer (2017)
Varian Saturn 2100T ion trap GC/MS with MS/MS (2006)
ThermoFinnegan LCQ Deca XP ESI-Ion Trap MS (2004)

**Electrochemistry**
BAS 100 Electrochemical Analyzer (2004)

**Calorimetry**
TA Instruments DSC Q2000 (2014)

**Surface Analysis**
Micrometrics ASAP 2020 Surface Area and Porosity Analyzer (2014)

**Microscopy**
Nikon Eclipse 50i Microscope equipped for tetrad dissection (2014)
Jeol JSM-6010LA Scanning Electron Microscope (2013)

**Chromatography**
Agilent 1260 HPLC System, Diode Array, Fluorescence (2014)
Dionex Nanoflow UPLC 3000 Ultimate (2011)
Akta Preparatory FPLC (x2) (2005, 2014)
Teledyne CombiFlash Chromatography (2011)
Waters Preparatory HPLC System (2005)
Beckman Gold Analytical HPLC System (2000)
Agilient 1100 Analytical HPLC System (1996)

**Gas Chromatography**
SRI Instruments GC with Autosampler (x2) (2008)
Varian 3900 Capillary GC (2006)
Agilent 6890N Capillary GC (2003)
SRI Instruments GC (x2) (2002)

**Reactors**
Biotage Initiator Microwave Reactor (2012)
Milestone Ethos EX Microwave Reactor (2008)
HEL Parallel Reactor System (2008)

**Controlled Environment**
VAC-Atmospheres Genesis Glovebox (2017)
COY Anaerobic Chamber (2019)
PLAS-LAB Mini glove box (2014)

**Computational**
2 18-core Linux Computational Workstations (2018)
Dell PC Linux Cluster (2004-2013)

**Biochemistry**
Labconco Freeze Drying System (2014)
Retsch MM400 Ball Mill (2014)
Sorval RC-6 Plus Superspeed Centrifuge (2012)
Biorad GelDoc EZ Imager (2012)
Beckman J2-21 Preparative Centrifuge (2012)
Revco Ultra Low Temperature Freezer (2008)
New Brunswick Scientific E24 Incubator/Shaker (2007)
Innova 2500KC Refrigerated Incubator/Shaker (2007)
Innova 140 Benchtop Incubator/Shaker (2005)
GE Typhoon Trio Phosphorimager (2005)
Beckman J-20XP Preparative Centrifuge (2002)