

DEPARTMENT NEWS

Towson University

Chemistry and Forensic Chemistry

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A Message From The Chair



Greetings to the Towson University Chemistry family! I have been physically in the Chair's office since August 3rd and officially on the job since August 19th. As many of us do when we move, I used the occasion to go through my things and take stock. Most things I kept, although there were a few boxes of shredding and a lot of recycling. When I got to the chair's office I took advantage of the quiet before the storm to go through the departmental files as well. Nominally, I wanted to take stock of the files saved by previous chairs, to know what resources were available as questions arose about staffing, curriculum and budget. However, what I got was much more: it was an immersion into the history of Towson Chemistry. I came across memos and forms, letters and records of the faculty and students who have spent time in this department. I learned a little about faculty who came before me like Uno Kask and Floyd Blankenship. I saw letters from former students who were just starting out but are now in the prime of their careers. It was a good couple of days and I have to say I enjoyed going through all of that paper. Some outdated files got thinner, but there is one hanging file of department memorabilia, not essential paperwork, just paper with some sense of the personalities that have graced the 5th floor of Smith Hall, that got progressively thicker.

I've been at Towson for 15 years, but the Chemistry Department has been going strong for 45 years and students have been earning degrees in Chemistry for 49 years. Our alumni numbers are growing at an ever-increasing pace.

In the 2014-2015 academic year, the department awarded 63 degrees in Chemistry and 24 degrees in Forensic Chemistry for our largest graduating class ever. With the addition of our newest tenure-track faculty member, Dr. Mary Sajini Devadas, we now have 19 tenured or tenure-track faculty. With the hire of Sarah Stokes and Dimitra Kontokosta as lecturers, we now have a total of 25 full-time faculty.

Finally, I want to express my heartfelt thanks to Dr. Richard Preisler who has made this transition into the chair's office a little easier and a bit less intimidating than it might otherwise have been. Dr. Preisler has been chair for 12 of the last 16 years and oversaw a time of unprecedented change. New faculty were entering the department, veteran faculty were retiring and the university was growing at an incredible rate. Of the 18 other faculty in department, 13 were hired while Richard was chair (including me) and all 6 of our lecturers were hired under his supervision. With all the changes that have happened during this time, it is fair to say that the department has arrived in its current form with the help of Richard's leadership. Dr. Preisler is now back to spending more time in the classroom and laboratory and I would like to wish him a quieter inbox, fewer meetings and more time with the students in his own classes.

My first month in the chair's office has shown that things go by at a whirlwind pace in here, but it's good to take a moment, look at the buzzing halls and busy classrooms and appreciate what has gone into making this department the amazing place that it is today!

Dr. Ryan Casey
Department of Chemistry, Chairperson

Chemistry Program News

New Faculty



We welcome Dr. Mary Sajini Devadas!

Dr. Devadas grew up in India where she earned a BS, MS and Master of Philosophy in Chemistry, all from Bharathiar University in 1997, 1999 and 2001, respectively. Dr. Devadas then went on to teach chemistry in two colleges in India for six years before traveling to the United States to pursue a PhD in Chemistry at Western Michigan University with Professor Ekkehard Sinn. After completing her PhD in 2012, Dr. Devadas held an appointment as a postdoctoral research associate at the University of Notre Dame with Professor Gregory V. Hartland from 2012 through 2015. Dr. Devadas' area of specialization is inorganic chemistry with an emphasis on nanomaterials, synthesis and single particle linear and nonlinear optical spectroscopy. She has authored or co-authored 16 peer-reviewed publications, delivered 18 conference presentations and co-authored 10 additional presentations, of which five were given by undergraduates.

Faculty Grants

Ryan **Sours**, Beth **Kautzman**, Barry Margulies, John **Sivey**, and Shannon **Stitzel** (co-PI's), Matt Hemm and Ellen **Hondrogiannis** (senior personnel), "Acquisition of a Liquid Chromatograph-Mass Spectrometer to Support Multidisciplinary Research and Undergraduate Education at Towson University," NSF MRI, \$382,737 .

Beth **Kautzman** was awarded a grant through The Maryland Space Grants Consortium for her work, "Monitoring the Chemical Composition of Ambient Atmospheric Aerosol through the Analyses of High-Volume Filter Samples." \$20K.

Publications

John **Sivey** published the following paper, coauthored by his undergraduate research students Mark Bickley (senior chemistry major) and Dan Victor (chemistry alumnus): **Sivey**, J. D.; Bickley, M. A.; Victor, D. A. Contributions of BrCl, Br₂, BrOCl, Br₂O and HOBr to regiospecific bromination rates of anisole and bromoanisoles in aqueous solution. Environmental Science and Technology 2015, in press.

Research Presentations

John Sivey delivered invited research seminars in the Department of Chemistry at Bucknell University and in the Department of Civil and Environmental Engineering at the University of Delaware.

John **Sivey** delivered an invited lecture to undergraduate researchers at the University of Iowa in Iowa City, IA.

John **Sivey** delivered the following platform presentation at the 250th ACS National Meeting in Boston, MA: Buffers as potential catalysts of hydrolysis and halogenation during agrochemical fate experiments in bench-scale reactors; Division of Agrochemistry.

Allison Ricko (Environmental Science MS graduate, advised by John **Sivey**) delivered the following poster presentation at the 250th ACS National Meeting in Boston, MA: Buffers as potential catalysts of hydrolysis and halogenation during agrochemical fate experiments in bench-scale reactors; Division of Agrochemistry.

Two undergraduate research students in John **Sivey's** group successfully defended their Honors Theses in April and May: Mark Burton, "Transformation of pro-herbicide isoxaflutole: Effects of 'inert' agrochemical ingredients."

Mark Bickley, "Reactivity of aromatic amino acids toward aqueous halogenating agents: Quantifying regiospecific halogenation rates in solutions of free chlorine and free bromine."

Beth **Kautzman** presented an invited seminar to the Maryland Space Grant Consortium on July 14, 2015, entitled "Monitoring the Chemical Composition of Ambient Atmospheric Aerosol through the Analyses of High-Volume Filter Samples."

Beth **Kautzman** and graduate student Larry Meade attended the National Meeting of The American Chemical Society in Boston, MA, August 16-20, 2015. Mr. Meade presented a poster on his research entitled, "Chemical Characterization of Ambient PM_{2.5} collected over Towson Maryland." (research mentor: Dr. Stitzel and Dr. Sours)

Jon Jopse, an undergraduate research student in Ellen **Hondrogiannis'** lab, presented a research poster at the Colonial Academic Alliance Undergraduate Research Conference at Drexel University, Philadelphia, PA, March 2015:

Jopse, J. and **Hondrogiannis, E.** "Electronic Cigarette Aerosol Analysis: Instrumentation and Method Development."

Research Presentations (cont.)

Several Chemistry faculty and research students attended and presented research results at the 249th National Meeting of the American Chemical Society in Denver, CO, March 22-27, 2015.

Tim **Brunker** gave the following platform presentation: Krause, S.B.*; **Brunker**, T. J.; Rheingold, A. L. "Cyclic hydroboration using borenium cations."

Dr. Brunker's research student David Szymanik presented the following poster:

Szymanik, D.* and **Brunker**, T.J. "Triflimide activation of Azaferrocene-boranes for Hydroboration of Linear Alkenes."

Ryan **Sours'** research student, Ravleenkaur Khalsa, presented the following poster (Shannon **Stitzel** collaborated with Ryan and Ravleenkaur on the research):

Khalsa, R.*, **Stitzel**, S.E. ; **Sours**, R.E. "Using trace element signatures to determine cocoa liquor provenance."

Professional Development

John **Sivey** reviewed research articles for *Environmental Science and Technology* as well as *Environmental Science and Pollution Research*.

Ryan **Casey** reviewed a book proposal for Wiley and a grant proposal for the Kentucky Science & Engineering Foundation.

Department Open House

The Department of Chemistry held its Spring Open House on April 1. A number of faculty, staff and students attended, viewed posters on undergraduate research and academic programs of the Department and enjoyed refreshments.

Look for flyers in the department for our next open house.



Students and faculty at our last open house.

Undergraduate Grants and Awards

Mark Bickley (mentor: John **Sivey**) was the recipient of a 2015 Undergraduate Environmental Chemistry Award from the American Chemical Society's Division of Environmental Chemistry

Senior Chemistry and MBBB major James Robertson (PI K.E. **Kautzman**) was awarded a Summer Undergraduate Research Fellowship from The National Institute of Science and Technology. James presented the results from his summer research project at a colloquium in August.

Upcoming Departmental Seminars

10/5/15: Dr. Cecil Dybowski, University of Delaware "Title TBD"

11/5/15: Dr. Ana Maria Soto, Sabbatical Seminar

11/19/15: Dr. Ryan Casey, Sabbatical Seminar

12/3/15: Dr. Zeller Rasket Seminar

2/18/16 Dr. Matt Limmer, University of Delaware, "Title TBD"

Past Departmental Seminars

Dr. Judy Zhang, Temple University, "Experimental and Computational Evidence for Reduction Mechanisms of N-O Containing Contaminants (NOCs) by Soluble Fe^{II} Species," Sept 17, 2015.

Dr. Matt Nee, Western Kentucky University, "Solvation to kinetics: the surprising impacts of ions at Earth's wet surfaces on the global atmosphere," March 12, 2015.

Dr. Beth Herndon, Kent State University, "Biogeochemistry of manganese contamination in the critical zone," March 26, 2015.

Mark Bickley, "Reactivity of aromatic amino acids toward aqueous halogenating agents: Quantifying regiospecific halogenation rates in solutions of free chlorine and free bromine." April 29, 2015.

Dr. Jana Shen, Department of Pharmaceutical Sciences, University of Maryland, Baltimore, "Unraveling pH-dependent mechanisms in biology and chemistry," April 23.

Community Outreach

Mark Burton (senior chemistry major), Allison Ricko (environmental science MS candidate), and John **Sivey** delivered an educational outreach activity entitled, "The Mathematics of Color and Light" with 6th grade students at a local middle school.

Professional Development

Tim **Brunker** attended the NSF-sponsored CCWCS (Chemistry Collaborations, Workshops and Community of Scholars) Workshop on "Active Learning in Organic Chemistry" June 7-9 in Denver, CO.

Faculty Awards

In summer 2015, Associate Professor of Chemistry **Clare Muhoro** was named one of the top 100 women nationally in the science, technology, engineering and mathematics (STEM) field by INSIGHT into Diversity magazine. The magazine's "Inspiring Women in STEM" award pays tribute annually to women across the nation for their efforts to encourage women to pursue and persist in STEM fields. "I am very honored to have received this award," Muhoro said. "I strongly believe that diversity in all fields of STEM is vital; humankind must have all hands on deck as we collectively address grand challenges through scientific inquiry. It is also essential to source as much scientific brainpower as possible as we continue to push frontiers of science further. I am truly humbled to be member of this cohort of outstanding Women in Science who share this vision."

Forensic Programs News

Presentations

Kelly **Elkins** coauthored two invited platform presentations and two poster presentations. Graduate research students Jenna Roussillon and Kate Sweetin presented the posters:

Roussillon, J.; **Elkins**, K.M. "Multiplex real-time PCR detection and identification of food-borne pathogen *Bacillus cereus* and related *Bacillus* species (poster)."

Sweetin, K.; **Elkins**, K.M. "Multiplex real-time PCR detection and identification of food-borne pathogens *Salmonella enterica*, *Escherichia coli* and *Shigella flexneri* (poster)."

Schelble, S.M.; **Elkins**, K.M.; Walker, R.; Wieder, M.; Tsai, E. "Using TUES funds to create undergraduate scholarship (platform)."

Schelble, S.M.; **Elkins**, K.M. "Using spectra from undergraduate projects to improve higher order cognition (platform)."

Mark **Profili** presented a talk on *Ethics in Forensic Education* and participated in a forum on forensic science education at the Mid-Atlantic Meeting of the American Academy of Forensic Science in Cambridge, MD, May 19-22.

Masters in Forensic Science student Ashley Dye gave a platform presentation at the *Mid-Atlantic Association of Forensic Scientists*. (2015) **Hondrogiannis E**, Dye A. "The Analysis of Gunshot Residue through LA-ICP-TOF-MS for Manufacturer Attribution." Cambridge, MD.

Grants

Kelly **Elkins** and Subrata Acharya submitted the following proposal to the National Institute of Justice:
Elkins, K.M. (PI) and Acharya, S. (Co-PI). Developing and Testing New Technology for Detecting Drug Evidence and Preserving Results, 1/1/2016-12/31/2017, \$255,537.

Kelly **Elkins** and Subrata Acharya submitted a project concept to the Laura and John Arnold Foundation.

Publications

Kelly **Elkins** published the following paper, coauthored by former graduate research student (MSFS graduate) Zoe Krohn:

Elkins, K.M.; Krohn, Z.M. Evaluation of Technology in Crime Scene Investigation. *CS Eye* 2015, in press.

Kelly **Elkins** published the following book chapter:
Elkins, K.M. "Primer Design for PCR Reactions in Forensic Biology," In *Methods in Molecular Biology: PCR Primer Design*, Basu Chhandak, ed., Humana Press, 2015.

Professional Development

Kelly **Elkins** reviewed a manuscript for the *Journal of Chemical Education*.

Kelly **Elkins** reviewed a new polymer forensics book for Springer and a book proposal for Elsevier.

Kelly **Elkins** served as the faculty advisor for an 11th grade student for his G/T Research class 2014-2015 project, "Forensics: A Cold Case," for which he researched and interviewed her about error in forensic science.

Mark **Profili** gave a talk on *Ethics in Forensic Science* to the Maryland state Police Crime Lab on September 10 and will be presenting a poster on *DNA Backlog Reduction Planning and Pitfalls* at the International Symposium on Human Identification on Oct 12-15 in Grapevine, Texas.



The above MSFS students presented their research at the TU Expo this past April 2015. The Director, Mark Profili, (top left) attended as well.

Other News

Forensic Science Student Organization (FSSO)

Those interested in joining FSSO should go to our facebook page (<http://www.facebook.com/groups/FSSOTU/>) and join our group.

SAACS Corner

Those interested in joining SAACS should go to our facebook page (<http://www.facebook.com/groups/towsonsaacs/>) and join our group on the involved@TU page.

The Towson University SAACS Club is an official branch of the Student Affiliates of the American Chemical Society. Student members come from a variety of departments - you don't have to be a chemistry major to join!

2015 Alumni Homecoming Tailgate Reunion Cancelled

We regret to report the 2015 Alumni Homecoming Tailgate Reunion originally scheduled for October 24th will be canceled this year. Changes in tailgating policies introduced by the University made it impossible for our group to find a suitable location to hold the reunion this year. We will work diligently to work around these policy changes for next year or come up with an alternate venue to hold the reunion. We welcome any suggestions you might have!

A Facebook site is here.

Let us hear from you! Please send your information to : chemalums@towson.edu

We welcome all visitors to the Department. It would be great to see or hear from our alums!

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