A Message from the Dean

Our Commencement exercise on May 20th marked the official end of Towson University’s year-long celebration of the institution’s 150th anniversary. It’s been an exciting year of looking back and looking forward, rededicating ourselves to student success and academic excellence. TU150 has given us great opportunities to re-engage with our alumni, too. There’s no question that, this year, the Fisher College has served a record number of TU students, and logged record numbers of STEM majors and STEM graduates.

Here in the Dean’s office, we said goodbye to Helen Harrison, and hello to Grace Nicholl, our new Executive Administrative Assistant. We wish the best to Helen and we welcome Grace to our family.

A few FCSM highlights to mention:

Maryland’s capital budget this year includes funding to proceed with the architectural design of our new science complex. Groundbreaking is scheduled for 2017 and move-in for summer of 2020!

Towson University’s undergraduate and graduate forensic science programs were reaccredited by FEPAC for five years. We have the only accredited forensic programs in Maryland!

The following faculty members received very prestigious Regents’ Awards from the University System of Maryland. Congratulations!

Dr. Jane Wolfson, Biology, Regents’ Faculty Award for Excellence in Public Service
Dr. Rommel Miranda, Physics, Astronomy & Geosciences, Regents’ Faculty Award for Excellence in Teaching
Dr. Matthew R. Hemm, Biology, Regents’ Faculty Award for Excellence in Mentoring

Finally, TU welcomed our new President, Dr. Kim Schatzel, in January. This has been an exciting year and we are looking forward to 2016-2017 with anticipation. Please enjoy the newsletter.

Sincerely,

David A. Vanko
Dean

Memorial Gifts… from the Development Office - Gifts benefiting The Jess and Mildred Fisher College of Science and Mathematics or any of the departments mentioned in this newsletter, may be made to Towson University Foundation in honor of a birthday, anniversary or other special occasion, or simply as a thank you for a special favor. Gift acknowledgements will be sent to the donor as well as the individual being honored. For more information, contact the Towson University Development Office at 410-704-3375 or 1-866-301-3375 or write to the Towson University Foundation, 8000 York Road, Towson, MD 21252-0001.
FCSM 26TH ANNUAL HONORS CONVOCATION

The event included a formal ceremony to recognize all the Fisher College students who received an award or scholarship during the 2015-2016 academic year.

President Kim Schatzel and Provost Timothy Chandler were among those in attendance.

To view the pictures from convocation, visit www.towson.edu/fcsm/news

Honoring our Faculty

FCSM professors Matthew Hemm, Ph.D.; Rommel Miranda, Ph.D.; and Jane Wolfson, Ph.D. each won 2016 University System of Maryland Regents’ Awards.

Hemm and Wolfson, both in the Department of Biology, won awards for mentoring and public service, respectively. Miranda, a physics professor, won his award for teaching.

Celebrating Our Students

Congratulations to all the students who were selected to represent Towson University at the 2016 Colonial Academic Alliance Conference, held at the College of William and Mary in Williamsburg, VA on April 15-17. The following students were selected to make oral or poster presentations:

Eva Lopez (Department of Biological Sciences) - Breaking the dormancy period of Oplismenus undulatifolius (Wavyleaf basketgrass) (Dr. Vanessa Beauchamp) (poster)

Sarah Talamantez-Lyburn (Department of Chemistry) - Synthesis and characterization of cobalt nanostructures for electro-catalytic applications (Dr. Mary Sajini Devadas) (poster)

David Smith (Department of Computer and Information Sciences) - The design of a repository backed automated presumptive drug test evaluation (Dr. Subrata Acharya) (poster)

Luc O’Brien (Department of Mathematics) - 3D Volumes of neighborhood complexes (Dr. Justin Hughes) (poster)

Emileigh Shoemaker (Department of Physics, Astronomy, and Geosciences) - A Bayesian method for finding galaxies that cause quasar absorption lines (Dr. Jennifer Scott) (poster)
Presentations and Conference Proceedings

Harald Beck coauthored a poster that was presented to the Spotlight on National Park Resources in the National Capital Region 2016 Centennial Meeting at Shepherdstown, WV and coauthored a talk that was given at the University of Aberdeen, UK, titled, *How mammals structure the tree community of a tropical forest.*

Brian Fath gave the following presentations:

Flourishing within the limits, at the Towson University Environmental Conference, Towson, Maryland. April 15, 2016


Sarah Haines gave the following presentations:

National Science Teacher’s Association, Philadelphia November 2015: “Teaching Environmental Awareness in Maryland (TEAM): Watershed Education Inside and Outside the Classroom”.

Ecological Society of America’s Life Discovery Conference, Baltimore, MD March 2016: “Making Biology Relevant to Careers: Maryland High School EANR Program”.

Ecological Society of America’s Life Discovery Conference, Baltimore, MD March 2016: “Beyond Four Walls- Community Partnerships in Biology Education”.

with Betsy Neville and Laila Richman (Dept. of Special Ed) at the UDL-IRN Summit, Towson MD March 2016: “The Next Generation Science Standards and UDL- a Powerful Partnership”.

with Katie Dell (BCPS) at the Maryland Association for Environmental & Outdoor Education, Ocean City MD February 2016: “The Link between Maryland Green Schools and Higher Student Achievement”.

with Cindy Etgen (Maryland DNR) at the Maryland Association for Environmental & Outdoor Education, Ocean City MD February 2016: “Implementing the Good, The Bad, & The Ugly- the Invasive Species Education Project”.

Sarah Haines, Betsy Neville, and Laila Richman (Dept. of Special Ed) had the following paper published in the 2016 UDL-IRN Conference Proceedings: The Next Generation Science Standards and UDL- a Powerful Partnership.
Presentations and Conference Proceedings

Chris Oufiero presented a talk at a regional meeting with a TU undergraduate co-author; the data collected were part of the BRIDGES 2015 summer program.

Chris Oufiero and J. Broome*. The correlated evolution of fish swimming morphology and the relation to feeding habitat in Pomacentridae. Regional Division of Vertebrate Morphology and Comparative Biomechanics of the Society for Integrative and Comparative Biology meeting. New Jersey Institute of Technology, Newark, NJ. November 2015.

Chris Oufiero gave two presentations at the Annual Meeting of the Society of Integrative and Comparative Biology Meetings. Portland, OR. January 2016:


Research from Vonnie Shields’ lab was presented at the following:


Book Reviews


Haines, S. had a book review for the children’s trade book When the Sun Shines on Antarctica: And Other Poems about the Frozen Continent appear on the National Science Teachers Association website

Haines, S. had a book review for the children’s trade book Camas and Sage: A Story of Bison Life on the Prairie appear on the National Science Teachers Association website
Manuscript and Proposal Reviews

**Harald Beck** reviewed a grant for the Research Grants Council (RGC) of Hong Kong and four manuscripts for *Ecology, Plant Ecology, Tropical Ecology*, and *Biotropica*.

**Laura Gough** served on a review panel for the National Science Foundation Division of Environmental Biology and handled several manuscripts as a subject matter editor for *Oecologia*.

**Barry Margulies** reviewed a manuscript for *Virus Genes*, one chapter for the OpenStax Microbiology text, two chapters for *Molecular and Cell Biology Viruses*, one chapter for Life, *The Science of Biology*, 11th Edition, and served as editor for three manuscripts in the journal *Medicine*. He also served as a reviewer for NIH on the special emphasis panel for Pediatric Drug Formulation.

**Jay Nelson** reviewed three manuscripts for *The Journal of Fish Biology*, and one manuscript each for *Comparative Biochemistry and Physiology, Hydrobiologica, Environmental Biology of Fishes, Fish Physiology and Biochemistry*, and *Biology Letters*.

**Richard Seigel** reviewed manuscripts for the following journals; *Biological Conservation* (2 papers), *Current Zoology*, and *Herpetological Conservation*.


Professional Service and Outreach

**Harald Beck** was external reviewer for a faculty for promotion to Full Professor, at a research university.

**Sarah Haines** was invited to St. Paul’s School for Girls to conduct the presentation “The Influence of Maryland Green Schools on Student Achievement” in October. She also conducted a Project Learning Tree Environmental Education professional development workshop at Creative City Charter School (Baltimore City) and at Rock Park Nature Center (Frederick County). She gave classroom presentations on the Chesapeake Bay at Sunset Elementary School (Anne Arundel County), North East Elementary School (Cecil County), Pointers Run Elementary School (Howard County), RICA School (Baltimore City).

**Barry Margulies** hosted the Biomedical Research class from Park Upper School in a visit to Towson University and was invited to speak for TU ASBMB’s Student Chapter.

**Richard Seigel** gave an invited seminar on “Turtle Research at Towson University” to the Mid-Atlantic Turtle and Tortoise Society in March 2016 and an invited presentation at the annual “Fisherman’s Day” held by Exelon Corporation at the Conowingo Dam in May 2016.

**Vonnie Shields** served as a moderator Howard University Research Symposium, Howard University, Washington, D.C., April 14 and served as a judge for the “61st Annual Baltimore Science Fair,” Towson University, Towson, MD, March 19.
Media


Brian Fath contributed to the research blog of IIASA: Flourishing within limits to growth. October 14, 2015 Systems Analysis; [https://blog.iiasa.ac.at/2015/10/14/flourishing-within-limits-to-growth/](https://blog.iiasa.ac.at/2015/10/14/flourishing-within-limits-to-growth/)

Peer-Reviewed Research Publications


Haines, S. had the following manuscript accepted: Feet Wet, Hands Dirty: Engaging Students in Science Teaching & Learning with Stream Investigations. *Journal of College Science Teaching* in press.


Faculty Grants and Awards

**Elana Ehrlich** was awarded a new grant entitled “Ubiquitin and Ubls in KSHV” from the National Institutes of Health ($282,000) for 2016-2019.

**Richard Seigel** received a new grant from Exelon Corporation to support entitled continued work on the ecology and conservation of the endangered Northern Map Turtle. The amount funded was $50,000 for 2016. This brings the total funding for this work to over $300,000 since 2011.

**Richard Seigel** also received a new grant from the National Park Service to support research studying the impacts of feral hogs on wetlands communities of amphibians and reptiles. The amount funded was $9400 for 2016 with another $9400 for 2017.

The Towson University Faculty Development and Research Committee awarded FDRC Grants to Vanessa Beauchamp, Matt Hemm, Barry Margulies, Chris Outiero, Michelle Snyder, John Weldon, and Colleen Winters.

**Jay A. Nelson** was awarded a 2016-17 Fulbright U.S. Scholar grant to conduct research in Iceland.

**Barry Margulies** was awarded a Mentor’s Certificate of Appreciation from the Howard County Public School System’s Gifted and Talented Education Program for hosting a Centennial High School senior in his lab this academic year.

**Vonnie Shields** was awarded the Towson University Biological Sciences Department 2015 Hilton Service Award.

Book Chapters


Book Chapters


Peer-Reviewed Research Publications


**Student Awards**

Yuyi Zhu, a student in Dr. John Weldon's research laboratory, received an American Society for Biochemistry and Molecular Biology (ASBMB) Undergraduate Research Award for his research proposal "Combination therapy to enhance the efficacy of recombinant immunotoxins: Evaluating the role of mitochondrial translation in toxin-mediated cell death."

Undergraduate Biology major Elizabeth Leo earned a 2016 Undergraduate Student Research Award from the Botanical Society of America for her project entitled "Bioavailability and Trophic Transfer of Heavy Metal Soil Contaminants in Urban Gardens in Baltimore, MD." She is conducting this research project with Dr. Laura Gough.

**Poster presentations from TU students**


Tsuji PA, Canter JA*, Carlson BA, Margulies D*, Patterson A*, Gladyshev VN, Yu Y, Cao L, Davis CD, and Hatfield DL. Impact of the 15kDa selenoproteins and dietary selenium on initiation and promotion in colorectal carcinogenesis. Experimental Biology (FASEB), San Diego, CA (April 2016)


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**Undergraduate & Graduate Research Expo**

The annual Undergraduate/Graduate Research and Performance Expo is sponsored by TOUR. The Expo occurs each spring and is open to ALL undergraduate and graduate students from across campus who wish to share their work with the university community. This year’s Expo was held April 20th, 2016.

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**The Towson Research and Performance Expo—April, 2016**

**Expo Oral Presentations Undergraduate:**

**Title:** Acyclovir-Polycaprolactone Controlled-Released Devices Effectively Suppress Primary Infection in vitro with *Herpes simplex* virus-1 and 2  
**Presenter:** Gabrielle Thomas  
**Faculty Sponsor:** Dr. Barry Margulies

**Title:** Infection without Disease: Reservoir Species Immune System  
**Presenter:** Cindy Kolade  
**Faculty Sponsor:** Dr. Nevil Singh (University of Maryland)
**The Towson Research and Performance Expo—April, 2016**

**Expo Oral Presentations Graduate:**

**Title:** Electrophysiological investigation of the compound eye of the stink bug, *Halyomorpha halys* (Hemiptera: Petatomidae)  
**Presenter:** Nicole Arnold  
**Faculty Sponsor:** Dr. Vonnie Shields

**Expo Poster Presentations Undergraduate:**

<table>
<thead>
<tr>
<th>Title</th>
<th>Presenter</th>
<th>Faculty Sponsor</th>
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<tbody>
<tr>
<td>Characterizing small <em>Escherichia coli</em> proteins ZupT and YoaX</td>
<td>Charles Allen</td>
<td>Dr. Matthew Hemm</td>
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<tr>
<td>Andrea Bempong</td>
<td>Affinity Purification of Small Protein YghX in <em>Escherichia coli</em></td>
<td>Dr. Matthew Hemm</td>
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<tr>
<td>Investigating the Role of the MetX Small Protein in <em>Escherichia coli</em></td>
<td>Brittany Burke</td>
<td>Dr. Matthew Hemm</td>
</tr>
<tr>
<td>Investigating Membrane Bound Bacteriocins as Potential Targets on <em>Streptococcus pneumoniae</em> that are Degraded by Neutrophil Serine Proteases</td>
<td>Cory Casal</td>
<td>Dr. Mara Shainheit</td>
</tr>
<tr>
<td>Nathaniel Donahue</td>
<td>Purification and Comparison of EF2</td>
<td>Dr. John E. Weldon</td>
</tr>
<tr>
<td>Which Biological Relevant Odor Stimuli Elicit Positive Anemotaxis in the House Cricket, <em>Acheta domestica</em>?</td>
<td>Swithun Ferguson Jr., Rita Asante and Ashley Holt</td>
<td>Dr. Vonnie Shields</td>
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<tr>
<td>Using Next-Generation DNA Sequencing to Study Two Populations of Coyotes</td>
<td>Ashley Firesryche and Bruno Franco</td>
<td>Dr. Brian Masters</td>
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<tr>
<td>The Effect of Inhibition of VEGF Receptors on Albino Axolotl Salamanders</td>
<td>Kadiyatu Fofana</td>
<td>Dr. Renee Dickie</td>
</tr>
<tr>
<td>Quantification of antiviral efficacy of antitherpetic drug released from implant devices through plaque assay and high pressure liquid chromatography</td>
<td>Ariel Gordon</td>
<td>Dr. Barry Margulies</td>
</tr>
<tr>
<td>Role of the 15kDa Selenoprotein in Inflammatory Colitis</td>
<td>Janelle Hartman</td>
<td>Dr. Peko Tsuji</td>
</tr>
<tr>
<td>A Biochemical Approach to Identify Cell Wall-Associated Proteins on <em>Streptococcus pneumoniae</em> that are Degraded by Neutrophil Serine Proteases</td>
<td>Scott Haynes and Charmaine Nganje</td>
<td>Dr. Mara Shainheit</td>
</tr>
<tr>
<td>Measuring the Effects of Furin on the Intoxication Pathway of <em>Pseudomonas</em> Exotoxin A</td>
<td>Benjamin Henry</td>
<td>Dr. John E. Weldon</td>
</tr>
</tbody>
</table>
Title: A Novel Method of Collecting Spotted Turtles (*Clemmys guttata*)
**Presenter:** Hunter Howell
**Faculty Sponsor:** Dr. Richard A. Seigel

Title: Identifying small proteins encoded by intragenic short open reading frames in *Escherichia coli*
**Presenter:** John Kelly
**Faculty Sponsor:** Dr. Matthew Hemm

Title: Characterization of small protein OsmX in *Escherichia coli*
**Presenter:** Ulrich Kemajou
**Faculty Sponsor:** Dr. Matthew Hemm

Title: Effect of Notch Inhibition on Larval Salamander Regeneration
**Presenter:** Ariana Kerber
**Faculty Sponsor:** Dr. Renee Dickie

Title: Development of a PCR-based Technique to Identify Toad DNA in Environmental Samples
**Presenter:** Melissa Lamborn, Jessica Brauer and Jacqueline Minehart
**Faculty Sponsor:** Dr. Brian Masters

Title: Breaking the Dormancy Period of *Oplismenus undulatifolius* (Wavyleaf basketgrass)
**Presenter:** Eva Lopez
**Faculty Sponsor:** Dr. Vanessa Beauchamp

Title: Development of a PCR-based Technique to Distinguish the Two Species of Gray Tree Frog
**Presenter:** Elizabeth Lyons, Rebecca Stone and Claire Reider
**Faculty Sponsor:** Dr. Brian Masters

Title: Are the Athletic Ones the Handsome Ones? Linking Female Preference to Locomotor Performance in *Xiphophorus montezumae*
**Presenter:** Rachael Mady
**Faculty Sponsor:** Dr. Christopher Oufiero

Title: Characterization of CspX Small Protein in *Escherichia coli*
**Presenter:** Ricardo Jose Melendez
**Faculty Sponsor:** Dr. Matthew Hemm

Title: Quantification of Methylene Blue Penetration Assay to Track Regenerative Epithelialization of Zebrafish and Axolotl
**Presenter:** Maresha Milyavsky
**Faculty Sponsor:** Dr. Renee Dickie

Title: Identification and Development of Species-Specific PCR Primers for the Bull Frog and Wood Frog
**Presenter:** Jacob Mitchell and Hassan Syed
**Faculty Sponsor:** Dr. Brian Masters

Title: Using RADSeq in *Thelypteris palustris* Schott (marsh fern)
**Presenter:** Kara Molesworth
**Faculty Sponsor:** Dr. David Hearn

Title: Longitudinal monitoring of hepatic endoplasmic reticulum calcium changes in rats as a result of dietary intake
**Presenter:** Ifeanyi Ozobu
**Faculty Sponsor:** Dr. Brandon Harvey (NIH)

Title: Genes in Colon Tumorigenesis
Title: The Relationship Between the 15kDa Selenoprotein and the Expression of Cancer Regulatory Genes in Colon Tumorigenesis
Presenter: Angelica Patterson
Faculty Sponsor: Dr. Petra Tsuji

Title: The 15kDa Selenoprotein in the Regulation of Colon Cancer Signaling Pathway in a Mouse Model of Selenium Deficiency
Presenter: Christina Perreira
Faculty Sponsor: Dr. Petra Tsuji

Title: Role of the Enlarges Epaxial Muscle in Suction Feeding in Chitala ornata
Presenter: Kelsey Ricci
Faculty Sponsor: Dr. Christopher Oufiero

Title: Matrix-based controlled release delivery of acyclovir from silicone rings
Presenter: Jaspreet Samra
Faculty Sponsor: Dr. Barry Margulies

Title: Using a CRISPR-Cas9 knockout to evaluate the role of furin in the intoxication pathway of Pseudomonas exotoxin A
Presenter: Jack Sanford
Faculty Sponsor: Dr. John E. Weldon

Title: Inhibition Of TGF-β Receptor Diminishes Regeneration In Larval Axolotl Salamanders
Presenter: Rachel Serpas
Faculty Sponsor: Dr. Renee Dickie

Title: Characterization of Small Protein ybdR_rnk_1 in Escherichia coli
Presenter: Avery Taylor
Faculty Sponsor: Dr. Matthew Hemm

Title: Population Diversity Analysis by Identification of Polymorphisms in the Wood Frog Genome Using ddRADseq, A Partial Genome Sequence Technique
Presenter: Alexandra Vlk
Faculty Sponsor: Dr. Brian Masters

Title: Delineation of Ventridens using mitochondrial CO1 sequence
Presenter: Luke Walker
Faculty Sponsor: Dr. Colleen Winters

Title: Investigating the Role of TRAF3 in T Cell Biology
Presenter: Theresa White
Faculty Sponsor: Dr. Gail Bishop (NIDA)

Title: Small Molecule Inhibitors/Activators on Tail Regeneration and Regenerative Angiogenesis
Presenter: Dreu Wilkins, Rachel Serpas, Julia Kepley, Kadiyatu Fofona, Ariana Kerber and Maresha Milyavski
Faculty Sponsor: Dr. Renee Dickie

Title: Characterization of YlcX – A Small Protein in Escherichia coli
Presenter: Alexander J. Wilson
Faculty Sponsor: Dr. Matthew Hemm

Title: Combination Therapy to Enhance the Efficacy of Recombinant Immunotoxins: Evaluating the Role of Mitochondrial Translation in Toxin-Mediated Cell Death
Presenter: Yuyi Zhu
Faculty Sponsor: Dr. John Weldon

Title: Small Molecule Inhibitors/Activators on Tail Regeneration and Regenerative Angiogenesis
Presenter: Dreu Wilkins
Faculty Sponsor: Dr. Renee Dickie
The Towson Research and Performance Expo—April, 2016

Expo Poster Presentations Undergraduate:

Title: Bioavailability and Trophic Transfer of Heavy Metal Soil Contaminants in Urban Gardens in Baltimore, MD
Presenter: Elizabeth Leo
Faculty Sponsor: Dr. Laura Gough

Expo Poster Presentations Graduate:

Title: Allometry and Repeatability of Gymnotiform Swimming Performance in Black Ghost Knifefish (Apterodonotus albifrons)
Presenter: Krista Kraskura
Faculty Sponsor: Dr. Jay Nelson

Title: Effects of Runoff induced Rapid Temperature Change on the Swimming Performance of Black Nose Dace (Rhinichthys atratulus)
Presenter: Morgan Matthews
Faculty Sponsor: Dr. Jay Nelson

Title: Allometry and Repeatability of Gymnotiform Swimming Performance in Black Ghost Knifefish (Apterodonotus albifrons)
Presenter: Krista Kraskura
Faculty Sponsor: Dr. Jay Nelson

Title: Dictyostelium discoideum as a model organism to identify virulence and virulence regulatory factors in Escherichia coli
Presenter: Matthew Weichseldorfer
Faculty Sponsor: Dr. Michelle Snyder
Faculty Publications


Grants


Undergraduate Chemistry major Hannah Burdge was awarded a $5000 summer research grant from the Organic Division of the American Chemical Society. Dr. Keith Reber is the PI on the grant and her research mentor.

Faculty Professional Development

Beth Kautzman reviewed a research proposal for NOAA.

Beth Kautzman attended “Anthropogenic Influences on Organic Aerosol Formation and Regional Climate Implications” U.S. EPA Meeting and Webinar.

Kelly Elkins was interviewed for a featured article about her research on GenomeWeb.com (155,000 monthly unique visitors), “Researchers Describe Rapid, Multiplexed High-Res Melt Assay for Species Differentiation,” February 25, 2016 based on research published in Analytical Biochemistry.
Presentations / Workshops

The Chemistry Department sent four faculty members and six students to the 251st ACS National Meeting in San Diego, CA.

Faculty presentations included:

The Analytical Chemistry faculty (Ryan Sours, Shannon Stitzel, Beth Kautzman, and John Sivey) delivered a platform presentation in the Chemical Education Division at the 251st ACS National Meeting in San Diego, CA, entitled, Development, pilot testing, and full implementation of an authentic research experience in undergraduate analytical chemistry: Quantitative analysis of caffeine in coffee.


Student presentations included:

Broadwater, M. A.*; Sivey, J. D. Influence of often-overlooked free chlorine and free bromine species on regiospecific halogenation rates of salicylic acid.

Taggart, G. A.*; Sivey, J. D. Regiospecific rates and steric effects of phenyl ether bromination by aqueous free bromine.


Smiddy, B.*, Sours, R. 2016. Chromatographic investigation of the interaction between the polymorphic compound mCyPU and tailored surface. Poster session.


Faculty Awards

Beth Kautzman was presented The 2016 President’s Diversity Award (Faculty Research)
Community Outreach

John Sivey delivered an invited research seminar in the Department of Civil Engineering at Villanova University.

Research from John Sivey's group was the subject of a recent segment (January 13, 2016) on NPR's The Academic Minute national broadcast.

John Sivey presented an outreach event, "Mathematics of Color and Light," at Stricker Middle School on April 20, 2016.

Beth Kautzman presented an invited talk entitled "Unraveling Uncertainties in Global Climate Change: Evaluating the Chemistry and Physics of Atmospheric Aerosols" to the Girl’s STEM Club, Sacred Heart of Glyndon Girls School

Kelly Elkins co-hosted a Maryland ACS 2016 Women in Chemistry event at Towson University on February 17, 2016.

The Department of Chemistry hosted the central Maryland site for the national chemistry competition called the You Be The Chemist Challenge®. The event for high school students was held on March 19, 2016 and was hosted by Mary Devadas on behalf of the department.

Journal Reviews


David Ownby reviewed for Environmental Science and Technology and Bulletin of Environmental Contamination and Toxicology and a book proposal for CRC Press.

Ryan Casey reviewed for Landscape and Urban Planning, Urban Water and Environmental Pollution.


Beth Kautzman reviewed a manuscript for Environmental Science and Technology
Student Presentations

* - undergraduate student co-author  ** - graduate student co-author

Shelby Weatherbee and Erik Hobbs gave platform presentations at TOUR Expo.

Sarah Talamntez-Lyburn and Thomas Kountz gave poster presentations at Tour Expo.

DeAngelo, T.M.**; Elkins K.M. “Potential Sources of DNA Cross Contamination from Non-Disposable Equipment,” Poster Presentation, Towson University Undergraduate and Graduate Student Research Expo (TU-UGSRE), April 20, 2016.


Boise, T.H.*; Elkins K.M. “Comparison of Detection of Food-Borne Pathogens by a PCR HRM Assay to a Rapid on the Market Test Kit,” Poster Presentation, Towson University Undergraduate and Graduate Student Research Expo (TU-UGSRE), April 20, 2016.


**Student Presentations**


**Student Awards**

**Allison Ricko** received a Graduate Student Research Award from the Office of Graduate Studies at Towson University for her Master of Science in Environmental Science thesis entitled, *Anaerobic abiotic reduction of dichloroacetamide safeners: Effects of manganese oxides and agrochemical co-formulants*. Allison graduated in August 2015 and currently works as a scientist at Critical Path Services, a company that supports agrochemical environmental fate studies to assist major agrochemical companies with EPA product registration. Allison’s thesis advisor was **John Sivey**.

**Matthew Broadwater** was selected to receive a 2016 Undergraduate Student Award from the ACS Division of Environmental Chemistry. This award recognizes outstanding achievement in undergraduate coursework and/or research related to environmental chemistry. Matthew’s research advisor is **John Sivey**.
Publications and Presentations


S. Acharya, Gabriel Susai (graduate student), Manoj Pillai (graduate student), “Patient Portals: Anytime, Anywhere”, IEEE International Conference on Bioinformatics and Biomedicine (BIBM) Workshop on Health Informatics and Data Science (HI-DS), Washington D.C., November 2015

S. Acharya, William Glenn (graduate student), and Matthew Carr (graduate student), "A GRReat Framework for Incident Response in Healthcare", IEEE International Conference on Bioinformatics and Biomedicine (BIBM) Workshop on Health Informatics and Data Science (HI-DS), Washington D.C., November 2015


On Feb. 2, 2016, Marius Zimand gave an invited talk on "Distributed compression - the algorithmic-information-theoretical point of view", at the Institute Henri Poincare in Paris, in the framework of the "Nexus of Information and Computation Theories" thematic program. The video with the lecture is available on youtube.

The survey paper "A brief on short descriptions" by Jason Teutsch (NUS Singapore) and Marius Zimand, has been published in ACM Sigact News, 47(1), pg. 42-67, March 2016.
Publications and Presentations


Robert Hammell, doctoral student Chuck Smith, and a collaborator from the US Army Research Laboratory had their paper entitled “An Experimental Exploration of the Impact of Multi-Level Packet Loss on Network Intrusion Detection” accepted for presentation and publication as part of the upcoming 14th *IEEE/ACIS Conference on Software Engineering Research, Management and Applications* (SERA 2016), to be held June 8-10, 2016 at Towson University.

Robert Hammell reviewed papers for the following:

- 14th *IEEE/ACIS International Conference on Software Engineering Research, Management, and Applications* (SERA2016), Towson University, June 8-10, 2016
- 4th *International Conference on Smart Computing and Artificial Intelligence* (SCAI2016), Jumamoto, Japan, July 10-14, 2016

AIT Doctoral Student Jie Lian and Michael McGuire recently presented their paper entitled “Mining Persistent and Dynamic Spatio-Temporal Change in Global Climate Data.” at the 13th International Conference on Information Technology – New Generations conference held on April 4-6, 2016, in Las Vegas, NV.

Joyram Chakraborty and Michael McGuire recently presented their paper entitled “Preliminary Findings from an Information Foraging Behavioral Study Using Eye Tracking.” at the 8th Cambridge Workshops on Universal Access and Assistive Technology (CWUAAT) held on March 21-23, 2016, at the University of Cambridge, Cambridge, UK.


Omar Darwish and Nadim Alkharouf, co-authored a paper titled: “Genome-wide functional annotation of *Phomopsis longicolla* isolate MSPL 10-6”, which appeared in the journal Genomics Data.
Publications and Presentations

Jonathan Lazar was the lead author on an article published in the journal *Foundations and Trends in Human Computer Interaction* titled, "Human–Computer Interaction and International Public Policymaking: A Framework for Understanding and Taking Future Actions." This article is the output of a 4-year process, involving multiple workshops and meetings, with 31 co-authors from 10 countries.

Gabriele Meiselwitz and undergraduate student Kenway Chung presented a paper at ISECON 2015 (Information Systems Education Conference), Orlando, FL, Nov 5-7, title: "Small-scale Interdisciplinary Service Projects in CIS".

Since the last FCSM newsletter in September, Dr. Lazar has given 10 presentations about technology access for people with disabilities at various disability (e.g. Coleman Institute for Cognitive Disabilities at the University of Colorado), legal (Jacobs tenBroek Disability Law Symposium), education (e.g. EDUCAUSE), and technical (e.g. the AccessEngineering Capacity Building Institute) venues.

Services to the Discipline

Faculty mentors, R. Miranda (Department of Physics, Astronomy, and Geosciences), C. Zeller (Department of Chemistry), and S. Acharya (Department of Computer and Information Sciences) conducted and participated in the STEM workshop on “Inspiring Middle School Female Students Through STEM Education at Towson University”, co-directed by Honi J. Bamberger and Diana Cheng, hosted by the Department of Mathematics, November 2015.

http://thetowerlight.com/math-dept-hosts-stem-day-for-middle-school-girls/

Jinjuan Heidi Feng from the Computer and Information Sciences Department is honored to serve as the general chair for the 18th International ACM SIGACCESS Conference on Computers and Accessibility (ACM ASSETS 2016). The conference will be held on October 24-26 at the Atlantis Casino Resort & Spa in Reno, Nevada.

Chao Lu and Charles Dierbach served as external reviewers of the computer science programs at Frostburg State University in March. Dr. Lu reviewed the graduate program, and Dr. Dierbach reviewed the undergraduate program.

Gabriele Meiselwitz has been elected to serve as the Program Board Chair for the 8th International Conference on Social Computing and Social Media, part of HCII (Human Computer Interaction International 2014-2016). HCII is an international conference with over 2000 participants from over 60 countries.

Jonathan Lazar published a book, co-edited with Pat Langdon, Ann Heylighen, and Hua Dong, titled, "Designing Around People," which is a selection of the best papers from the 2016 Cambridge University Workshop on Universal Access and Assistive Technology, which Dr. Lazar co-directed. Dr. Lazar and Dr. Brian Wentz (doctoral graduate from Towson, now professor at Shippensburg University) presented a paper at the workshop titled, "Exploring the Impact of Inaccessible Redesigns and Updates."

Grant & Awards


Michael McGuire received a sub-award of $27,539 from Johns Hopkins University to develop a world-wide geographic hierarchy and gazetteer service to support the Meta Citizen Sciences Project funded by the John Templeton Foundation.

Ziying Tang and Jinjuan Heidi Feng from the Computer and Information Sciences Department, together with Dr. Amanda Jozkowski from the College of Health Professions received a grant of $10,000 from the Fisher Endowment Fund and another grant of $20,000 from the Mid Atlantic CIO Forum to develop a communication system for young children with Spinal Muscular Atrophy (SMA).

Robert Hammell, as PI, received a grant of $55,150 from ARL on “Fuzzy Methods for Social Computing” to have two course releases for the fall, 2016 semester to allow him to spend HALF time with the ARL Multilingual Computing and Analysis Branch.

Wei Yu, as PI, Dr. Chao Lu, as co-PI, received a grant of $100,000 from CERDEC on “Efficient Network Transport for Tactical Networks Analysis, Research and Development” April 2016 to April, 2017.

Both of these two grants are the new additions to the Army Research Lab Cooperative Agreement # W911NF-11-2-0092.

Jonathan Lazar was named the recipient of the 2016 Social Impact Award from ACM SIGCHI (the Association for Computing Machinery Special Interest Group on Computer-Human Interaction), the world's largest organization of researchers, practitioners, and educators in human-computer interaction. This award "is given to individuals who promote the application of human-computer interaction research to pressing social needs" (description from the SIGCHI web site).

Grants and Contracts

Diana Cheng was awarded a Mathematics Travel Grant by the Association of Women in Mathematics in the amount of $868. Her proposal was entitled, “Using sports as an interdisciplinary application of mathematical modeling.” The travel grant was awarded for her presentations at the 2016 Joint Mathematics Meetings in Seattle, WA. Funding is provided by the Division of Mathematical Sciences of the National Science Foundation.

Ming Tomayko and Michael Krach will be conducting a two week summer institute for a group of 24 BCPS middle school mathematics teachers in July 2016. The activities will focus on the content and pedagogy emphasized by both the CCSSM and the NCTM for middle grade students. The funds for this summer institute will be provided by Dr. Nancy Grasmick’s office and the BCPS, with support from the TU Department of Mathematics.

Gail Kaplan and Michael Krach will be conducting a one week summer institute for a group of 24 BCPS algebra teachers in August 2016. The activities will focus on the content and pedagogy emphasized by both the CCSSM and the NCTM for algebra students. The funds for this summer institute will be provided by Dr. Nancy Grasmick’s office and the BCPS, with support from the TU Department of Mathematics.

Papers Published or Accepted for Publication

Diana Cheng co-authored two papers with Tetyana Berezovski that have been accepted for publication: “Exploring geometric and algebraic relationships in the pairs figure skating death spiral,” which was accepted for publication in the Fall 2016 issue of the New York State Mathematics Teachers’ Journal; and “Arm magic in skating spins,” which will be published in the Spring 2016 issue of OnCore: Arizona Association of Teachers of Mathematics journal.

Linda Cooper and Towson UTech student, Emily Dennis, had a paper, “Estimating Earth’s Circumference with an App,” accepted for August 2016 publication in NCTM’s Mathematics Teaching in the Middle School.

Angel Kumchev’s paper “On sums of four squares of primes” (joint with L. Zhao) was published by Mathematika 62 (2016), 348-361.

Angel Kumchev’s paper “On the Waring-Goldbach problem for eighth and higher powers” (joint with T.D. Wooley) was accepted for publication by the Journal of the London Mathematical Society.

Stanley Max’s article, entitled “Metric Notation in the Middle East,” was published in Metric Today, 51:2 (March/April 2016): 2-3.

Nathan McNew’s paper “The most frequent values of the largest prime divisor function” was accepted for publication by Experimental Mathematics.

Nathan McNew’s paper “Infinitude of k-Lehmer numbers which are not Carmichael” (joint with T. Wright) was accepted for publication by the International Journal of Number Theory.

Tatyana Sorokina’s paper entitled “Linear differential operators on bivariate spline spaces and spline vector fields” joint with Peter Alfeld, was published in BIT Numerical Mathematics, Volume 56 Number 1, p. 15-32.

Tatyana Sorokina’s paper entitled “Dimension of trivariate C^1 splines on bipyramid cells”, joint with J. Colvin (TU graduate student), and D. DiMatteo (TU undergraduate student), was accepted for publication in Computer Aided Geometric Design.
Workshops

On Saturday, September 26th, Diana Cheng and Asli Sezen-Barrie (PAGS) presented a professional development workshop entitled “Mathematics and Visualization of Climate Change” hosted by Morgan State University on Saturday, September 26. This workshop was supported by a $10,000 sub-contract of a grant from the Department of Homeland Security entitled “Visual Analytics for Science & Technology at a minority Serving Institutions (VAST MSI),” awarded to Dr. Timothy Akers and Dr. Kevin Peters.

Refereeing, Reviewing, and Panel Service

Diana Cheng peer-reviewed one article submitted to the Mathematics Teaching in the Middle Grades journal, a publication of the National Council of Teachers of Mathematics.


Conference and Seminar Presentations

Diana Cheng and graduate student David Thompson presented at the 2015 Maryland Council of Teachers of Mathematics conference held at the Baltimore Polytechnic High School on October 16. The title of their presentation was “Amazing mazes: Geometric and algebraic patterns in labyrinths.”

Diana Cheng and Dr. Tetyana Berezovski of St. Joseph’s University gave a talk entitled “Two Skaters and Several Equations: Modeling Pairs Figure Skating” at the 2015 Maryland Council of Teachers of Mathematics conference held at the Baltimore Polytechnic High School on October 16.

Graduate student David Thompson presented a talk co-authored with Diana Cheng at the 2015 National Council of Teachers of Mathematics Regional Conference and Exposition in Atlantic City, NJ. The talk was entitled, “Tigers, Birds and Beads: A Population Simulation.”
Conference and Seminar Presentations

In January 2016, Diana Cheng presented two talks at the Joint Mathematics Meetings of the American Mathematical Society and Mathematical Association of America in Seattle, Washington: “Getting on top of spinning: Modeling the figure skating upright spin” with Dr. Tetyana Berezovski of St. Joseph’s University, and “Complex Mazes with Simple Paths: Mathematics within the Art of Classical Labyrinths” with graduate student David Thompson.

Russell Hendel's paper, "Implementing an Executive-Function Syllabus: Operational Issues,” was accepted for presentation at the Education and Information Systems, Technology and Applications (EISTA) 2016 to be held in Orlando Florida in July 2016. Russell Hendel was also invited to deliver a keynote address.

Russell Hendel's paper, “Generalization of the Tagiuri-Gould Identities to $m$ parameters with proof by Binetization,” was accepted for presentation at the International Fibonacci Conference to be held in Caen, France in June 2016.

Angel Kumchev presented a talk on “Recent progress in the Waring–Goldbach problem” at the Winter Meeting of the Canadian Mathematical Society in Montreal, Canada, December 5-6, 2015.

Angel Kumchev presented a talk on “Recent progress in the Waring–Goldbach problem” at the SouthEast Regional Meeting on Numbers (SERMON) XXIX in Harrisonburg, VA, April 2-3, 2016.

Nathan McNew presented a talk on “Numbers divisible by a large shifted prime” at the SouthEast Regional Meeting on Numbers (SERMON) XXIX in Harrisonburg, VA, April 2-3, 2016.

Nathan McNew presented a talk on “The most frequent values of the largest prime divisor function” in the Number Theory Seminar at PennState University, State College, PA, April 14, 2016.

On May 25, 2016, Felice Shore and Diana Cheng will co-present a talk at the 2016 Annual UTeach Conference with undergraduate UTeach students Samantha Forsythe and Victoria Newman. Their talk is entitled, “Examining Teacher-Student Discourse and Patterns of Questioning in Classroom Interactions” and will take place at the University of Texas at Austin.

Miscellaneous Professional Activities, Community Engagement, and Service to the Discipline

Diana Cheng provided sports-related mathematical activities to over 1000 elementary and middle school students from the Baltimore City Public School and Baltimore County Public School students attending a STEM Day women on November 24th. The field trip day involved students’ watching the Towson University women’s basketball home game and participating in STEM activities coordinated by Sharlene Roberson, FCSM STEM Program Director.

Russell Hendel attended the Greater New York Math Fair, held in Brooklyn New York on April 3, 2016. The Greater New York Math Fair is a friendly High School competition, in which students at the High School level from the greater New York area, meet and present math papers on research they have been doing. Russell is the coordinator of judges for this fair. Close to 100 students from a variety of High Schools in the New York area came and presented to about 50 judges who came from High Schools and Universities. The day climaxed with the awards ceremony in which students were awarded gold, silver and bronze medals.
Miscellaneous Professional Activities, Community Engagement, and Service to the Discipline

On Saturday, November 14, 2015, Honi Bamberger and Diana Cheng co-directed an on-campus field trip for 19 female middle school students from the Afya Public Charter School, in Baltimore City. Thanks to sponsorship from The Pepsi Foundation, the FCSM, and the Mathematics Department, a successful day of STEM activities entitled, “Inspiring Middle School Female Students Through STEM Education at Towson University” occurred. The young women attended four workshops: 1) “Wind Powered Vehicles” conducted by Rommel Miranda (Dept. of Physics, Astronomy, and Geosciences) and assisted by his daughter Luna, 2) “Who took Doc?” conducted by Cynthia Zeller (Chemistry Department), 3) “Computational Thinking: Logic Code & Beyond” led by Subrata Acharya (Dept. of Computer and Information Sciences), and “What Does Mathematics Have to do With Mazes?” conducted by Towson University graduate student David Thompson, who is also a Special Education Mathematics Teacher for the Baltimore City Public Schools. Twenty-one undergraduate pre-service elementary teachers volunteered to prepare workshop materials, give a campus tour, and lead small group activities with the middle school students.

Russell Hendel was invited to submit a chapter for an upcoming book, “Comprehensive Problem Solving and Skill Development for the Next Generation Educational Leader,” planned to be published later this year.

Russell Hendel is chair of the Models for Life Contingency (MLC) committee for the Society of Actuaries. They recently updated the Curriculum and Learning Objectives for MLC.

In early October, Angel Kumchev and Nathan McNew (jointly with Mike Knapp of Loyola University) founded a regular local number theory seminar that meets on TU’s campus on Friday afternoons.

Tatyana Sorokina served as an editor for a special issue of Computer Aided Geometric Design on “Multivariate Splines and Algebraic Geometry” scheduled to appear in 2016.

Undergraduate Research

On March 17th, undergraduate student Casee Callaghan (Elementary Education / Special Education dual major) presented her originally designed activities on fractions and proportional reasoning based on a children’s literature book to middle school students attending the STEAM Club at the Afya Public Charter School. Casee will present additional activities regarding fraction comparisons to third graders at Gunpowder Elementary School, a Baltimore County Public School, on April 27th. Diana Cheng supervised Casee’s independent study project and assisted with the design of these activities.
**Student Clubs**

The Mathematics Education Club, co-advised by Honi Bamberger and Diana Cheng, held meetings in October, November, December, February, March, and April; and another meeting will be conducted in May. Refreshments were provided by the Pepsi Foundation and dinner was provided by the Mathematics Department at all of these meetings. The speaker for the October 15th meeting was Dr. Tetyana Berezovski of St. Joseph’s University, who spoke on “Arms Magic in Figure Skating Spins.” On November 16th, Ming Tomayko presented originally created activities during a session entitled “Using Manipulative Materials in Middle School Mathematics.” Ms. Janice Wong of The Park School in Brooklandville, MD and senior undergraduate middle school education student Kathleen Ho collaborated to present the December 8th meeting on “Origami Builds Spatial Problem Solving Skills.”

On Tuesday, February 16th, the Mathematics Education Club hosted a Principals’ Panel with principals of local independent and public schools discussing what they look for in teacher candidates. The principals who served on the panel were: Megan McGowan, Head of the Lower School at Jemicy; Jonathan Davis, Principal at Guilford Elementary School in Howard County; and Katie Eichman, Principal of Afya Public Charter School in Baltimore City.

On Thursday, February 25th, Laura Potter spoke on “Engaging Calculus Tasks: Volumes of Solids.” Ms. Potter is a TU alumna who earned the Harford County Public Schools’ 2015 Teacher of the Year award.

On Tuesday, March 22, a First-Year Teachers’ Panel was held and the invited speakers were all Towson University alumni: Katie Burdge (Bear Creek Elementary School), Regan Roth (Sollers Point Technical High School), Kristian Rusher (McCormick Elementary School), and Alexandra Ward (Centennial High School) shared their experiences with their job searches and with teaching for their first year in public schools. On Monday April 18th, Howard Kaplon spoke to the club on “Discrepancies in mathematics that confuse middle school students” and Nicole Winner helped prepare the pedagogical aspects of the presentation.

The last meeting of the Mathematics Education Club will take place on Thursday, May 5th. Baltimore County Public School teacher Lisa Antonious will be presenting on the use of foldables in mathematics instruction.

On October 24, 2015, four TU mathematics students took part in the annual Virginia Tech Regional Mathematics Contest. Two of the students, Duncan Gichimu and Christian Knoll, placed among the top 40% of all participants.

On December 5, 2015, three TU mathematics students took part in the annual William Lowell Putnam Mathematics Competition, the most prestigious mathematics competition for college mathematics in North America. One of the students, Luc O’Brien, placed among the top 25% of all participants.

On March 10, 2016, the Mathematics Club hosted a Pi Day celebration.
The 2016 Sigma Pi Sigma Inductees along with current members of Sigma Pi Sigma. The induction ceremony was held on Thursday, April 28 in the West Village Ballroom.

**Student News**

“From Legos to LIGO: alumnus Ryan Everett’s journey into physics history,” TU homepage (March 7)

Cacie Hart (Applied Physics Master’s Graduate 2015) was awarded the TU graduate research award for her thesis titled “Lattice Mismatch Strain Effects in Calcium Manganese Oxide Thin Films”. (Research Advisor: Raj Kolagani)

Daniel Zile (Physics B.S, senior) was selected to participate in an REU program at the University of Michigan

Morgan Githinji (Physics B.S, junior) was selected to participate in an REU program at Howard University

Zoey Warecki (Physics B.S Graduate, 2014) was awarded an NSF Graduate Research Fellowship during the first semester of her PhD program at the Materials Research and Engineering Department at the University of Maryland. The award announcement cites her ‘demonstrated scholarly excellence’, thus highlighting Zoey’s accomplishments as an undergraduate researcher at TU (Research Mentors: James Overduin and Raj Kolagani). Zoey also participated in internship programs in materials research at two national labs and was the recipient of the outstanding student award for undergraduate research from the National Society of Physics Students.

**Proposals**

Wendy Nelson was co-PI on an NSF proposal entitled “Collaborative Research: Subduction Initiation and development of the nascent Izu-Bonin-Mariana arc: A Petrologic and Geochemical Investigation of IODP Expedition 352 whole rocks and glasses.” The project was funded through NSF’s Marine Geology and Geophysics program. Co-PI’s are Mark Reagan (PI, U of Iowa), Jeff Ryan (U of South Florida), John Shervais (Utah State), and Katie Kelly (U of Rhode Island). ($46,500 to TU)
Publications


Three published papers of Dr. Vera Smolyaninova's students as co-authors were highlighted in the quarterly publication of the national Council on Undergraduate Research:


Publications


Presentations and Abstracts

* - undergraduate student co-author  ** - graduate student co-author


James Overduin: "Can Physics Save the World?" (May 5)


PAGS students at the March 2016 Meeting of the American Physical Society, Baltimore MD
Presentations and Abstracts


**Vera N. Smolyaninova,** and Igor I. Smolyaninov, “Experimental observation of melting of the effective Minkowski spacetime,” March 2016 Meeting of the American Physical Society, Baltimore MD.


**William Zimmerman,* Christopher Jensen,** Igor I. Smolyaninov, Faculty Mentor: **Vera N. Smolyaninova,** “Image Magnification in Transformation Optics Devices Based on Tapered Waveguides,” TU Undergraduate and Graduate Student Research and Performance Expo and at the FCSM Annual Honors Convocation Research Poster Session, 2016.

**Christopher Jensen,** William Zimmerman,* Kathryn Zander,* Thomas Gresock,** Igor Smolyaninov, Joseph Prestigiacomo, Michael Osofsky, Faculty Mentor: **Vera N. Smolyaninova,** “Using Metamaterial Nanoengineering to Triple the Superconducting Critical Temperature of Bulk Aluminum,” TU Undergraduate and Graduate Student Research and Performance Expo, 2016

**V. N. Smolyaninova** presented invited talk “Metamaterial Superconductors,” College of William and Mary, Williamsburg VA
Presentations and Abstracts

Raj Kolagani gave a talk titled “Towson University’s Professional Science Master’s Program in Applied Physics: The first 5 years” at the March Meeting of the American Physical Society, held in Baltimore ((March 17, 2016)

Cacie Hart, Zoe Waremki, Adeel Chaudhry, Natalie Ferrone, David Houston, Bridget Lawson, Grace Yong, Rajeswari Kolagani Thickness Dependence of Electrical and Structural Properties of Tensile Strained Calcium Manganese Oxide Thin Films: American Physical Society Meeting (March 14-18, 2016)

Bridget Lawson, Samuel Neubauer, Adeel Chaudhry, Cacie Hart, Natalie Ferrone, David Houston, Grace Yong, Rajeswari Kolagani Tensile Strain Effects on the Magneto-transport in Calcium Manganese Oxide Thin Films: Comparison with its Hole-doped Counterpart: American Physical Society Meeting (March 14-18, 2016)


Natalie Ferrone, Adeel Chaudhry, Cacie Hart, Bridget Lawson, David Houston, Samuel Neubauer, Anthony Johnson, David Schaefer, Rajeswari Kolagani Effects of Post-Deposition Annealing on the Properties of Calcium Manganese Oxide Thin Films American Physical Society Meeting (March 14-18, 2016)


Wendy Nelson was invited to give a seminar at the University of Maryland - College Park (Geology Department) on January, 29th. The talks was titled, “Evolution of the East African Rift: Thinning, Drip Magmatism, Lithospheric Thinning, and Mafic Volcanism.”

Wendy Nelson was invited to give a seminar at Pennsylvania State University - University Park (Geoscience Department) on November 29, 2015. The talk was titled, “Tracing Mantle Evolution during Pacific Plate Subduction: a Re-Os isotopic Perspective.”


Joel Moore gave an invited talk at the “Road Salt Usage and Environmental Impacts” workshop sponsored by the Maryland Water Monitoring Council, Patuxent National Wildlife Center, April, 2016.
Presentations and Abstracts

Joel Moore gave a research seminar entitled "How does urbanization alter stream chemistry?" in Department of Earth Sciences, Dickinson College, November 2015.

Joel Moore gave an oral presentation entitled “Road salt and concrete as significant contributors to high ion concentrations & high specific conductance in urban streams” at the 2015 Annual Geological Society of America Meeting, Baltimore, MD, November 2015.

Community Engagement and Professional Service

James Overduin reviewed four journal articles, one each for Annals of Physics, Physics Letters B, International Journal of Modern Physics D and The Physics Teacher

Vera Smolyaninova served on NSF panel

Vera Smolyaninova served on CLEO2016 Technical Program Committee, Metamaterials and Complex Media Subcommittee, where she reviewed and rated 136 conference papers.

Vera Smolyaninova reviewed a paper for Optics Express and a paper for Scientific Reports.

Vera Smolyaninova conducted a full-day workshop “Galilean decoder” (in five 4th grade classes) at the Pointers Run Elementary School STEM Day, 2016. Activities were developed together with James Selway.

Raj Kolagani attended to the Army Research Lab open house at Aberdeen Proving Grounds (October 2015)

Raj Kolagani participated in a National Science Foundation proposal review panel of the division of Physics (April 2016)

Wendy Nelson was invited to participate in an international workshop in Kigali, Rwanda, (March 2016) to discuss evidence supporting geothermal energy exploration in the western branch of the East African Rift System. As part of the workshop, Nelson gave two talks: (1) "Dynamic Model of Lithospheric Drip Magmatism in the western arm of the East African Rift System and its Implications for the Geothermal Occurrences,” and (2) "Heat sources for the occurrence of geothermal systems in the western branch of the East African Rift System: Are magma chambers viable heat sources?"

Wendy Nelson attended an International Ocean Discovery Program (IODP) workshop in Agros, Cyprus (May 2016) and presented a talk entitled, “187Os and HSE in FAB and bonnets from the Izu-Bonin-Mariana forearc: Preliminary Results.”

Wendy Nelson reviewed one NERC proposal, three NSF proposals, and two manuscripts for Geochimica et Cosmochimica Acta and Chemical Geology, respectively.

Wendy Nelson completed geologic fieldwork in the Virunga Volcanic Province of northern Rwanda (March 2016) and in the Troodos Mountains of Cyprus (May 2016).

Joel Moore gave a talk on road salt impacts and research at the Maryland Department of Environment (January 2016) as well as conducting a consulting conversation with a MDE employee working on development of environmental regulations for Cl (March 2016).
Community Engagement and Professional Service

Joel Moore reviewed a proposal for NSF and manuscripts for Geochimica et Cosmochimica Acta and the Journal of Hydrology.

Gregory Woodward (Geology undergraduate) gave an oral presentation at the 2015 Annual Meeting of the Geological Society of America, Baltimore, MD. The research was conducted using the facilities of the Urban Environmental Biogeochemistry Laboratory.


Planetarium News: In 2015-2016 there were 77 planetarium shows given at the Watson-King Planetarium and 28 planetarium shows using the portable planetarium.

Alex Storrs received the 2015 Faculty Alumni Volunteer Service Award from the TU Alumni Association.
The Environmental Science and Studies Program had an exciting year! We completed a 7-year program review and helped organize the Towson Environmental Conference. Our students and faculty continue to do great things. The number of students involved in internships and research continues to climb and our students are presenting at regional, national and international conferences.

**Student accomplishments**

**Allison Ricko** received a Graduate Student Research Award from the Office of Graduate Studies at Towson University for her Master of Science in Environmental Science thesis entitled, “Anaerobic abiotic reduction of dichloroacetamide safeners: Effects of manganese oxides and agrochemical co-formulants”. Allison graduated in August 2015 and currently works as a scientist at Critical Path Services, a company that supports agrochemical environmental fate studies to assist major agrochemical companies with EPA product registration. Allison’s thesis advisor was John Sivey.

**Shoshana Nachmen** (Environmental Science and Studies 2016) was awarded the Francesca Borrelli-Johnson Scholarship for 2015. Shoshana has done extremely well in academics and has also sought additional internship and research experiences.

**Laina Lockett** (ENVS MS student) received two presentation awards this year for poster presentations on her research on the effects of multiple stressors in aquatic ecosystems (see student presentations section).

**Undergraduate Student Presentations**

**Gregory Woodward** and Joel Moore, Road salt (NaCl) runoff increases soil pH and significantly alters cation exchange chemistry in soils and aquifers. Platform Presentation at the Geological Society of America – 2015 Annual Meeting, Baltimore, MD.


**Woo, T.J.** and Salice, C.J. 2016. Patterns of pulse exposure influence the magnitude of sub-lethal effects of sodium chloride on Daphnia magna. Poster presentation: Chesapeake Potomac Regional Chapter Meeting of the Society of Environmental Toxicology and Chemistry. Charlotte, NC.

**Periera, V.** and Salice, C.J. 2016. Complex interactions of nutrients and pesticides in aquatic systems: Does phosphate protect against fungicide toxicity? Poster presentation: Chesapeake Potomac Regional Chapter Meeting of the Society of Environmental Toxicology and Chemistry. Charlotte, NC.

**Rian Fleming**, Corey Mueller (2015 Geology graduate), and Joel Moore, Measuring the Effects of Urbanization on Stream Water Chemistry In Baltimore County, MD

**Graduate Student Research Presentations**

**East, A.** and C.J. Salice. 2015. A bioenergetic modeling framework to understand effects of anthropogenic stressors on interacting aquatic species. Poster session presented at the 36th Annual North American SETAC Meeting, Salt Lake City, UT.
Graduate Student Research Presentations

**East, A.** and C.J. Salice. 2016. Simulating system level effects of stress on aquatic systems through linked dynamic energy budget individual-based models (DEB-IBMs) in Netlogo.” Platform Presentation at the International Society of Ecological Modelling Annual Meeting, Towson, MD.

Laina Lockett, Veronica Pereira, **Andrew East**, Christopher J. Salice. 2016. Toxicological impacts of the fungicide pyraclostrobin on the model organism Daphnia magna. Conference PROMISE AGEP Research Symposium, College Park, MD. **1st Place Student Poster Competition**

Lockett, L. and Salice, C.J. 2016. An examination of the impacts of temperature to standard toxicological protocols using pyraclostrobin and *Daphnia magna*. Poster presentation: Chesapeake Potomac Regional Chapter Meeting of the Society of Environmental Toxicology and Chemistry. Charlotte, NC. **3rd Place Student Poster Competition**


Bolyard, K. E., Gresens, S. E., Sivey, J. D., Salice, C. J. (March 2016). How Safe are Safeners? A Benthic Microcosm Study. Poster session presented at the 5th Annual Young Environmental Scientists Meeting, Gainesville, FL.

Community engagement & professional service

Christopher Salice served as a reviewer for the U.S. Environmental Protection Agency, Science to Achieve Results (STAR) Graduate Fellowship Program.

Joel Moore gave a talk on road salt impacts and research at the Maryland Department of Environment (January 2016) as well as conducting a consulting conversation with a MDE employee working on development of environmental regulations for Cl (March 2016).

Joel Moore reviewed a proposal for NSF and manuscripts for Geochimica et Cosmochimica Acta and the Journal of Hydrology.

Publications


**Joel Moore** was a co-author on a paper that came out of the 2014 Urban Geochemistry Working Group meeting:


**Publications**

Jeremy Tasch (Geography) co-authored a book titled “Contesting the Arctic: Politics and Imaginaries on the Circumpolar North”. The effort was funded by a three-year, multi-university National Science Foundation grant. The book draws from interviews with over 150 representatives of indigenous peoples groups, environmental and civil society organizations, and members of governments and businesses throughout the circumpolar north, to understand how northern stakeholders are seeking to reproduce, modify, challenge – or simply disregard – the state-focused norms of contemporary global politics.

Christopher Salice was the corresponding author of a recent article in Environmental Pollution: Fidder, B.N., Reategui-Zirena, E., Olson, A.D., and Salice, C.J. 2016. Energetic endpoints provide early indicators of life history effects in a gastropod exposed to the fungicide, pyraclostrobin. *Environmental Pollution* 211:183-190.

Christopher Salice was a co-author on a recent paper in Ecological Applications: Weir, S.M., Scott, D.E., Salice, C.J., Lance, S.L. 2016. Integrating copper toxicity and climate change to understand extinction risk to two species of pond breeding anurans. *Ecological Applications* DOI: 10.1002/151082

**Presentations & abstracts**

Joel Moore gave an invited talk at the "Road Salt Usage and Environmental Impacts" workshop sponsored by the Maryland Water Monitoring Council, Patuxent National Wildlife Center, April 2016.

Joel Moore gave a research seminar entitled "How does urbanization alter stream chemistry?" in Department of Earth Sciences, Dickinson College, November 2015.

Joel Moore gave an oral presentation entitled "Road salt and concrete as significant contributors to high ion concentrations & high specific conductance in urban streams" at the 2015 Annual Geological Society of America Meeting, Baltimore, MD, November 2015.

Christopher Salice gave an invited talk at the Emerging Contaminants Summit in Westminster, Colorado. His co-authors included Todd A. Anderson from Texas Tech and Richard (Hunter) Anderson from the U.S. Air Force. The platform presentation: “Ecological Risk Assessment of Aquatic PFAS Exposure at Barksdale AFB”.

Christopher Salice gave an invited seminar to the Biology Department at George Mason University. “Climbing the slippery slope: predictive ecotoxicology in the age of the anthropocene.”

**Research Funding**

Christopher Salice is the Primary Investigator on $1.2M in funding from the Strategic Environmental Research and Development Program (SERDP). The multi-year research program involves collaborators from Texas Tech University, Oregon State University and CH2M Hill and is focused on developing mathematical tools and toxicity data to better predict the ecological effects of per- and poly-fluoroalkyl substances (PFASs) which are emerging contaminants of concern. The research will involve a number of undergraduate and graduate students from Towson University and will begin in summer 2016.
Undergraduate Research

On September 4th, two MB3 students presented their work. Neta Shwartz presented her work done at JHU on the roles of LSM proteins in C. elegans sex muscle fate specification. Jacob Mitchel presented on Student Research at the U.S. Army Medical Research Institute of Infectious Diseases.

On October 2nd two MB3 students presented the results of their research. James Robertson presented his work titled “Development of Standards within ISO/TC276: Biotechnology” done at the National Institute of Standards and Technology. Theresa White presented her work done at the University of Iowa: Investigating the Role of TRAF3 in T Cell Biology.

On November 13th two MB3 students presented their research. Taylor Watts presented her work done at Georgetown University: Cocrystallization of N,N’-Diphenylureas and Triphenylphosphine Oxide Based on Heterodimer Energies. Maria Boluda spoke about the work she carried out with Nadim Alkrahouf; Comparing Genome Variant Detection Tools.

On February 18th two MB3 students presented their research. Benjamin Leicht presented “Characterization of Host Immune Responses to Viral Infections” based on work done at the United States Army Medical Research Institute of Infectious Disease. Phillip Phan shared the stage with his mentor, Devon Dobrosielski from Kinesiology in their presentation, “Moving” sleep to the forefront of exercise science.

On March 25th two MB3 students presented their research. Janelle Hartman described her work done with Petra Tsuji. The title of her presentation was the “Role of the 15kDa Selenoprotein and Dietary Selenium in Inflammatory Colitis”. Harrison Reed presented his work with Muktak Aklujkar; “Gene Annotation of Geopsychrobacter electrodiphilus”.

On April 22nd two MB3 students presented their work. Olubunmi Olakunle presented her work with John Weldon titled “Identifying the Minimum Catalytic Fragments of Pseudomonas exotoxin A”. Tyler Burden presented work done at the National Institutes of Health. The title of his presentation was “Effects of Ultraviolet Radiation on HeLa Cells”.

On May 6th, two MB3 students presented their research. Jill Taylor presented her work done with Brian Masters. The title of her presentation was “Identification and Testing of Polymerase Chain Reaction Primers for Next Generation Sequencing Analysis of Environmental DNA”. LeNyia Preston presented her work done with Nadim Alkrahouf. The title of her presentation was “RNA-seq analysis and database development of flg22-induced gene expression changes in Arabidopsis thaliana”.

Presentations

On September 18th KD Nguyen, MB3 Alumn and recipient of a TU Outstanding Recent Alumni Award presented a seminar titled “Understanding the MIA3 (1q41) GWAS locus for Coronary Artery Disease” diphthamide synthesis.”
Presentations

On October 16th Drs. Bret Hassel and Greg Carey spoke to students about research internship opportunities at the University of Maryland School of Medicine.

On October 30th, TU alumnus, Dr. Tory Johnson of Johns Hopkins University spoke about her research in a seminar entitled Investigating the Role of TRAF3 in T Cell Biology.

Dr. Ailong Ke of Cornell University spoke on December 3rd about their Summer Research Program and graduate programs. On December 4th Dr. Erica Barr from the NIH Office of Intramural Training discusses research and scholarship opportunities at the National Institutes of Health.

On February 4th, Dr. Caleb McKinney from the Laboratory of Viral Diseases at the National Institutes of Health presented his a seminar titled “Investigating early stage Human Papillomavirus infection by using an HPV18 Quasivirus genome delivery system.”

March 4th the seminar speaker was TU alumnus Dr. Tiha Long from the University of Maryland, Baltimore County. Dr. Long’s talk was titled “How do immune cells impact obesity and the associated increase in cancer risk?”
This past year, we have continued our Healthy Harbor Lab Days Program, an innovative partnership developed by TUCSE in conjunction with the T. Rowe Price Foundation and the Waterfront Partnership of Baltimore. Healthy Harbor Lab Days brings these three organizations together to engage Baltimore City youth in learning about urban ecosystems and how cleaning and greening their neighborhoods can help make the Harbor fishable and swimmable by 2020. A typical Healthy Harbor Lab Day begins with a class of Baltimore city students (grades 3-12) arriving by bus at the SciTech Student Learning Lab, a field trip destination within TUCSE, located in Baltimore’s Inner Harbor. Students begin their experience by collecting water samples for the Harbor, which is just steps away from TUCSE. While collecting water samples, the students meet with a T. Rowe Price employee who is actively involved in the Great Baltimore Oyster Partnership (another unique partnership between T. Rowe Price and Waterfront partnership). The T. Rowe Price employee is a ‘citizen scientist’ and explains to the students how the oysters they have been growing in cages suspended in the Inner Harbor all year are aiding in statewide oyster recovery efforts. Students then enter the SciTech Lab, analyzing water quality indicators from the samples they collected and viewing various micro invertebrates from the Harbor using microscopes. These activities support student academic achievement and are directly aligned with classroom curriculum.

On May 18, students from Waverly Elementary visited SciTech as part of a Healthy Harbor Lab Day field trip. In addition to learning about the critters that live in the Chesapeake Bay the students were able to celebrate Mr. Trash Wheel’s 2nd birthday and thank him for all the work he’s been doing to keep the Harbor trash-free! Students made a birthday cake out of all of his favorite trash and delivered the cake to @MrTrashWheel while singing Happy Birthday!

Follow @SciTechTU on Twitter to keep up with all the exciting adventures at TUCSE!
The Jess and Mildred Fisher College of Science & Mathematics

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Through rigorous and high quality undergraduate programs in a wide variety of scientific, computing and mathematical disciplines and graduate programs in research-based, practice-based, applied and interdisciplinary fields, FCSM prepares its students to live and work productively in a scientific and technological world and to pursue learning throughout their lives. Faculty members engage both their undergraduate and graduate students through interactive teaching, advising, basic and applied research, and collaborative activities internally and externally. They form partnerships both to serve the metropolitan community as well as to meet regional, national and international needs. The result is dedicated, innovative, flexible, and highly prepared individuals who excel in graduate school, professional school, and careers in industry, government and teaching.

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