A Message from the Dean

This is the 150th anniversary of the institution that we now call Towson University! The Fisher College is proud to be celebrating this milestone by hosting our 150th Anniversary Visiting Scholar, Ira Flatow, the renowned science journalist who hosts Science Friday on NPR. I hope that everyone will attend Ira Flatow’s free lecture and that many of you will sign up for the reception and dinner banquet afterward (see p. 2).

We welcome 13 new faculty members to the Fisher College:
- Yuriy Bulka, Lecturer in Mathematics
- Yunwei Cui, Assistant Professor of Mathematics
- Mary Devadas, Assistant Professor of Chemistry
- Svetlana Gadycheva, Lecturer in Physics
- Laura Gough, Professor and Chairperson of Biological Sciences
- Nathan McNew, Assistant Professor of Mathematics
- Deepika Menon, Assistant Professor of Physics Education
- Paul-Marie Moulema, Lecturer in Computer Science
- Wendy Nelson, Assistant Professor of Geoscience
- Sarah Shannon-Firestone, Lecturer in Biology
- Rajeev Walia, Lecturer in Mathematics
- Faith Weeks, Assistant Professor of Biology Education
- Amy Williams, Assistant Professor of Geoscience

In addition to Laura Gough in Biology, we also have new department chairs in Chemistry (Ryan Casey) and Mathematics (Mike O’Leary).

This is an exciting time – new faculty, new students, and new leadership. Please enjoy reading our 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.
As part of our year-long 150th anniversary celebration, we’ve invited experts from around the nation to campus for an exciting speakers series.

On Tuesday, October 20th, Towson University and the Jess and Mildred Fisher College of Science & Math are pleased to welcome Ira Flatow to campus as one of our featured speakers.

For more information visit TU150.towson.edu

To register for the reception and dinner, visit tutigertracks.com/iraflatow

“CATALYSTS OF CREATIVITY:
WHY ANYONE CAN BE AN INVENTOR” WITH
NPR’S IRA FLATOW

October 20
4 p.m. Free Talk
5 p.m. Reception and Dinner | $50 Tickets
Chesapeake Rooms, University Union

Register at tutigertracks.com/iraflatow

Presented by the Jess and Mildred Fisher College of Science & Mathematics

Towson University 150th Anniversary SPEAKERS SERIES
Meetings Attended and Presentations

Harald Beck attended the 3rd IUCN-SSC Leaders Group Meeting, in Abu Dhabi in September.

Brian Fath presented “Flourishing within the limits” as part of the IIASA seminar series at the International Institute for Applied Systems Analysis, Laxenburg, Austria. He also presented “Quo vadis ecosystem: insights from ecological modelling and systems ecology” as a keynote speaker at the Community Surface Dynamic Modeling System Annual Conference in Boulder, Colorado, USA.

Barry Margulies gave an invited presentation entitled “Fire & forget: improved patient compliance towards better single dose long-term herpes therapy” to Balticon 49 and Friends over Texas. As a member of the Science Advisory Board for Project Accept (a herpes advocacy group), he also consulted with members of the group regarding herpes therapy.

Peer-Reviewed Research Publications


Peer-Reviewed Research Publications


Tsuji PA*, Carlson BA, Anderson CB, Seifried HE, Hatfield DL, Howard MT*. 2015. Dietary selenium levels affect selenoprotein expression and support the interferon-γ and IL-6 immune response pathways in mice. Nutrients 7(8), 6529-6549. (*co-corresponding authors)

Newly Funded Grants

John LaPolla had a new proposal funded by the National Geographic Society entitled "Finding Home: Where is the Native Range of the World's Most Widespread Invasive Ant Species?" ($16,260). He will be working with colleagues from South Africa to accomplish the field work for this project which will occur in Zambia.

Barry Margulies was co-PI on an NSF proposal with several faculty from Chemistry entitled “MRI: Acquisition of a Liquid Chromatograph-Mass Spectrometer to Support Multidisciplinary Research and Undergraduate Education at Towson University” ($382,737) funded for three years.

Richard Seigel received a new grant from Texas Parks and Wildlife and the state of Texas Comptroller’s Office entitled “Endangered Species Research Projects for the Desert Massasauga Rattlesnake.” The funding amount was $209,000 (ca $21,000 to TU). Co-PI’s were Dr. John Placyk, Jr., Dr. Neil B. Ford, Dr. Josh Banta, and Ms. Marsha Williams (all University of Texas -Tyler).

Student Research

The following undergraduate and graduate students of Richard Seigel presented posters at the Maryland/Delaware chapter of the Wildlife Society. The poster of Hunter Howell won the award for Best Undergraduate Poster and that of Scott Martin won the award of Best Graduate Student Poster (For the posters below, ** indicate graduate students and * indicate undergraduate students):


20th Biennial Conference for the International Society for Ecological Modeling

Towson University is the host for the 20th biennial conference for the International Society for Ecological Modelling. The conference will take place May 8–12, 2016. Abstract submission deadline is October 16, 2015. All faculty and students with relevant research are encouraged to consider presenting or attending (see www.isemconference.com). Please contact Brian Fath (bfath@towson.edu) for more information.
Peer-Reviewed Publications

David Ownby was a co-author (with his father Dennis Ownby as another co-author; the two D.R. Ownbys are not a typo!) on the following paper:


Ryan Casey was a co-author on a collaborative paper published with authors from the Baltimore Ecosystem Study.


John Sivey and two TU undergraduate researchers (Mark Bickley and Daniel Victor) published the following peer-reviewed book chapter:


John Sivey, ENVS graduate student Allison Ricko, ENVS director **Chris Salice**, and collaborators from the University of Iowa published the following paper in *Environmental Science and Technology Letters*:


Kelly Elkins had the following papers accepted.


Undergraduate Research Highlights—Raspet Fellowships

Cassidy Stout and Pierce Publico were awarded Raspet summer research fellowships from the endowment established by **Ron and Linda Raspet**. Both students will deliver departmental seminars on their research later this year.

Cassidy’s research project, conducted under the supervision of Dr. Tim Brunker was “Examining the Effects of Ligand Structure on the Stereoisomers of Ruthenium (II) Dichloride Complexes with Chiral, Tetradentate Aminosulfoxide Ligands.”

Pierce, a senior, worked with Dr. Cynthia Zeller a project entitled “Development of a Real-Time PCR Assay for the Identification of Body Fluids.”

New Faces

The Department of Chemistry would like to welcome our new tenure-track faculty member, Dr. Mary Devadas, an inorganic chemist whose scholarship focuses on nanomaterials, synthesis and spectroscopy. A warm welcome also to our new part-time administrative assistant, Joy Parkey Harris, who joined us in July. We would also like to acknowledge Sarah Stokes and Dimitra Kontokosta who were recently hired into ongoing lecturer positions after having been in the department in adjunct and temporary lecturer roles.
Professional Presentations

Tim Brunker gave an invited presentation at the North East Regional meeting of the American Chemical Society at Ithaca College, NY on June 13 entitled “Studies of neutral and cationic azaferrocene-borane Lewis pairs”.

Recent ENVS masters graduate, Bill LaBarre presented the following poster in Spain:

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 and was also the recipient of a graduate student travel grant from the ACS Division of Agrochemistry:
Buffers as potential catalysts of hydrolysis and halogenation during agrochemical fate experiments in bench-scale reactors; Division of Agrochemistry.

Kelly Elkins authored or co-authored the following presentations:


Professional Service and Review Activities

David Ownby reviewed a manuscript for Environmental Science and Technology.

Tim Brunker reviewed a manuscript for the Journal of the American Chemical Society, and a grant proposal for the American Chemical Society - Petroleum Research Fund.

Dan Macks reviewed a manuscript for the Journal of Chemical Education.

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

Department Seminars

The Department of Chemistry hosted Dr. Huichun (Judy) Zhang from the University of Delaware for a seminar entitled “Experimental and Computational Evidence for Reduction Mechanisms of N-O Containing Contaminants (NOCs) by Soluble FeII Species” on September 17, 2015.

Miscellaneous Activities

Rodney Dixon attended the "National Drive Electric Week Event" in Devon, PA, on Saturday, September 19. Rodney attended presentations by Dr. Michael Feinberg (of DVN GL Energy) and Dr. Diane Phillips (of St. Joseph’s Univ.), got a close look at the University of Pennsylvania’s REV1 electric racer. The day’s highlight was getting to drive a Tesla - it was great!
Publications and Presentations

Marius Zimand gave an invited talk on "Polynomial-time algorithms in Kolmogorov complexity theory" at the 10th CCR (Computability, Complexity, and Randomness) conference in Heidelberg, Germany, June 22-26, 2015.

Marius Zimand, jointly with Jason Teutsch (National University Singapore), has published the paper On approximate decidability of minimal programs, ACM Transactions on Computational Theory, 7(4), page 17:1-17:16, September 2015.

Suranjan Chakraborty's research with Sutirtha Chatterjee, Greg Moody, Andrew Hardin (University of Nevada at Las Vegas), and Paul Lowry,(City University of Hong Kong) titled Strategic Relevance of Organizational Virtues Enabled By Information Technology in Organizational Innovation is forthcoming in the Journal of Management Information Systems.


Suranjan Chakraborty's research with Deema Al-Sekait (doctoral student), and Sutirtha Chatterjee (University of Nevada at Las Vegas) titled Investigating Systems development processes in Healthcare Organizations has appeared in the in The Proceedings of the Twenty first Americas Conference on Information Systems (2015), Puerto Rico.

Suranjan Chakraborty's research with Deema Al-Sekait (doctoral student) titled: A Practice Based Examination of Standardization, and its Relationship with the Design and Use of Healthcare IS has been accepted at the 2015 Conference on Information Systems Applied Research, Wilmington, North Carolina.


Paul Moulema, Wei Yu, David Griffith, and Nada Golmie, “Performance Evaluation of Smart Grid Applications using Co-simulation,” in Proc. of IEEE International Conference on Computer Communication and Networks (ICCCN), August 2015, Las Vegas, USA.


Robert Hammell and doctoral student John Auten had their paper entitled "Comparing the Prediction Capabilities of an Artificial Neural Network vs a Phenomenological Model for Predicting the Terminal Ballistics of Kinetic Energy Projectiles" accepted for publication and presentation as part of the Conference on Information Systems Applied Research (CONISAR 2015) to be held 1-4 November, 2015 in Wilmington, NC.
Publications and Presentations


Jonathan Lazar published a new book, titled Ensuring Digital Accessibility Through Process and Policy. The book was co-authored with Civil Rights lawyer Dan Goldstein and Microsoft accessibility lead Anne Taylor (Taylor was formerly director of access technology at the National Federation of the Blind), and published by Elsevier/Morgan Kaufmann Publishers.


Jonathan Lazar gave a presentation titled “Ensuring Digital Accessibility at Universities Through Compliance Monitoring” at the Association on Higher Education and Disability (AHEAD) summit on Accessible Instructional Materials and Technology, June 19, 2015, in Columbia, Maryland.


Services to the Discipline

Josh Dehlinger and Chuck Dierbach attended an NSF-sponsored workshop at Red Hat, Inc. in Raleigh, North Carolina in September on the incorporation of humanitarian, free and open source software into undergraduate coursework.

Joyram Chakraborty reviewed a paper for Human Computer Interaction Journal.

Robert Hammell reviewed a chapter for the upcoming book entitled Recent Advances in Computational Intelligence in Defense and Security as part of the Springer series on Studies in Computational Intelligence.

Jonathan Lazar was a scholar-in-residence for a week at the Oslo and Akershus University of Applied Sciences in Oslo, Norway, where he gave presentations including, "Research Methods for Working with Participants with Disabilities" (for graduate students), "How I Developed a Love for Human-Computer Interaction, Accessibility, and Inclusive Design" (for undergraduates) and "Ensuring Digital Accessibility at Universities Through Compliance Monitoring" (for the inclusive design research group).

Jonathan Lazar was a panelist on the “Accessibility by Design” panel at the “Hacking Accessibility” event sponsored by the DC Legal Hackers, June 24, 2015 in Washington, DC.
Grants & Awards

Robert Hammell received additional incremental funding in the amount of $75,000 under the five-year Cooperative Agreement (CA) between Towson University and the US Army Research Laboratory. The funds were provided to support work aimed at continuing to address battlefield situational awareness challenges. Total funding for the project could reach $500k; value of funds applied thus far now totals approximately $325,000.


Jonathan Lazar was quoted in an article titled “The Internet is a Necessity: And Web Accessibility for the disabled makes sense for everyone” published in Slate Magazine on July 22, 2015 and available at:

http://www.slate.com/articles/technology/future_tense/2015/07/ada_25th_anniversary_the_internet_should_be_accessibile_for_the_disabled.html

Jonathan Lazar was named the national winner of the University of Washington DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Trailblazer Award, for his work on technology accessibility and improving professional opportunities for computer scientists with disabilities.

Two Computer Science Faculty Receive NSF Grant to Develop “Cyber4All”

Towson, Maryland (July 27, 2015) —In the often dangerous world in which we live today, cybersecurity is too important to be taught only to computer science majors.

That's the rationale behind TU's new Cyber4All program, developed by Blair Taylor (pictured left) and Siddharth Kaza (pictured right), both members of the Department of Computer and Information Sciences faculty. Brian Gorman from Sociology, Anthropology and Criminal Justice, Mary Helen McSweeney-Feld from Department of Interprofessional Health Studies, Barin Nag from e-Business an Technology Management, and Mike McGuire from Computer and Information Sciences are also involved in the project.

"Cybersecurity education used to be limited to computer scientists," Taylor explains. "We can't afford to do that any longer—everybody must have access." To that end, she and Kaza proposed an interdisciplinary minor in cybersecurity available to any undergraduate, with special emphasis on the needs of information technology, business, healthcare management, and criminal justice majors.

Receiving the two-year NSF award confirmed that she and Kaza were right about the need for undergraduate interdisciplinary cybersecurity education, said Taylor.
Grants and Contracts

The Applied Math Laboratory completed the negotiations with RTR Technologies, LLC on a contract funding the current AML project on “Automated baselining” (02/2015-07/2016). The negotiations were conducted by Angel Kumchev (PI) and Alexei Kolesnikov (co-PI); the total funding is $30,092.

Papers Published or Accepted for Publication

Diana Cheng and middle school pre-service teachers Shannon Moore and Jennifer Wong co-authored a paper entitled “Project-Based Learning in a Middle School Teacher Education Problem Solving Course.” This article was published in the Fall 2015 issue of the Banneker Banner, the journal published by the Maryland Council of Teachers of Mathematics.

Diana Cheng and graduate student David Thompson co-authored a paper entitled “Growing labyrinths from seeds” which was accepted for publication in the September-October 2015 issue of The Oregon Mathematics Teacher journal.


R. Michael Krach had a paper published in the current edition of the New York State Mathematics Teachers’ Journal (a refereed publication). The title of the article is Area and Perimeter. The focus of the article/activity is in developing a conceptual and procedural understanding of the concepts of area and perimeter for elementary and/or middle school students.

Angel Kumchev’s paper “On sums of four squares of primes” (joint with L. Zhao) was accepted for publication by Mathematika.

Angel Kumchev’s survey article “Sieve methods and exponential sums: An interplay between combinatorics and harmonic analysis” was accepted in the proceedings of the Workshop on Number Theory held at MCM in Beijing (July 20–28, 2014).

Mircea Voisei’s paper “The Local Equicontinuity of a Maximal Monotone Operator” was accepted for publication in Set-Valued and Variational Analysis, June 2015.

Books Published or Accepted for Publication

The book by Sergiy Borodachov, Douglas Hardin, and Edward Saff, *Minimal Discrete Energy on Rectifiable Sets*, was accepted for publication in the *Springer Monographs in Mathematics Series*.

Workshops

Diana Cheng and Asli Sezen-Barrie (PAGS) will present a professional development workshop entitled “Mathematics and Visualization of Climate Change” at Morgan State University's Center for Excellence in Mathematics and Science Education on Saturday, September 26. The workshop is being supported by a sub-contract of a grant from the Department of Homeland Security under Award No. 2012-ST-062-000052, Amendment #1: “Visual Analytics for Science & Technology at a minority Serving Institutions (VAST MSI),” awarded to Morgan State University’s Dr. Timothy Akers and Dr. Kevin Peters.

Gail Kaplan and Michael Krach conducted a one week summer institute, Chesapeake Common Core Algebra Academy, in July. This five day workshop, which focused on problem solving and algebra, was funded by the National Security Agency and the Worcester County Public Schools. This Academy was attended by 20 middle and high school mathematics teachers from Delaware, Pennsylvania, and Maryland (Eastern Shore).

Ming Tomayko and Michael Krach conducted a three-day workshop, Mathematics in the Middle, for 16 BCPS elementary and middle school mathematics teachers in August. This summer institute, which focused on the use of manipulative materials, cooperative groups, and the transition issues that students have between elementary school and middle school, was funded by Dr. Nancy Grasmick’s office and the BCPS. Three follow up sessions will be conducted during the 2015/2016 academic year at local middle schools.

Refereeing, Reviewing, and Panel Service

Sergiy Borodachov refereed a paper for the *Journal of Approximation Theory*.


Russell Hendel reviewed several papers for the *The 7th International Conference on Education, Training and Informatics: ICETI 2016*.

Russell Hendel reviewed a paper for the *Fibonacci Quarterly*. 
Conference and Seminar Presentations

Sergiy Borodachov presented a talk “Asymptotically d-Energy Minimizing Sequences of Configurations on d-dimensional Conductors” (joint work with D.P. Hardin and E.B. Saff) at the SIAM International Symposium on Orthogonal Polynomials, Special Functions, and Applications, NIST, Gaithersburg, MD, June 1-5, 2015.

Diana Cheng and Master Teacher / TU Alumna Nicole Horner presented professional development sessions at several Maryland College and Career Readiness Conferences organized by the Maryland State Department of Education in July and August 2015. Their session was entitled “Expressions and Equations with Cryparithmetic.”


Russell Hendel delivered a paper, “Graph Theoretic Descriptions of Psalm Literary Structure,” at the Bridges Conference, held at the University of Baltimore Law Center, July 29-August 1, 2015.


Diana Cheng and graduate student David Thompson presented at the BRIDGES 2015: Mathematics, Music, Art, Architecture, Culture conference held at the University of Baltimore’s campus on July 30th. Their workshop’s title was “Square Seeds and Round Paths: Exploring Patterns with the Art of Classical Labyrinths.”
Miscellaneous Professional Activities, Community Engagement, and Service to the Discipline

Sergiy Borodachov made research visits to Vanderbilt University on June 11-26 and on September 10-15, 2015.

Russell Hendel attended the Mathematical Association of America's 100th anniversary, MathFest, held in Washington DC, Aug 5-8, 2015.

Felice Shore and Diana Cheng served on the organizing committee of the Association of Maryland Mathematics Teacher Educators' 2015 Early Career Teaching Conference held on Saturday, September 19th at Stevenson University. Diana Cheng also supervised the preparation of graduate student David Thompson’s secondary mathematics presentation, Chilling Out after a Murder.

Undergraduate Research

The following undergraduate students presented sessions at the Association of Maryland Mathematics Teacher Educators’ 2015 Early Career Teaching Conference on Saturday, September 19th at Stevenson University:

Middle school pre-service teachers Bridgette Goyne and Shaina Mensch, who presented “Moving Math for Algebraic Expressions: Incorporating Universal Design for Learning” supervised by Diana Cheng and Michael Krach.

Student Clubs

The Mathematics Education Club, advised by Honi Bamberger and Diana Cheng, will be supported this year with refreshments from the Pepsi Foundation. The first session of the Mathematics Education Club will be held on Thursday, September 17th, with speaker Laura Behrens (TU Alumna), a 7th grade teacher at the Murray Hill Middle School, Howard County Public Schools. Her talk is entitled, “Enhancing Mathematics Instruction with Technology.” The second session of the Mathematics Education Club will be held on Thursday, October 15th, with speaker Dr. Tetyana Berezovski, Associate Professor of Mathematics at St. Joseph’s University, Philadelphia, PA. Her presentation is entitled, “Arms Magic in Figure Skating Spins.”
Physics major Kielan Wilcomb (front middle in left image, left in right image) participated in the celebration of the Pluto fly-by at the Applied Physics Lab in the summer. Kielan was participating in a summer research program when the New Horizon’s spacecraft approached Pluto, sending back the most detailed images of the dwarf planet ever recorded.

**Student News**

Gregory Woodward (Geology undergraduate) submitted an abstract and will be giving 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.


**Proposals**

Parviz Ghavamian is co-investigator on a successful proposal titled “N103B: A Type Ia Remnant with Circumstellar Interaction... Kepler’s Older Cousin?” to use both the Chandra X-ray observatory and Hubble Space Telescope. Ghavamian will lead the Hubble Space Telescope portion of the project from Towson.

Joel Moore and Ron Hermann were awarded a NSF grant for $348,182 from the Improving Undergraduate STEM Education: Pathways into Geoscience (IUSE: GEOPATHS) program. The grant is entitled TU GEO Careers (Towson University Geoscience Educational Opportunities for Careers) and is focused on increasing recruiting to, and retention in, to the 3 geoscience majors in FCSM: Geology, Earth-Space Science, and the Geology track of Environmental Science. Rachel Burks, Wendy Nelson, Dave Vanko, and Amy Williams are senior personnel on the grant. Rommel Miranda will be the evaluator for the project. http://www.nsf.gov/awardsearch/showAward?AWD_ID=1540631&HistoricalAwards=false

Amy Williams was PI on a NASA Exobiology proposal entitled “Biosignatures in Iron Oxidizing Microbes (BIOME): A Pilot Study on Metabolic Processes Preserved as Biosignatures from Iron Oxidizing Microorganisms” ($249,079). The proposed research would characterize a putative novel chemical biosignature of iron oxidizing organisms. The proposal includes support for TU undergraduate researchers.
Proposals

Amy Williams was a co-I on a NASA Exobiology proposal entitled “Manganese as a potential biosignature in acidic environments.”

Amy Williams was a co-I on a NASA Exobiology proposal entitled “Investigations of Biosignature Preservation in Former Hydrothermal-Ice Interacting Systems on Earth and Mars”.

Jia-An Yan submitted a proposal to NSF: "First-principles modeling, characterization, and design of heterostructures from 2D materials."

Publications

Parviz Ghavamian is re-writing exam pool questions for six chapters from the 5th edition of 21st Century Astronomy by Kay et al. (W. W. Norton et al., publishers). The new edition of the textbook, which is used for all ASTR 161 and 162 courses at Towson, is scheduled for publication in November 2015.


Phuoc Ha's paper “Eikonal fit to proton - proton and antiproton - proton scattering and the edge in the scattering amplitude” co-authored with M.M. Block, L. Durand, and F. Halzen has been published in Physical Review D 92, 014030 (2015).

Joel Moore published a paper that included work done as part of two Towson undergraduate senior research projects, one by a Geology major and one by a Geology-track, Environmental Science major:

DEPARTMENT OF PHYSICS, ASTRONOMY & GEOSCIENCES

Publications


Jia-An Yan, Mack A. Dela Cruz (*), Brandon Cook and Kalman Varga, "Structural, electronic and vibrational properties of few-layer 2H- and 1T-TaSe₂". Resubmitted to Scientific Reports. (* indicates undergraduate student supervised by Dr. Yan).


Presentations and Abstracts

M. Osofsky; C. Krowne; R. J. Soulen; E. Clements; G. Woods; H. Srikanth; I. Takeuchi; V. Smolyaninova; B. Yost**; K. Zander*; T. Gresock**; S. Saha; R. Greene; I. Smolyanininov; “New approaches for enhancing Tc,”(Invited), 11th International Conference on Ceramic Materials and Components for Energy and Environmental Applications, Vancouver, BC Canada, 2015


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


Joel Moore gave a research seminar in the Department of Geological Sciences, University of Delaware entitled “Use of a rural-urban watershed gradient to investigate processes that control urban stream geochemistry.”

Amy Williams gave a seminar talk as part of the Washington and Lee University Geology department seminar series.


J.M. Overduin, “Lessons learned through undergraduate research projects in graduate-level physics,” American Association of Physics Teachers Summer 2015 Meeting, College Park, MD, July 29

J.M. Overduin, “From Einstein and Schrödinger to Newton’s laws of motion,” Department of Physics, Astronomy & Geosciences, Sep. 4


Presentations and Abstracts


Rommel Miranda was a Keynote Speaker at the Accelerating Science Education Mobile Laboratory Coalition Conference in Baltimore on July 15, 2015. His talk was entitled, “Evolving to Remain Relevant in our Nation’s Dynamic Educational Environment.”

Community Engagement and Professional Service

On the night of August 12, Parviz Ghavamian led a public star party at the Howard County Nature Conservancy to observe the Perseid meteor shower. He was also interviewed on television about the event. The interview appeared on the CBS local news.

Work of Vera Smolyaninova’s group on core/shell metamaterial superconductors was featured by SPIE News Room and other media outlets.

- SPIE Newsroom: Metamaterial engineering to triple the critical temperature of a superconductor [http://spie.org/x114836.xml](http://spie.org/x114836.xml)

Vera Smolyaninova conducted hands-on activities at the Central Branch of Howard County Library as a part of Superhero Scientists Theme for ages 7 & up. Activities were developed together with James Selway.

Joel Moore consulted with the Water Resources Division, Metropolitan Washington Council of Governments to provide information and resources on alternatives to road salt (NaCl) for de-icing and road clearing.

Joel Moore participated in the Baltimore County Public Schools ‘Science Professional Study Day’, presenting on road salt and water quality in urban areas and ideas about how stream studies might be incorporated into high school science classes.

Joel Moore is co-organizing a session on Urban Geochemistry at the 2015 Annual Meeting of the Geological Society of America, Baltimore, MD.

Sezen-Barrie, A. & Cheng, D (September 2015). Mathematics and Visualization of Climate Change, Morgan State University, STEM Excellence Center, MD.

James Overduin interviewed with TU undergraduate research student Dana Molloy for “My Million Dollar Invention, Episode 6: Life and Death,” aired on the Smithsonian Channel, July 19.
**Community Engagement and Professional Service**


**J. Overduin**, "Beyond Einstein," TU homepage, [www.towson.edu](http://www.towson.edu), Sept. 9

**Jia-An Yan** reviewed two manuscripts for *Physical Chemistry and Chemical Physics*.

On June 2, 2015, **Pamela Lottero-Perdue & Cindy Ghent** provided professional development to 26 5th grade teachers in Calvert County Public Schools to prepare them to teach the Engineering is Elementary (EiE) unit, *A Slick Solution: Cleaning an Oil Spill*.

**Pamela Lottero-Perdue** is now (since June 2015 and until June 2017) serving as the Chair of the K-12 & Pre-College Division of the American Society for Engineering Education (ASEE). The division has approximately 750 members.

**Pamela Lottero-Perdue** was one 31 panelists selected to serve on the National Assessment for Educational Progress (NAEP) Technology & Engineering Literacy (TEL) Assessment Achievement Levels Setting panel. The panel also included 4 other non-teacher educators (e.g., university faculty), 17 teachers and 9 members of the public. The panel met for one week in San Antonio, TX, from September 28 – October 2, 2015.

**Raj Kolagani** reviewed a manuscript for *Applied Physics Letters* (June 2015).

**Raj Kolagani** was interviewed by “Educational Advisory Board”, a best practices company, in the context of a project they are undertaking to aid the development of an Applied Physics Master’s program at Seton Hall University.

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On July 31, 2015, **Jennifer Scott, Rommel Miranda and Karen Schaefer**, Baltimore Project ASTRO directors and coordinator, coordinated and led the 8th Annual Baltimore Project ASTRO workshop.

The workshop was held at the Maryland Science Center to launch 43 partnerships between local astronomers and educators in five school districts (BCPS, BCPSS, HCPSS, and PGCPS) for the 2015-2016 academic year.
Middle Grades Partnership

Drs. Rommel Miranda, Jennifer Scott, Karen Schaefer, David Vanko (FSCM Dean), and Sharlene Roberson (FCSM STEM Program Director) arranged for the Middle Grades Partnership (Mt. Royal Middle School/McDonogh School) to visit the TU campus during the summer to participate in hands-on astronomy activities.

TU students Destiny Simmons (Sophomore Biology Major; TOPS and STEM RLC), Krystal Escoffery (Senior Mass Communications and Political Science Major; Student Assistant in the Dean's Office), Jacob Harding (Graduate Student in Physics and STEM Program Assistant), and Ahmed A. Al Khafaji (Sophomore, Biology Major, TOPS) served as group leaders during the visit.

Middle Grades Partnership (Mt. Royal Middle School / McDonogh School) visits the TU campus on July 16, 2015.

(From left-right) TU students, Destiny Simmons, Krystal Escoffery, Jacob Harding, Ahmed A. Al Khafaji, and Dr. Rommel Miranda
Grants

Joel Moore and Ron Hermann were awarded a NSF grant for $348,182 from the Improving Undergraduate STEM Education: Pathways into Geoscience (IUSE: GEOPATHS) program. The grant is entitled TU GEO Careers (Towson University Geoscience Educational Opportunities for Careers) and is focused on increasing recruiting to, and retention in, to the 3 geoscience majors in FCSM: the Geology track of Environmental Science, Geology, and Earth-Space Science. Rachel Burks, Wendy Nelson, David Vanko, and Amy Williams are senior personnel on the grant. Rommel Miranda will be the evaluator for the project.


Community engagement & professional service

Joel Moore consulted with the Water Resources Division, Metropolitan Washington Council of Governments to provide information and resources on alternatives to road salt (NaCl) for de-icing and road clearing.

Joel Moore participated in the Baltimore County Public Schools ‘Science Professional Study Day’, presenting on road salt and water quality in urban areas and ideas about how stream studies might be incorporated into high school science classes.

Publications

John Sivey, ENVS graduate student Allison Ricko, ENVS director Chris Salice, and collaborators from the University of Iowa published the following paper in Environmental Science and Technology Letters:


Joel Moore published a paper that included work conducted as part of two Towson undergraduate senior research projects, one by a Geology-track, Environmental Science major and one by a Geology major: Joel Moore and Andrew Jacobson. Seasonally varying contributions to urban CO2 in the Chicago, Illinois, USA region: Insights from a high-resolution CO2 concentration and d13C record. Elementa: Science of the Anthropocene.

http://dx.doi.org/10.12952/journal.elementa.000052

Christopher Salice published a paper in Environmental Pollution with a former student, now collaborator at Westminster College.


Presentations & abstracts

Joel Moore gave a research seminar in the Department of Geological Sciences, University of Delaware entitled “Use of a rural-urban watershed gradient to investigate processes that control urban stream geochemistry.”
ENVIRONMENTAL SCIENCES

ENVS STUDENT ACCOMPLISHMENTS

ENVS M.S. student, **Kasey Bolyard**, received a $6,000 graduate research fellowship from Maryland Water Resources Research Center, located at UMD College Park. The fellowship is in support for her ENVS Masters Thesis, entitled “*Chironomus riparius*: A tool for studying ecological effects of “inert” safeners”. Her project is being completed under the mentorship of Dr. Susan Gresens, in collaboration with Dr. John Sivey’s organic chemistry lab.

**Gregory Woodward** (Geology undergraduate) submitted an abstract and will be giving 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. Gregory Woodward and Joel Moore, Road salt (NaCl) runoff increases soil pH and significantly alters cation exchange chemistry in soils and aquifers. Geological Society of America – 2015 Annual Meeting, Baltimore, MD. Oral presentation.
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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