



# the TEST TUBE

THE NEWSLETTER OF THE DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY

Vol. 27 No. 1 • 2020

## THE *Heart* OF THE DEPARTMENT

As 2020 has continued to inflict various forms of suffering on nearly everyone living on this planet, it bears reminding that there are many reasons to be hopeful for the future. Through these unprecedented times, our graduate students, staff, and faculty have continued to strive to provide the best possible education for our students, whether in the classroom, lab, or online. "I am so proud of our graduate students, staff, and faculty who on the fly adapted to the uncertainties of the unprecedented times and excelled in teaching and research. We succeeded as a department in providing the best education possible in the safest way," said department Chair Dr. Mechref.

For our graduate students, teaching undergraduate labs is a difficult endeavor as it fundamentally requires a face-to-face situation. Each week, our TA's are asked to maintain a safe environment for the undergraduate students and themselves, while also providing the hands-on training and education that will be vital for them in the years to come. As one student wrote, "teaching is never easy, but it is especially difficult in this uncertain time, while research keeps going with just a piece of fabric on everyone's face." For Cristian, he "lost the ability to visit my family last summer, and when the campus was closed my research progress was substantially affected."

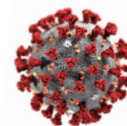
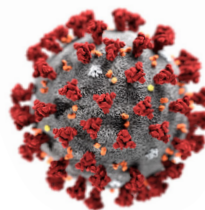
For our staff, working from home and/or the office has been a blessing or a curse, depending on the day and assignment. As Ms. Rodriguez explained, "I have a social personality and not being able to gather in person and have events has been very hard for me. On the other hand, the isolation and crisis give us time to reflect on what is important in life. Like many people, I have gravitated to nature and the outdoors during these times. We have hiking boots now."

For our faculty, this has required a re-imagining of what a classroom looks like in order to engage with our students through various media. "We've all had to learn to navigate a plethora of online meeting platforms and classroom management systems. Personally, I miss the face-to-face, direct interaction with my students, who miss the interaction with each other," said Dr. Casadonte. Faculty also

## GENEROUS GIFTS

BY PROFESSOR YEHIA MECHREF

Even in these trying times, our department has continued to be graced by the generosity of our alumni in the form of increased giving that supports student scholarships and the research endeavors of our faculty and students. I would particularly like to express my most sincere gratitude on behalf of the Department of Chemistry & Biochemistry to Mrs. Alice and Dr. Ming Sun for the largest individual alumni donation to the department in the last decade. Their gifts to the department have been instrumental in aiding the research efforts of our faculty who are seeking national funding (NSF, DOE, NIH, etc.). Their previous donations already support our current graduate students who are enhancing the research efforts of our faculty. We would also like to thank Mr. Stuart Convers for his gift this year to the department's Excellence Fund. His notable donation will be likewise used to help faculty and students continue to excel both in their research and in the classroom. Generous contributions like those given by Mrs. Alice and Dr. Ming Sun as well as Mr. Convers are essential to the department's mission of expanding our teaching and research endeavors and helping Texas Tech University continue to grow as a national research institute. Such gifts strengthen the faculty, improve the department's facilities, provide fellowships to deserving students with financial needs, and help in many other vital ways that are not always obvious. The department is indebted to the Sun and Convers families for their continuous and unmatched support.



INSIDE  
THIS  
ISSUE

The Heart of the Department  
Generous Gifts  
Remembering Those We've Lost  
Professor Highlight  
Value of Mentorship  
Impact of Scholarship  
Donor Recognition  
Honors and Grant Awards  
2020 Awards & Recognition Banquet



TEXAS TECH UNIVERSITY

Department of Chemistry  
& Biochemistry™

# Remembering Those We've Lost...

As many of us have been asked to shelter in place while our work and teaching responsibilities carry on remotely, the world requires that we continue to move forward. Although remote learning may not be ideal (or even possible) for certain activities in the STEM field, it's what is called for so that we may continue to educate. As scientists, we know that things will eventually return to normal, even if our definition of "normal" changes slightly from before. The faculty and staff of the department of Chemistry and Biochemistry have carried on calmly, professionally, and valiantly despite all that has happened over the last few months.

We would like to take a moment now to recognize a few individuals who we have tragically lost, whose work and good example inspired many and who will be deeply missed. Over the past year, the department has mourned the passing of three esteemed members of the department, Emeritus Professors Richard A. Bartsch and Richard E. Wilde, and current Horn Professor William "Bill" L. Hase. While the loss of these individuals has been hard for many in our community, we have also been able to reminisce about the extensive number of lives these individuals reached as part of the Texas Tech community.

Tech University in 2004 as the Robert A. Welch Chair in the Department of Chemistry and Biochemistry, and was later appointed as a Paul Whitfield Horn Professor in 2014. Bill is survived by his wife Alice Young; daughter Heidi Joy Hase; and his brothers Randall, Allan, and Gayle.

On November 28, 2019, **Prof. Richard Bartsch** passed away at the age of 79. Richard received his B.S. and M.S. in Chemistry from Oregon State University and his Ph.D. from Brown University (1967). As an organic chemist specializing in chemical separations, Richard worked for more than 40 years at Texas Tech University where he was named a Paul Whitfield Horn Professor in 1988. He published more than 450 articles, supervised 54 doctoral students, and served as the department chair for 15 years. In 2010, he became a fellow of the American Chemical Society, and in 2011 he was honored to have many of his former students and collaborators host a research lab reunion in his honor. Richard is survived by his wife Nadine; children Lisa and Robert; grandson Thomas; and sister Dianne.

On November 1, 2019, **Prof. Richard E. Wilde** passed away at the age of 88. Prof. Wilde started his career as a physical chemist at TTU in 1963, and taught chemistry for 32 years. As an associate chair, he spearheaded



**Professor  
William Hase**



**Professor  
Richard Bartsch**



**Professor  
Richard E. Wilde**

Most recently, **Prof. William Hase** passed away on March 23, 2020, one day after his 75th birthday. Bill was born in Washington, MO where he began his education in a three-room school in Holstein, MO. Like many of us, Bill credited his high school science teacher George Craddock with inspiring his lifelong interest in the intersection between chemistry and mathematics. He then went on to receive a B.S. in Chemistry from the University of Missouri (1967) and a Ph.D. in Chemistry from New Mexico State University (1970). In 1973, he joined the faculty in the Department of Chemistry at Wayne State University. After a short period in which his research focused on experimental physical chemistry, Bill shifted his attention to computational and theoretical chemistry. He joined Texas

the renovations of the north wing of the Chemistry building which were completed in 1987. Richard is survived by his three children, Jeffrey Wilde, Lorraine van Waasbergen, and Vincent Wilde, and by five grandchildren. A more detailed biography was previously presented in the fall '19 Test Tube.

One of the common threads that tied these three individuals together was their love for scientific discovery and exploration. As we mourn their passing, we are thankful for the opportunity to take a moment to remember how their interactions with us influenced our own lives, and the lives of so many in the Texas Tech community and beyond.

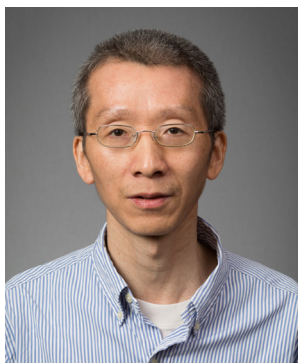
## CONTINUED FROM COVER

had to adjust their research efforts. Dr. Hutchins said that “since June we have implemented capacity limits, so only part of my group can work at a given time. We have been unable to celebrate significant student milestones including published manuscripts and passing qualifying exams.” For Dr. Pappas, “the pandemic has disrupted our ability to conduct clinical studies, delaying some projects and forcing us to change priorities in order to stay productive. At the same time, I have been amazed at my graduate students’ resilience, determination, and grit.”

We cannot pretend that all of this has been easy or straightforward. To do so would be to paint a rosy picture over all of the extra hours of lecture preparation, e-mails, endless Zoom meetings, meticulous cleaning regimens, and generally stressful conditions that the members of the university have experienced over the last nine months. However, even through the trials and tribulations, our department has continued to grow and exceed expectations at every turn, while simultaneously maintaining one of the safest face-to-face learning environments on campus. As we near 2021, we turn our eyes and our hopes toward a brighter year to come!

## PROFESSOR HIGHLIGHT

Dr. Haibo Ge was born and raised in the eastern part of China where he studied Medicinal Chemistry at China Pharmaceutical University in Nanjing. In 2002, Dr. Ge began his doctoral studies under the supervision of Prof. Gunda Georg at the University of Kansas. It was there that he developed his interest for transition metal-catalyzed C-H functionalization while conducting medicinal chemistry studies on the chemotherapy medication paclitaxel. After graduation, Dr. Ge began work as a postdoctoral research associate with Prof. Dale Boger at The Scripps Research Institute where he gained extensive experience in the handling of macrocyclic peptides.



In 2009, Dr. Ge began his independent career in the Department of Chemistry and Chemical Biology at IUPUI where he received an NSF CAREER award in 2014 and promotion to Associate Professor in 2015. Research in Ge lab has two primary focuses: the development of transition metal-catalyzed carbon-carbon and carbon-heteroatom bond formation through C-H functionalization and the medicinal chemistry studies of biologically active organic molecules. Through this research, the Ge group has

established a transient direct group strategy for site-selective functionalization of aliphatic aldehydes and primary amines. His current funded NSF projects concern the novel method development for efficient access to common organic structural units. In January 2020, we officially welcomed Dr. Ge as an Associate Professor to the Department of Chemistry and Biochemistry. Once research recommences on campus, Dr. Ge’s lab will be relocating to the new Experimental Science Building II.

## THE VALUE OF MENTORSHIP

As a stubborn first-generation student, Joe Juarez’s journey to Texas Tech did not take the path most traveled. After high school, he enlisted in the military not only to serve his country, but to ensure his future collegiate experiences would be covered financially. After he completed his enlistment requirements, he attended South Plains College while adjusting back to civilian life and looking for a new direction.

Joe’s path eventually led him to Texas Tech University, where a recent opportunity completely changed his projected future. While taking classes at TTU, Joe was

presented with the chance to apply for TTU’s McNair Scholars Program. This nationwide program is designed to help prepare first-generation undergraduate students who have strong academic potential for graduate studies by involving them in graduate-level research and other scholarly activities. Along with helping to pair students with faculty mentors, the program provides a series of workshops on research topics and introduces students to the different aspects of applying, selecting, and ultimately succeeding in future graduate programs.

Joe was accepted to the program as a McNair Scholar and was placed under the mentorship of Professor Kristin Hutchins in the Chemistry and Biochemistry department. He is currently conducting research in Prof. Hutchins’ group on the synthesis of known and modified crown ether molecules for the capture of rare-earth elements. This research, conducted under the supervision of PhD candidate Daniel Loya, could have significant applications in the area of recycling technologies. Joe says that while the research experience has been great, it has been Prof. Hutchins’ guidance and mentorship that has been the most appreciated and is making the greatest impact on his outlook for the future.

As a Chemistry and Communications major, Joe is not only the recipient of meaningful guidance, he is now paying it forward as well. Joe is the current Vice President of the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS), and is actively working to help promote the advancement of minorities in STEM fields.

After he graduates from TTU, Joe hopes to attend graduate school either on the east coast or in the Rocky Mountains where he can continue both his academic studies and his newfound love of research on pharmaceutical molecules. He also plans to continue to offer guidance to other students who may just be missing that little bit of encouragement needed to reach their goals.

## THE IMPACT OF SCHOLARSHIP

BY HERMELLA ANDARGE

For the past 3 years, I have been a grateful recipient of the Archer Scholarship for Chemistry and Biochemistry majors. This scholarship has helped reduce my financial burden to attend Texas Tech University. Prior to receiving this scholarship, I was debating whether to rescind my acceptance to Texas Tech and attend a school within my financial capabilities. It was during this time that I received the email saying I had been selected as a recipient of the Archer scholarship and it could not have come at a better time! This scholarship helped to remove the stresses that I was feeling about attending Texas Tech and has allowed me to focus primarily my education.

After matriculating to Texas Tech, and not having to worry about how to pay for the upcoming semester, I was able to explore new challenges and opportunities that would further my education. Being a pre-med student there were already a million things on my mind that I knew I had to complete in order to be a competitive applicant. I took the time that would have been working a part time job and instead used it to begin my undergraduate research in the chemistry department. This opportunity has been extremely rewarding and I am still doing research with the same professor two years on. Along with research experiences, I also joined and became the vice president of the Dr. Bernard Harris Pre-Medical Society that has opened a new set of doors on my journey to medical school. These opportunities are only possible because I decided to attend TTU and ultimately is all thanks to this scholarship.

Being a recipient of the Archer scholarship is something that I am thankful for more often than I could count. It has provided me with the chance to make the most of my college experience and put myself out there in a school that I would not have been able to attend without it. Being at Texas Tech has opened up countless doors for me and this scholarship is one of the main reasons for it.

## HONORS AND AWARDS

**Dr. Dominick J. Casadonte receives the President's Academic Achievement Award and the Professing Excellence Award** >> Prof. Casadonte, the Minnie Stevens Piper Professor, was awarded the President's Academic Achievement award at the 2020 Faculty Convocation. This award is granted to TTU faculty who exhibit "excellence in achievement across the teaching-research-service missions of the university" as evidenced by "three years of faculty service, recognition by peers in one or more areas, evidence of productive scholarship, and demonstrated competence in the three areas". The Professing Excellence award was also presented to Prof. Casadonte this spring by TTU undergraduate students for going above and beyond, both inside and outside the classroom, impacting their learning and academic success.

**Dr. Dimitri Pappas receives TTU's Integrated Scholar Award and the Champion of Women Award hosted by WT-AWIS** >> Prof. Pappas has been awarded the 2020 Integrated Scholar Award by Texas Tech University. This award is presented to faculty who demonstrate significant accomplishments and effective synergy among the major professional functions of teaching, research, and service. Prof. Pappas was also named a 2020 Champion of Women by the West Texas Chapter of the Association of Women in STEAM, a graduate student organization at TTU. In addition to these accolades, Prof. Pappas was also awarded Promotion to the rank of Full Professor.

**Dr. Kristin Hutchins receives Alumni Association's New Faculty Award** >> Prof. Hutchins was the recipient of the Texas Tech Alumni Association's New Faculty Award. This award recognizes faculty with less than 5 years of service to the University and who have demonstrated quality teaching and research. Also in recognition of the impact Prof. Hutchins is having in the department, she was also selected for the inaugural Research Spotlight on Texas Tech Women Faculty hosted by the Office of Research & Innovation in partnership with the Division of Diversity, Equity & Inclusion.

**Dr. Anthony Cozzolino receives the Excellence in Research Award for the Physical and Natural Sciences** >> Prof. Cozzolino received the Arts & Sciences' Excellence in Research Award for the Physical and Natural Sciences. This award recognizes a member of the College of Arts & Sciences faculty who has distinguished themselves and has achieved national or international recognition for their research or other creative activity in the natural and physical sciences. Along with recognition for his research excellence, Prof. Cozzolino has also received Tenure & Promotion to the rank of Associate Professor.

**Dr. Gerardo Gamez-Goytia receives the Young Investigator Award in Plasma Spectrochemistry** >> Prof. Gamez-Goytia was selected as the recipient of this year's Winter Conference Award in Plasma Spectrochemistry for making noteworthy contributions to the field of plasma Spectrochemistry. This award is hosted by the Chromatography and Mass Spectrometry Division of Thermo Fisher Scientific.

## GRANT AWARDS

**Prof. Yehia Mechref** is a co-investigator of a CPRIT academic research grant entitled "GD2 Expression and Response to Chemoimmunotherapy in Neuroblastoma" awarded to Dr. Charles Reynolds, Professor of Pediatrics, Cell Biology & Biochemistry, and Medicine, the Cancer Center Director for the School of Medicine, and Director of the South Plains Oncology Consortium (SPOC). Prof. Mechref's group developed a sensitive assay that generated preliminary data supporting data generated by Dr. Reynolds' group, suggesting a strong correlation between GD2 expression and response to chemoimmunotherapy in neuroblastoma. Prof. Mechref's share of the grant is \$129,416.00 for three years.

**Prof. Kristin Hutchins** was awarded an ACS-PRF grant entitled "Incorporation of Motion-Capable Functional Groups into Solid-State Materials and Impacts on Thermal Expansion." Prof. Hutchins' group has been actively exploring molecular motion within single crystals and how altering the packing of different molecules can affect the thermal expansion of crystals. The grant is for a total award of \$110,000 for three years. The award starts June 01, 2021 and ends August 31, 2023.

## AWARDS & RECOGNITION BANQUET, MAY 4, 2020

**Congratulations to all our award recipients! A special thank you to all our donors for making these possible!**

<b>Gordon &amp; Martha Bellah Endowed Scholarship</b> .....	Melody L. Carey, Cassidy R. Coker, Colby J. Coiner, Katherine A. Eads, Ashton J. Goebel, Kalya N. Henry, Cole M. Hogan, Ulisses Ruiz, Jay A. Sim, MacKenna R. Smoot
<b>H.E. Archer Endowed Scholarship</b> .....	Jenna P. Eisel, Jenna B. Eugster, Jacob R. Rose, Hannah Seo
<b>Hulda W. Marshall Chemistry Endowed Scholarship</b> .....	Lauren A. Escobedo, Litzky K. Guevara, Angelica N. Nibo, Alyssa J. Pleasant
<b>Jeanette &amp; Joe Dennis Scholarship</b> .....	Jose L. Villeda, Hannah L. Wood
<b>Jerry L. Mills ACS Student Affiliate Scholarship</b> .....	Nicole G. Latorre
<b>Richard A. Bartsch Endowed Scholarship</b> .....	AnClaudia T. Nguyen, Brandon C. Richardson
<b>Robert C. Goodwin Memorial Endowed Scholarship</b> .....	Kindall E. Brijalba, Julieann S. Cherukara, Chandeni R. Kassen, Rohan S. Pendse, Cormak L. Weeks, Noah C. Williams
<b>Samuel Lee Hunt General Chemistry Scholarship</b> .....	Dylon R. Appell, Victor Barajas, Ny'il Hassan Sherazee, Daniel Hsia, Irene Mwangi, Luke Raetzman, Meghan Reed, Rylee Joan Weirich
<b>Chemistry Graduate Student Organization Scholarship</b> .....	Reza Amani, Deepika Bedi, Mona Goli, Chamila P. Manankandayalage, Maryam Yekefeller
<b>Ginny Shen Lin Endowed Scholarship</b> .....	Deepika Bedi, Kevin N. Finch, Shipra Garg, Elahe Masoumzadeh, Sophia L. Sagala
<b>Ming Sun Family Graduate Research Scholarship</b> .....	Collin G. Borcik, Zachary K. Boswell, Amandeep K. Brar, Kevin N. Finch, Yifan Huang, Shiva Moaven, Hossein Rouh, Sara Shafiei Haghighi
<b>Pearson TA Scholarship</b> .....	Amna Aqdas, Vanessa R. Charles, Isaac Eason, Ashley N. Moreno-Gongora, Qingya Zou
<b>Richard Goodin Graduate Research Fellowship</b> .....	Lu Cheng
<b>Song Prize</b> .....	Dr. Haoxi Chai
<b>Doctoral Dissertation Completion Fellowship</b> .....	Deepika Bedi
<b>Graduate School 2020 Summer Dissertation Research Award</b> .....	Elahe Masoumzadeh
<b>Staff Appreciation Administrative Award</b> .....	Donna M. Forsyth
<b>Staff Appreciation Technical Award</b> .....	LaQuetta Purkiss
<b>Outstanding TA Awards in General Chemistry</b> .....	Ashley N. Moreno-Gongora, Kevin N. Finch
<b>Outstanding TA Awards in Organic Chemistry</b> .....	Babak Tahmouresilerd, Deepika Bedi
<b>Outstanding TA Awards in Upper-Division Chemistry</b> .....	Jacob J. Culvyhouse

## UNDERGRADUATE OUTSTANDING PERFORMANCE AWARDS

<b>Analytical Chemistry</b> .....	Lindsey E. Bishop, Shr Chun Chen, Alexiss A. Dennett, Michael Dale Loftis, Amy E. Reed, Logan C. Smoot
<b>Biochemistry</b> .....	Michael T. Nagel
<b>Inorganic Chemistry</b> .....	Ashley G. Smith
<b>Organic Chemistry</b> .....	Sai Pranathi Bingi, Alan I. Murillo, Arya A. Nekovei, Logan C. Smoot, Amber R. Stone, Coltyn M. Wagnon, Lindsay B. Wiseman
<b>Physical Chemistry</b> .....	Kirsten R. Nettles, Truman J. Thompson
<b>Outstanding Senior Award</b> .....	Cecilia R. Smith
<b>2019 Undergraduate Comprehensive Achievement in Organic Chemistry</b> .....	Logan C. Smoot
<b>Division of Analytical Chemistry of the American Chemical Society Undergraduate Award</b> .....	Aldo R. Hernandez

# THE COINAGE METALS DONOR RECOGNITION

*Due to the generous giving of those listed below, donations to the department are up over 90% compared to prior years. We would just like to say thank you to everyone that has supported the various missions of the department both recently and continually over the years. Please stay safe, healthy, and continue to look forward to the day when we can all be together again.*

Mr. and Mrs. Keith Alexander

Mr. and Mrs. Arthur Ayles

Mr. and Mrs. Troxel Ballou

Dr. and Mrs. Jack Baum

Dr. and Mrs. G. Gordon Bellah, Jr.

Drs. Melissa and David Blann

Dr. and Mrs. Drew Brandon

Jiin D. Cheng, Ph.D.

Mr. Stuart Convers

Mr. and Mrs. Murray Crutcher, Jr.

The Davis Family Living Trust

Mrs. Parvin Dinyarian

Dr. and Mrs. William Fortner

Phillip Godwin, PC.

Mr. Armando Gomez

Dr. and Mrs. Matthew Hankins

Ms. Alyssa Hartmann

Mr. and Mrs. Stephen Hipes

Ms. Peggy Holwerda

Oscar Jackson, Jr., M.D.

Ms. Sarah Jefferson

Dr. and Mrs. Jamine Lee

Mr. and Mrs. Alan Leshnower

Ginny Lin, Ph.D.

Dr. and Mrs. Yung Liu

Mr. Peter Lucas

Dr. Tori Marnell and Mr. Todd Marnell

Mrs. Joan McCown

Ms. Sara Molina

Stefania Mondello, M.D.

Mrs. Caren Moran

Mr. Frederick Nagle

Dr. and Mrs. Charles Nunnally

Mr. and Mrs. Randal Patterson

Dr. and Mrs. Dan Peckenpaugh

Simon K. Poruthoor, Ph.D.

Candice Rohr, M.D.

Ms. Kerri Spontarelli

Randall Stickney, M.D.

Dr. and Mrs. Ming Sun

Mary Tannahill, Ph.D.

Dr. and Mrs. James Van Tassel

Dr. Jane Valenta and Mr. William Valenta

Ms. LaNell Webb

**As we continue to strive for student excellence and research recognition, your support is always appreciated and will be used to the fullest. We hope you will consider donating to one of the endowments or scholarships below.**

**Ginny Shen Lin Graduate Fellowship Endowment**

**Mae & Doug Allee Scholarship Endowment in Chemistry**

**Chemistry & Biochemistry Scholarships**

**Cissy & John Ward Research Grad Fellowship Endowment**

**Department of Chemistry & Biochemistry Endowment**

**Unrestricted (To be used at Chairman's discretion)**

**Name** \_\_\_\_\_

**Degree/Year** \_\_\_\_\_

**Address** \_\_\_\_\_

**Phone Number** \_\_\_\_\_ **Email Address** \_\_\_\_\_

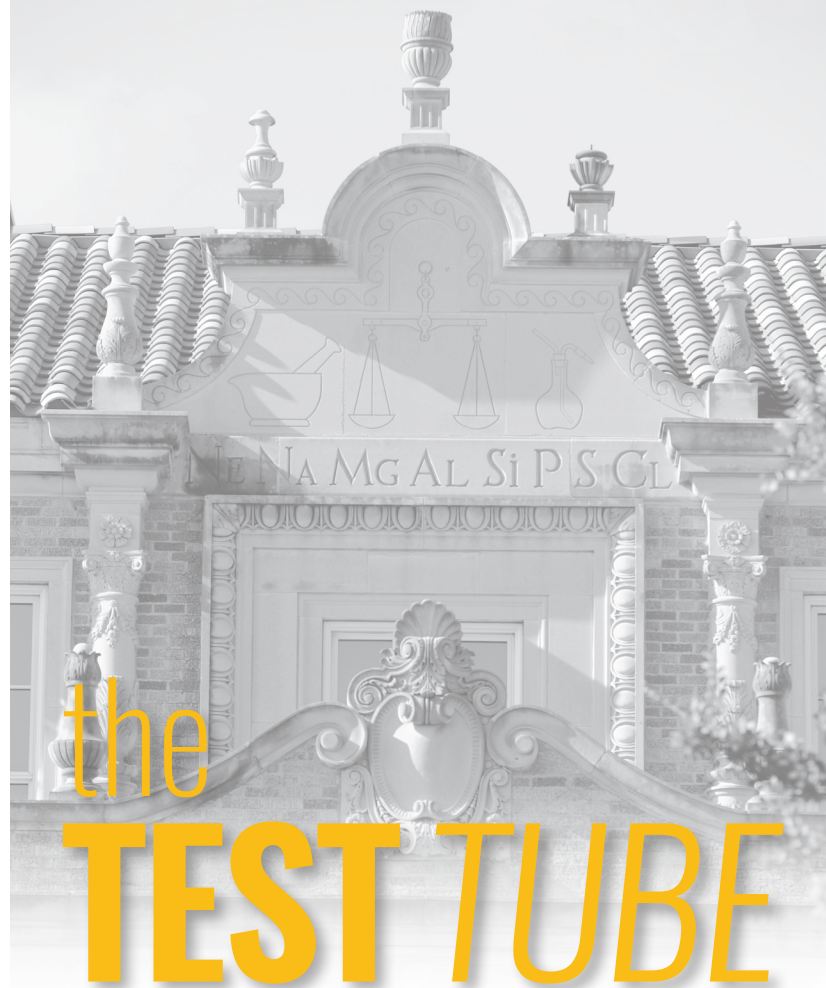
**Donation Amount** \_\_\_\_\_

Please make checks payable to: Texas Tech University, Department of Chemistry & Biochemistry

Mail checks to: Chair, TTU Chemistry & Biochemistry, MS 41061, Lubbock, TX 79409-1061

Credit card donations can be made at: <http://donate.give2tech.com>

Texas Tech University  
Department of Chemistry & Biochemistry  
Box 41061 | Lubbock, Texas 79409-1061  
chem.ttu.edu | 806.742.3067



# MAKING BONDS WE WANT TO HEAR FROM YOU!

*Chemistry & Biochemistry Alumni, Stay Connected With Us!*

 *TTUChem (Undergraduate)*  *TTUChemGrad (Graduate)*

 *facebook.com/ttuchembio*

*If you would like us to share some news or just update  
your contact information, please let us know!*

*Send us an Email, Letter or Use our Online Form:  
[chem.ttu.edu/Alumni](http://chem.ttu.edu/Alumni)*

## OUR VISION

*The Department of Chemistry and Biochemistry will strive to be recognized locally, nationally, and internationally for the quality of the education of the undergraduate and graduate students; vibrant, synergistic, and inventive interdisciplinary and multidisciplinary research programs; and impactful community engagements.*

the **TEST TUBE**

**CO-EDITORS:**

*Ms. Shannon Sears, M.A.  
Dr. Daniel K. Unruh*

**DESIGN & LAYOUT:**

*Rebecca Leal | Shannon Gutz*