REPORT FROM THE CHAIR

Greetings Alumni and Friends of the Chemistry Department!

We trust that 2017 was a good year for you and your family.

This past year was rather busy and challenging. We conducted two faculty searches, one for a new Assistant Professor (analytical) and one our Semmes Distinguished Professor. The good news is that we found great candidates and were successful in hiring for both positions. I’ll share more next annual report!

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 2017

Bachelor of Science in Chemistry
Nicolas Dwarica
Meagan Pollock
Annette Tombo
Todd Whittaker

Bachelor of Science in Biochemistry
Heidi Krause
William Mobley
Rachel Shepherd
Stephen Thai
Carolyn Young

Bachelor of Science in Biochemistry and Molecular Biology
Zachary Allen
Mary Hogsett
Connor Lenihan
Shelby Luikart
Amanda Nguyen
Sara Vivatson

Bachelor of Art in Chemistry
Tyler Hatton
Evan Kelly
Antoinette Hilborn
Cameron McKay
Ambrose Paige
Manasa Sarma
2017 CHEMISTRY DEPARTMENT AWARDS

CRC Freshman Achievement Award
Kelsey Kohler

Achievement in Organic Chemistry
Zoheb Hirani

John A. Burke Award in Inorganic Chemistry
Taylor Devlin

Undergraduate Award in Analytical Chemistry
Taylor Devlin

Undergraduate Award in Physical Chemistry-internal
Taylor Devlin

Undergraduate Award in Biochemistry-internal
Taylor Devlin and Christian Schreib

Outstanding Student Assistant Award
Kenneth Kusima
2017 SENIOR AWARDS

McGavock Award for Outstanding Research
Nicolas Dwarica and Todd Whittaker

Award for Academic Excellence in Chemistry
Heidi Krause and ShelbyLuikart

American Institute of Chemists Award
Zachary Allen

ACS Division of Organic Chemistry Undergraduate Award
William Mobley

Senior Achievement Award in Research
Rachel Shepherd

McGavock Poster Award
Emily Bowman and Liezelle Lopez

Matt Rowan Award
Connor Lenihan

Senior Service Award
Manasa Sarma
Additional Awards and Student Honors

<table>
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<tr>
<th>2017 McGavock Award Winner</th>
<th>William Crews McGavock Scholarship Recipient</th>
<th>Ina Beth McGavock Scholarship Recipient</th>
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<tbody>
<tr>
<td>Nicolas Dwarica</td>
<td>Grace Lee 17-19</td>
<td>Truongan Nguyen 16-18</td>
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<td>Todd Whittaker</td>
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EXTERNAL AWARDS AND RECOGNITIONS

Hailey Taylor won the award for Best Supramolecular Chemistry presentation and Madeline Hopps won the Outstanding Polymer Presentation Award at the Gulf Coast Undergraduate Research Symposium at Rice University.

The Chemistry Club, led during the year by Enrique Garcia, Zoheb Hirani and Hailey Taylor, under the guidance of Christina Cooley received an Honorable Mention Chapter award by the American Chemical Society.

Zoheb Hirani and Camille Potts were selected as Beckman Scholars.
BOARD OF ADVISORS
MEMBERSHIP 2017-2018

The individuals listed below meet usually twice each year 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
Laura Hunsicker-Wang laura.hunsickerwang@trinity.edu
Corina Maeder cmaeder@trinity.edu
Chris Pursell cpursell@trinity.edu
Adam Urbach aurbach@trinity.edu
DEPARTMENTAL SEMINARS

SPRING SEMINARS 2017

Jan 19  Presentation of Summer Research Opportunities

Feb 1-2  Sam Gellman McGavock Lectures

Feb 16  Michael Cammarata (University of Texas and Trinity Alumnus)
        NIH Core Fellow
        “New Frontiers in Structural Biology: Exploring Ultraviolet
        Photodissociation Mass Spectrometry Applications”

Feb 23  Laura Banaszynski (UT Southwestern Medical Center)

Mar 2  UTHSCSA Cancer Research Presentations

Mar 16  SPRING BREAK

Mar 31  McGavock Symposium

Apr 13  Rachel Shepherd (Trinity University)
        “Non-thesis seminar:
        Changes in reduction potential of the [2Fe-2S] cluster of the
        Thermus thermophilus Rieske protein using multiple non-
        covalent interactions

Apr 27  Phoebe Glazer University of Kentucky
FALL SEMINARS 2017

Aug 24  Introduction to the Course

Aug 31  Welcome Back Reception

Sept 7  Scott Gronert (Virginia Commonwealth University) Distinguished Professor Candidate “Ion Trap Reactors to the Rescue: A tool to Solve Problems in Organic and Organometallic Chemistry.”

Sept 13 Paul Wender McGavock Lectures and 14 “Therapeutic function through synthesis-informed design: first-in-kind approaches to alzheimer’s, hiv/aids eradication, and cancer immunotherapy”

Sept 21 Seiichi Matsuda (Rice University) “Catalytic and evolutionary origins of terpenoid structural diversity.”


Oct 16  Candidate Jonathan Ashby (Mount Holyoke College) “Flow field-flow fractionation-based isolation of nucleic acid biomolecular complexes”

Oct 26  Candidate Ryan D. Davis (The Lawrence Berkeley National Laboratory Chemical Science Division) “When Micro-Worlds Collide: Chemical and Physical Transformations of Atmospheric Microparticles Initiated by Particle Collisions”

Nov 2  Candidate Kathryn R. Riley (Swarthmore College) “Chemistry on the Nanoscale: The Big Promise of Tiny Technology”
In 2017, the TU Chemistry Club continued in its mission to expose students to different career options, foster student-faculty interactions, and give back to the Trinity and San Antonio Community. At each general meeting, a notable individual of the San Antonio community would give an introduction and answer career-related questions from members. Joseph Anderson arranged a student-faculty lunch social, hosted by Professor Cooley. Emily Babcock and Jonathan Palmer are planning a tour of the Texas Biomedical Research Institute for Trinity students. Jordan Minarelli and Madeline Hopps are planning to demo multiple scientific experiments and concepts at San Antonio’s Science Fiesta, hosted at the Witte Museum. Finally, several officers prepared an appealing and delicious “periodic table cupcake” arrangement at Trinity’s Chocolate Festival! Every officer did an excellent job in planning community events, which resulted in several new members getting involved with the club.
STUDENT RESEARCH ACTIVITIES

Chandler/Pursell Research Group

Front: Todd Whittaker, Dr. Bert Chandler, James Bruno, Will Moore, Dr. Chris Pursell
Back: Christine Peterson, Rochelle Hand, Allison St. John, C.J. Guzman

Nico Dwarica (2017) Spent his summer and his senior year wrangling Ni and Au colloids, trying to get them to dance together … with some success. He’s a Yale man now, working to see if he can marry his love for nanocrystals to energy storage / conversion and a Ph. D.

Todd Whittaker (2017) After finishing his career as the starting goalkeeper on the Trinity Men’s Soccer Team, Todd is refocusing on his studies of CO and hydrogen activation over Au catalysts. He’s decided he likes Au catalysts so much that he’s staying on as a technician for a couple years before starting a Ph D in Chemical Engineering.

Alex Huther (2017) graduated early and hung around for a semester making oxides and Au catalysts. He’s now out in sunny California doing some medical research and applying to medical schools with quintessential German efficiency.

Heidi Krause (2017) battled some benzyl alcohol oxidation demons to a draw and is now happily employed as a research assistant at MD Anderson in Houston
Annette Tombo (2017) continued to work on her benzyl alcohol oxidation studies. At last report, she was looking at graduate schools in Europe.

Christine Peterson (2018) transitioned from IR studies into catalysis studies, examining the role of water in hydrogen oxidation over Au catalysts. She continues to pursue her interests in Economics and Diving.

Mariel Santos (2018) finished up a semester early to begin preparing for PT school. She continued to work on the effects of water on benzyl alcohol oxidation.

CJ Guzman (2019) transitioned from Dr. Bachrach’s computational group to trying some alkyne partial hydrogenation. He is also developing our methods for measuring surface acidity & basicity.

William Moore (2020) studied support effects on alkyne partial hydrogenation and began some infrared spectroscopy studies on Au nanoparticle catalysts.

Rochelle Hand (2020) studied support effects on alkyne partial hydrogenation and began developing new UV-visible thiol titration for Au nanoparticles.

Allison St. John (2020) learned the ins and outs of our benzyl alcohol oxidation system and began developing new UV-visible thiol titration for Au nanoparticles.
Jonathan Palmer (2019) and Breanna Brietske (2020) worked on the chemical synthesis and biological analysis of reactive oxygen species activatable prodrugs of stress-responsive signaling pathway activators of AA147 as a strategy to treat protein misfolding diseases such as mitigating damage following heart attacks and strokes. Jonathan plans to attend medical school after graduation and Breanna is interested in graduate school for her future plans.

Zachary Allen (2017) Jemima Sackey-Addo (2018) continued to work on the front lines of the fluorogenic polymerization project by training the new students in the lab and performing the first successful polymerizations directly from a model protein. They both plan to attend medical school after graduation, and Zach will continue in the lab this summer as a technician until he starts medical school in the fall.

Danyal Tahseen (2019), Madeline Hopps (2020) and Joseph Anderson (2020) all joined the lab in the previous year and have made great progress on the synthesis of fluorogenic monomers and the optimization of the fluorogenic polymerization reaction, giving us our brightest and fastest glowing polymers to date. All three of these students are interested in attending medical school.
Molly Hogsett (’17) worked as a technician in the lab the summer after graduating. Her project was to continue the work on the proteins where we have altered distant charges to look at the effect on the reduction potential. She also analyzed the pH-dependent CD data using multiple wavelengths. Molly is taking a gap year.

Ambrose Paige (’17) continued to work with H134C. He analyzed the structure of H134C and found that the number of hydrogen bonds to the cluster in our mutant is much greater than that found in MitoNEET, which is the protein that we were modelling with this mutant. Ambrose is intending to get a Master’s degree in chemistry.

Rachel Shepherd (’17) characterized the double mutants, L135R/G156S and L135E/Y158F and showed that the changes in potential are additive. Rachel gave a research presentation to the department on her findings. Rachel is attending graduate school at Texas A&M University, working with Paul Lindahl.

Tylor Devlin (’18) is completing an Honors Thesis on her work with chemically modifying the Cuₐ protein. She has shown that the protein is reactive to DEPC even with very low amounts of DEPC present (as low as 5 eq). She has also shown that DEPC modification of histidines is not common to all proteins. She
reacted the Sco protein bound with Cu(II) and also Azurin, a blue copper protein, and shown no reaction with the ligating histidine in either one. She has also started reacting the CuA protein with 4-hydroxy-trans-2-nonenal (HNE), which is a product of lipid peroxidation in the cell. When CuA reacts with HNE, it become reduced! This is a highly unexpected result. Taylor plans on attending graduate school.

Janett Muñoz (’18) has continued to express, purify and characterize Rieske mutants that alter distal charges from the cluster. She has reacted the proteins with DEPC and begun to start determining their pKa values using pH-dependent UV-Vis. Janett will either attend graduate school in public policy and health or find a job that she loves.

Victoria Henderson (’19) probing how the reduction potential of the Rieske protein, within Complex III, correlates with formation of reactive oxygen species (ROS). Toward this end, we will be isolating and purifying both the isolated Rieske and Complex III from yeast, which is new to our lab. She has begun working on cloning the Rieske gene from yeast that will be used to complement a yeast strain that has the Rieske gene deleted. Victoria plans on attending medical school.

Cristina Hofman (’19) has been working on the Sco and CuA projects. She has been working to determine the effect of the H139A mutant on MDI formation between the Sco and CuA proteins. She showed that there is little to no effect on the formation of MDI with the mutation. Cristina intends to go to graduate school.

Kelsey Kohler (’19) joined the lab in summer 2017. She has worked 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. She also worked closely with Dr. Kevin Hoke, who was on sabbatical in the lab, on monitoring the chemical modification of Rieske with DEPC using electrochemistry. They showed that the reduction potential of the protein increases by nearly 200 mV as it is reacting with DEPC. Kelsey intends to go to medical school.

Rachel Lopez (’20) joined the lab officially in fall 2017. She is working on the effect of distal charges on the Rieske protein reduction potential. She has been learning how to express and purify the protein. Rachel intends to go to medical school.

Zach Acevedo (’20) also joined the lab in fall 2017. He is working on the Sco and CuA project. He has been learning how to express and purify Sco and CuA. Zach intends to go to medical school.

Rudy Jarero (’19) joined the lab in fall 2017 and will join Victoria examining how the Rieske reduction potential affects for the formation of ROS. In the meantime, he is learning how to express and purify the Thermus thermophilus proteins. Rudy intends to go to medical school.
Tam Nguyen, Dr. Joseph Lambert, Truongan Nguyen

Tayde Contreras completed a project begun by Truongan Nguyen by recording a complete set of carbon-13 spectra in solution of a set of ambers. The samples represented the four major groups of spectral types: Group A (from Araucariaceae sources), Group B (from Dipteracarpaceae sources), Group D (from Fabaceae sources), and Group E (natural polystyrene). Only missing was Group C (Baltic amber), which had insufficient solubility. The recorded spectra provided the first model for differentiating these groupings based entirely on carbon spectra taken in solution. Previous models based on carbon spectra taken on solid samples have reduced applicability because the necessary equipment is rare.
Rachel Goldstein (2020) joined the lab in the spring and spent the summer performing in vitro splicing assays and attempting to characterize the Dib1 reconstitution assay. Rachel plans to go to graduate school.

Grace Lee (2019) Grace joined in the lab last spring. Her project has focused on the unusual auto-cleavage properties that Dib1 possesses. To learn more about the auto-cleavage mechanism, Grace is creating a series of mutants in Dib1 to test the effects on auto-cleavage and splicing in both in vitro and in vivo assays. Grace plans to go to medical school.

Emma Mask (2020) Emma joined the lab in the spring and stayed for the summer. During her tenure in the lab, she helped to purify Dib1 mutants and perform chemical denaturation studies of the mutants.

Camille Potts (2019) Camille was selected as a Beckman Scholar in the spring. Over this past year, Camille began a new project exploring U5 snRNA and Dib1 interactions and has been creating the necessary yeast strains and plasmids for her project. Additionally, Camille traveled to Ann Arbor, MI with Christian Schreib to work with our collaborator performing single molecule fluorescence experiments examining Dib1 interactions with splicing components. Camille plans to attend graduate school.
Christian Schreib (2018) Christian stayed for a third summer as part of the Beckman Fellow program. During this past summer, he completed the spliceosome assembly and in vitro splicing assays for our initial study on Dib1. We are in the process of getting this work published. Christian has also worked on progressing our single molecule fluorescence experiments with Camille Potts and Rachel Goldstein. Christian will be graduating this May and heading to graduate school in the fall.
Zoheb Hirani (’19), Hailey Taylor (’19), and Elena Boms (’19) explored the scope and limitations of a novel peptide binding motif for the synthetic receptor cucurbit[8]uril.

Hayden Anderson (’20) and Madeleine Gallagher (’19) worked to establish the synthesis and recognition of engineered proteins by the synthetic receptor cucurbit[7]uril.

Emily Babcock (’19) studied the feasibility of a novel material for multivalent binding.

Tim Wheatley (’19) worked to establish a novel motif for the recognition of triplet DNA repeats.

Front: Camille Potts, Rachel Goldstein, Emma Mask, Tayde Contreras, Brittany Long, Robyn Hodgkins, Tyler Graf

2nd: Jemima Sackey-Addo, Christian Schrieb, Cristina Hofman, Kelsey Kohlers, Christina Cooley, Chris Pursell

3rd: Briahna Yarberry, Addie Embry, Victoria Henderson, Madeline Hopps, Breanna Brietske, Tim Wheatley

4th: Emily Bohman, Grace Lee, Laura Hunsicker-Wang, Danyal Tahseen, Emily Babcock, Elena Boms

5th: Corina Maeder, Rochelle Hand, Jimmy Bruno, Johnny Palmer, Christine Peterson


7th: Bert Chandler, C.J. Guzman, Madeleine Gallagher, Cristina Kodadek, Zach Allen, Adam Urbach

8th: William Moore, Zoheb Hirani, Todd Whittaker
STUDENT RESEARCH PRESENTATIONS
Students indicated by asterisks

253rd National American Chemical Society Meeting, San Francisco CA, April 2-6, 2017.

Elena Boms,* Andrew T. Bockus, and Adam R. Urbach “Synthetic Receptors and Cyclic Peptides” (poster).

Taylor Devlin* and Laura Hunsicker-Wang “Investigating the reactivity of the ligating histidines at the CuA site of Cytochrome c Oxidase” Poster

Dwarica, N.S.; Bruno, J.; Pursell, CJ; Chandler, BD; “Colloidal synthesis, characterization, & selective alkyne hydrogenation by supported Ni and Co nanocrystals”


Emily F. Babcock,* Zoheb Hirani, and Adam R. Urbach “Effects of Sequence Context on Cucurbit[n]uril-Peptide Interactions” (poster).

Huther, A.*; Krause, H.*; Pursell, CJ; Chandler, BD; “Hydrogenation over metal oxide supported gold nanocatalysts” Poster

Hoguett Mary *, Janett Muñoz*, and Laura Hunsicker-Wang “Exploring the Effect of Distal Charges on the Reduction Potential of the Rieske Protein from Thermus thermophilus” Poster

Pollock, M.N.*; Peterson, C.*; Pursell, CJ; Chandler, BD; “Gold nanoparticle catalysts: Chemical properties and catalytic behavior” Poster

Santos, M*; Tombo, A.*; Pursell, CJ; Chandler, BD; “Characterizing the kinetic capabilities of supported gold nanoparticle catalysts using benzyl alcohol o

Rachel Shepherd* and Laura Hunsicker-Wang “Changes in Reduction Potential of the [2Fe-2S] Cluster of the Thermus thermophilus Rieske Protein Using Multiple Non-Covalent Interactions” Poster

Experimental Biology 2017, Chicago, IL., April 22-26, 2017
Received an honorable mention poster award

Southwest Catalysis Society Annual Symposium, Houston, TX April 28, 2017.

25th North American Catalysis Society Meeting, Denver, CO, June 7, 2017
Bruno, J*; Moore, W*; Dwarica, N; Chandler, BD; “Support effects and surface chemistry of gold nanoparticles for the selective hydrogenation of terminal alkynes”; Poster
Huther, A.*; Krause, H.; Pursell, CJ; Chandler, BD; “Hydrogenation over metal oxide supported gold nanocatalysts” Poster

Beckman Symposium, Irvine, CA., August 4-6, 2017
Gulf Coast Undergraduate Symposium at Rice University, Houston, TX, November 4, 2017

Hailey Taylor,* Zoheb Hirani,* Elena Boms,* and Adam R. Urbach “Structure-Activity Studies of Dipeptide Recognition by Cucurbit[8]uril” Gulf Coast Undergraduate Research Symposium, Rice University, Houston, TX, November 4, 2017 (talk), Award for best supramolecular chemistry presentation.


Jonathan E. Palmer,* Breanna Brietske, and Christina B. Cooley, “Synthesis and Evaluation of Reactive Oxygen Species (ROS) –Activatable Protein Homeostasis Regulators”, (Oral presentation), Gulf Coast Undergraduate Research Symposium (GCURS), Rice University, Houston, TX, November 4, 2017.
GRANTS FOR EDUCATION AND RESEARCH


The Welch Foundation “Chemistry at Trinity University: Research as the Key to Chemical Education”, $120,000, (2015-2018).
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
Arnold and Mabel Beckman Foundation, “Beckman Scholars Program” PI: Laura Hunsicker-Wang
$130,000 (2016-2019)


Corina Maeder


Chris Pursell

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).

National Science Foundation “RUI: Targeting the Terminus for Site-Specific Recognition and Labeling of Proteins” $330,000 (9/13-8/17)

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

Research Corporation, “LEAD: Preparing the Path to Professor at a Primarily Undergraduate Institution” $25,000 (2016-2017)


Marilyn Wooten
REPORT FROM THE FACULTY AND STAFF

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

2017 saw a number of changes in the Chandler lab, probably the largest I’ve ever had. Six students graduates and are off figuring out what they want to do with the rest of their lives. I was really fortunate to have a cohesive group for nearly 2 years, and I’m really proud of all the things that everyone is doing with their time and lives. Now we’re re-loaded and are running a leaner operation for the next couple of years. I’m very thankful that Jimmy Bruno (postdoc) and Todd Whittaker (graduating senior) have stayed on to help with the transition and see a couple of projects through.

We’ve been spending a lot of time finishing up some of the stories that everyone has been working on for the past couple years and thinking about new directions. At long, long, long last, and several rounds with the reviewers, Luke and Jackie’s paper applying Hammett studies to Au catalysts came out in Nature Chemistry at the end of the year. Johnny Saavedra’s last paper on CO oxidation will also be out in JACS by the time everyone reads this. 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. Stay tuned!

The highlight of my professional year was giving a keynote lecture at the North American Catalysis Society meeting in Denver this summer (followed by a long weekend of white-water rafting, hiking, and visiting art galleries in Salida, CO). I was able to talk about a lot of the work that my students and postdocs have done over the years, and I’m deeply indebted to everyone’s hard work and commitment to our science. Y’all have made this a great experience for me, both personally and professionally.
Christina Cooley

It has been an exciting year, and the lab has grown to seven undergraduate students and a summer postdoctoral scholar. We were able to significantly move our projects forward which was very exciting, but I also realized that a larger lab brings much larger expenses! We have been supported by some smaller grants, but I am working on writing for one of the big ones to keep the lab running smoothly into the future. We are also working on writing up our first publication. Having a great group of committed students makes the research so much fun, and we are looking forward to the summer when we get to focus on research full-time.

Teaching is still an absolute blast, and I got to expand into a new area this past year, when I taught Biochemistry Lab in the fall. It was such a great experience—I got to work closely with Laura Hunsicker-Wang for the first time and learned a lot about many biochemistry techniques that I can use in my research lab. It was also my first chance to teach in the upper division which just had a different feel, and it was so much fun to teach a class where I already had a relationship with many of the students. Of course I continue to enjoy and refine my Organic Chemistry teaching as well. Advising has also kept me busy this year. I have my first ever group of first year advisees, and since I have never taught first years in their first semester, it was interesting to interact with the students and see what kinds of challenges they might have as they transition into college for the first time. Always an adventure!

Home life is wonderful but always so busy! We moved in June to the north side of town and are enjoying our new house and area. The kids (Cohen, 5 and Claire, 3) are really growing up and Cohen will officially start kindergarten in the fall. My husband Scott started with a new sports media company over the holidays and he is looking forward to the change and a new challenge.
Robyn Hodgkins
In the spring, I taught two sections of Lab Methods in Organic Chemistry and one section of Advanced Chemical Principles Laboratory (ACP). I enjoyed seeing students put their previous semesters’ experiences to work when developing protocols in ACP. For spring break I ventured back to Washington, D.C. to connect with colleagues at the National Gallery of Art and catch up with Michelle Bushey. While in D.C. I was able to see Yayoi Kusama’s blockbuster exhibition *Infinity Mirrors* at the Hirschhorn Museum. In August I found myself back in D.C. for the Fall ACS meeting and spent a couple of days continuing research on Grumbacher oil paints using single-sided NMR at the National Gallery of Art. In the fall, I taught Analytical Chemistry lecture and lab. Teaching 19 students in a hands-on instrumentation lab kept me on my toes all semester. This year I co-authored two publications. The first on the chemical and physical properties of Grumbacher traditional and water mixable oil paints with colleagues at the National Gallery of Art and the College of William and Mary. The second on detecting volatile organic compounds emitting from plastic materials used for museum storage with colleagues at University College London.
Laura Hunsicker-Wang

2017 was an incredibly busy year. In the spring, I taught Biochemistry II and again taught Neurochemistry with Jimmy Roberts. In the fall, I taught Biochemistry I and Biochemistry Lab. In both semesters, I continued to teach and organize the seminar course. My research is taking on new directions, exploring the reactivity of ligating histidines in metalloproteins and searching for what makes these histidines reactive and if the Rieske reduction potential could influence how many reactive oxygen species are produced in a cell. We are also tying up a number of projects on reduction potential. I am on sabbatical for the calendar year 2018, which I will spend here at Trinity, writing up these manuscripts. My older daughter, Lilian has just turned 11 and is in 5th grade. She is an excellent student, being part of the GT program at her school. She is also part of the Safety Patrol at her school, which is a year-long commitment. She arrives at school about 20 minutes early and takes different posts throughout the school to help students arrive and get to their classes safely. She is also part of the Buddy program, in which she plays with students with special needs during recess, sits with them during assemblies, and participates in special activities. She continues in dance, taking 9 hours of classes in ballet, tap, hip hop, jazz and contemporary. She is also part of the competition team, Insight Dance Ensemble and has been thrilled by the new dances that she was part of this year. My younger daughter Lauren is 6 years old and is in 1st grade. She is a great student, and is doing extremely well in her classes. She loves to read. Lauren is also in dance, taking combination classes with ballet, jazz, tap and hip hop. She also started in “short season” for the competition team where she learns one dance for the yearly concert. She loves it and I see her joining the competition team in the near future. Both girls continue to take piano lessons and sing in the church whenever possible. David is still enjoying working at USAA as a wealth manager. We are all excited to go on our first Disney Cruise in spring 2018.
Two papers were published, one paper is in press, two papers are submitted, and one book is in press, all cited below. The first paper is a review of the work with co-worker Jorge A. Santiago-Blay at the Smithsonian Institution on modern plant resins. The second is our work on identifying the type of resin discovered on a 700-year-old ship wreck of Indonesia. This work was highlighted in a news article in the American Chemical Society’s Chemical & Engineering News. My co-authors and I have completed work on the second edition of our 2004 book “Modern Nuclear Magnetic Resonance Spectroscopy: An Introduction to Principles, Applications, and Experimental Methods,” which now is in press. The journal The Scientist carried an article highlighting my activities at Trinity that included a photograph of Trinity undergraduate Allison Levy and me.

Our personal travels took us to the archaeological, natural, and cultural sites of Colombia, South Africa, Mexico, Colorado, Sri Lanka, Spain, and France.

I attended the 48th Silicon Conference held in Philadelphia, PA.
Brittany Long

I have been at Trinity now for 2.5 years. Last spring I was offered an Instructor position in the department that started last fall. I had the great joy of teaching General Chemistry and General Chemistry Lab all of last year. In my new instructor position, I am now also the general chemistry lab coordinator and I spent the summer redesigning the lab to fit an every-other-week model that started last fall. I also spent a great deal of time coming up with ways to be more intentional with the laboratory students and help them develop better laboratory skills.

I attended two education conferences last year, the National Association for Research and Science Teaching and the Gordon Conference on Chemistry Education, to help me become a better teacher. I learned a great deal from these conferences and I look forward to implementing some of what I learned in my course.

It has been an incredible year and I cannot wait to see what 2018 will bring!
Another year has passed! This past spring, I taught two sections of Biochemistry I. I’ve had fun figuring out ways to help the students master some of the more complicated concepts. If you sneak into my classroom, you might see some “biochemistry theatre,” where the students learn about protein folding by pretending to be part of one. It seems to be fairly effective, and I look forward to figuring out new and different ways to engage the students.

In the fall, I had an early career faculty leave. This is a fairly new policy for Trinity. Early career (pre-tenure) faculty are given the opportunity to take a semester of leave to focus on their scholarship. It was great to have time to submerge into research. Although I stayed on campus for most of the semester writing and doing research, I did visit my collaborator in Ann Arbor, Michigan and got to perform some single molecule fluorescence experiments. I also attended the 40 Years of mRNA Splicing: From Discovery to Therapeutics meeting this October at Cold Spring Harbor Labs. It was amazing to interact with so many amazing colleagues and founders of my field.

Outside of Trinity, Gerard and I spend most of our time acting as a taxi service for our two kids. Collectively, they participate in swimming, gymnastics, Boy Scouts, Girl Scouts and piano. They love it all, however I don’t know where we would be without our Google calendar! We did get great family vacations in August when we went to New Mexico to camp and at winter break when we did the requisite Disney trip. Overall, it was a wonderful year, and I’m looking forward to the next year.
Chris Pursell

2017 was a very busy, challenging year. We conducted a couple of important faculty searches that eventually concluded with the hiring of a new analytical chemistry (to replace Dr. Michelle Bushey, who had retired) and a new Semmes Distinguished Professor (to replace Dr. Steven Bachrach, who resigned to become Dean of Science at Monmouth University). Our enrollments have been way up and yet our staffing has not kept up. Hopefully, 2018 will be better since we will be fully staffed.

I continue to teaching physical chemistry lectures and labs – and really enjoy that time with students. It is a welcome break from the demands of chair responsibilities. I also continue to do collaborative research with Drs. Bert Chandler and Pete Kelly-Zion (Engineering Science).

Regarding family news, our daughter Janet had twins (boy & girl) in May – they are doing well (still in Alabama). Tim and his family are in Oregon. Jacob graduated from Trinity in May and is planning to marry his Trinity girl in spring 2018. All in all, the Pursell family is doing well and growing in size!

I trust that 2017 was a good year for all TU chemistry alumni and your families. Please remember to contact us when you plan to be in San Antonio, we would love to visit and catch up.
Adam Urbach
HI Folks. I had a very active year in teaching, scholarship, and service, and perhaps more importantly as husband to Dana and father to Sebastian (11), Violet (6), and Kai (born Dec. 28, 2017). I live a very fortunate and blessed life that allows me the opportunity and freedom to impact the lives of many others. 2017 was an unusually great year for family and work. I hope you also had a great year, and I wish you and yours the very best for 2018.
Marilyn Wooten

During the spring semester I taught the full sequence of the organic chemistry labs in addition to the Advanced Chemical Principles Laboratory. Over the summer, I traveled to Togo and São Tomé to visit family. During the summer I also had the wonderful opportunity to start a new collaboration with Gary Morris and Paul Walter, from St Edwards University, The Texas Commission on Environmental Quality, and Les Bleamaster from Geosciences, involving the determination of ozone. We investigated ozone levels, with balloon bearing ozone-sondes, in columnar fashion from troposphere through the stratosphere to in part determine San Antonio air quality standards. It was fun to learn and work with our students Mariel Santos, Enrique Garcia, Gabriel Levine, Macolm Conner, and Huda Syed among others. The students were featured in the Trinitonian and on the local five O’clock KSAT TV News conducting balloon launches. In the fall, I returned to teach General Chemistry, Organic Chemistry I Lab and Advanced Chemical Principles Laboratory. Student advising included a new cohort of pre-health candidates. On the family front Zachary graduated cum laude as a Math major in the spring and Paul started college in the fall.
PART-TIME FACULTY AND POST DOCTORAL ASSOCIATES

James Bruno
Dr. James Bruno, has been busy managing the alkyne partial hydrogenation studies and writing up those initial results. He has also been diligently working on getting a new mass-spec reactor up and running, and we can always count on him to dress up on Halloween.

Addie Embry
Addie joined the Maeder lab in July 2017. She comes from UT Southwestern, where she was a research associate. Since arriving, she has been working towards her project exploring the regulatory points in spliceosome assembly and working with students. She brings a rich, diverse scientific background to the lab.

Keturah Odoi
Dr. Keturah Odoi joined the group in September of 2017. She completed her PhD and Masters degrees in Chemistry from Texas A&M University doing work on protein engineering in the Liu Group. Her Bachelors degree in chemistry is from Southwestern Oklahoma State University. Dr. Odoi is interested in pursuing an academic career at a primarily undergraduate institution and is gaining experience in research, teaching, and service during her postdoctoral fellowship at Trinity. She is passionate about the NOBCChE organization and hopes to start a Trinity University chapter.
I continue to find retirement fun and interesting and busier than I imagined. I envisioned reading for hours in coffee shops but that has not proven to be the case, even though the coffee here is amazing. I have been traveling: hiking in Arizona with Mark and college friends before he began the thru-hike which is the Arizona Trail*, Hawaii with daughter Carrie and her family, several trips to San Antonio for our grandson’s first birthday and first Christmas when he was really aware of his surroundings, gifts, and wrapping paper, a trip to Eastern Europe (Prague, Vienna, Krakow, and Budapest, incredibly interesting to see how the different cities fared under German and Russian dominance), and a trip to Nebraska at Thanksgiving to see my 97 year old uncle. Carrie and her family and our son Will and his girlfriend Sinclair, who live in Washington, DC, joined us for a week in July. For those of you thinking about environmental impact, you can calculate the carbon dioxide production from your airplane trips (and all other activities, like car trips, heating/cooling your house, etc, https://www.terrapass.com/carbon-footprint-calculator) and can then buy trees, which consume carbon dioxide and serve as carbon offsets. I contribute to the local Mackenzie River trust. Just a thought . . .

I’m becoming more politically active, and am a member of the League of Women Voters and a local Indivisible Chapter. I found the Women’s March and the March for Science inspiring, if also cold and rainy. I’m getting involved in local issues associated with homelessness and affordable housing. I am secretary of the board of directors of the local children’s science museum, The Eugene Science Center, formerly known as the Science Factory, and am chair of the Music Selection Committee for the Women’s Choral Society (https://www.youtube.com/watch?v=ijoQirykF-k, see if you can find me in the first row).

This is an amazing place to be. The music scene is wonderful, a good symphony, the Oregon Bach Festival, Mozart Players, as well as great jazz, visiting groups like Santana, and music from the University of Oregon. I saw Trevor Noah, Ira Glass, and Garrison Keillor. In addition to traveling Broadway productions, there are three local theatre companies. And, did I mention three art movie theatres? And, did I also mention that they are all in walking distance? And I haven’t mentioned the variety of craft breweries and wineries. This is all an attempt to encourage you to visit, so drop me a line, nmills@trinity.edu, if you are in the area.

*Mark did the Arizona Trail, 800 miles from the Arizona border with Mexico to the border with Utah. He did 600 miles, hurt his foot, came home and then it was 5 more months before he was able to find a chunk of time to finish the trail. Part of the Colorado Divide Trail is on the docket for summer 2018.
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


Mullen, G; Evans, E; Sabzevari, I; Long, B; Alhazmi, K; Chandler, BD; Mullins, CB; “Water influences the activity and selectivity of ceria-supported gold catalysts for oxidative dehydrogenation and esterification of ethanol” ACS Catalysis, 2017, v7 p1216-1226 (doi: 10.1021/acscatal.6b02960).


FACULTY PRESENTATIONS AT SCIENTIFIC MEETINGS AND AT UNIVERSITIES

Bert Chandler


Bruno, J* (presenter); Dwarica, N, H; Krause, H; Elizondo, D; Chandler, BD; “Support effects and surface chemistry of gold nanoparticles for the selective hydrogenation of terminal alkynes”; 25th North American Catalysis Society Meeting, Denver, CO, June 5, 2017.

Chandler, BD; Saavedra, J; Whittaker, T; Pursell, CJ; “How Water and Support Modify Au Active Sites During CO, H₂, and Benzyl Alcohol Oxidation” 253rd Oral Presentation at EuropaCat 2017, Florence, Italy.

Chandler, BD; Saavedra, J; Whittaker, T; Pursell, CJ; “Role of water in CO oxidation and PROx over Au catalysts: Developments in hydrogen purification from methane” 253rd ACS National Meeting, San Francisco, CA, April 7, 2017.

Departmental Seminar, Department of Chemical and Biological Engineering, University of Tennessee, Knoxville, TN; October 10, 2017

Christina Cooley

“Glowing Polymers for Disease Detection” (Invited lecture), American Chemical Society Local Meeting, San Antonio, TX, January 11, 2017.

“Fluorogenic Polymerization Amplification as a New Platform for Disease Detection” (Invited Lecture), Stanford University, Stanford, CA, July 1, 2017.

Biology Seminar, Trinity University, San Antonio, TX

Seminar at University of the Incarnate Word Feik School of Pharmacy, San Antonio, TX
Corina Maeder
“Dissecting the Role of Dib1 in Spliceosome Assembly.” (Poster) RNA 2017: Twenty-second Annual Meeting of the RNA Society, Prague, Czech Republic, June 2017

Adam Urbach
“Predictive Recognition of Polypeptides by Cucurbiturils” (invited speaker) 5th International Conference on Cucurbiturils, Brno, Czech Republic, June 28, 2017

“Sequence-Based Molecular Recognition of Peptides and Proteins” (plenary speaker) Workshop de Quimica Biologica, Pontificia Universidad Catolica de Chile, Santiago, Chile, May 3, 2017
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**
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)
Agilent 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
PLAS-LAB Mini glove box (2014)

Computational
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)