



The Jess and Mildred Fisher College of Science and Mathematics

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ELECTRONIC NEWSLETTER

December/January 2011



OFFICE OF THE DEAN

The Fisher College – Inspiring Student Exploration in Science and Mathematics for the 21st Century[®]

Dear Friends,

This first FCSM Newsletter of 2011 yields a snapshot of a college that is working hard and enjoying much success! This is a testament to a vibrant and talented faculty, a dedicated, supportive and professional staff, and an ever-growing number of well-qualified students. The Fisher College at Towson University is an exciting place to be!

The Fisher College's Dean's Office is also an exciting place to be. One reason is our new Associate Dean, Dr. Gail E. Gasparich. Dr. Gasparich, a Professor of Biology, has been at Towson since 1996. She has completed more than six months in her new position and is a familiar face to faculty and staff throughout the university. Gail has taken on a leadership role in several important areas that include revising the college's Promotion, Tenure, Reappointment and Merit document, developing the college's 2016 Academic Plan, and creating the college's Diversity Action Plan. Each of these involves obtaining widespread faculty input and shepherding the early drafts through various stages of faculty and university approval. Gail is also helping with the FCSM Advisory Board, where she is taking the lead in creating opportunities for Advisory Board members to mentor FCSM students. She's doing a great job so far!

Regular newsletter readers will be well aware of our Hackerman Academy of Mathematics and Science, its Director, Dr. Don Thomas, and its signature program, Saturday Morning Science. You may also be aware of Towson University's collaboration with schools and community groups in the Cherry Hill neighborhood of South Baltimore. Last month, the Hackerman Academy took Saturday Morning Science on the road to Southside Academy, a high school in Cherry Hill. Dr. Thomas gave the presentation about life on the Space Shuttle, and the children who attended were treated to a hands-on science activity after the presentation. Our vision is that Southside Academy will become known in the Cherry Hill neighborhood as the place to go for science and mathematics (or STEM) education. Consequently, we hope this is the first of many SMS programs held in Cherry Hill.

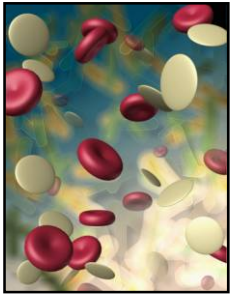
Happy New Year to all, and please enjoy this month's newsletter!

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.



DEPARTMENT OF BIOLOGICAL SCIENCES

Student Research

Handelsman, C. A., J. A. Nelson and G. Claireaux. 2010. "Sprint capacity and ecological performance of cultured and wild European sea bass in coastal tidal ponds." *Physiological and Biochemical Zoology*. 83(3): 435-445.

Schneider, S.A. and J.S. LaPolla. 2011. "Systematics of the mealybug tribe Xenococcini (Hemiptera: Coccoidea: Pseudococcidae) with a discussion of trophobiotic associations with *Acropyga* Roger ants." *Systematic Entomology* 36: 57-82.

Graduate student A. Mickey Dehn presented her thesis research "Ever eat a palm tree? Growth, histology, and digestive physiology of a wood-eating catfish, *Panaque nigrolineatus*" at the joint Meeting of Ichthyologists and Herpetologists, Providence RI, June 2010 and won a "best student poster" award for her efforts.

Grants and Donations

Sarah Haines received a grant from the National Project Wet office at Montana State University for \$3,700 in order to provide teacher professional development in water education for grades K-12.

Barry Margulies was awarded an FDRG grant for "Biodegradable Polymers for Controlled Release Delivery of Antihyperlipidemic Drugs."

Publications

Opdyke, JA, Fozo EM, Hemm MR, Storz G. 2010. "RNase III Participates in GadY-Dependent Cleavage of the gadX-gadW mRNA." *Journal of Molecular Biology* [Epub ahead of print].

D.R. Brown, M. May, J.M. Bradbury, and K. Johansson. "The *Mollicutes*." in *Bergey's Manual of Systematic Bacteriology* Volume 4, Second Edition (N.R. Krieg, J.T. Staley, B. Hedlund, B.J. Paster, N. Ward, W. Ludwig and W.B. Whitman, eds.) Springer, New York, NY. 2010.

Nelson, J.A. and D. Chabot. 2011. *In press*. "Energy Consumption: Metabolism (general)." Bioenergetics Section in: *The Encyclopedia of Fish Physiology*. A. P. Farrell, ed. Elsevier, London.

Nelson, J.A. 2011. *In press*. Introduction to the Bioenergetics subsection. Bioenergetics Section in: *The Encyclopedia of Fish Physiology*. A.P. Farrell, ed. Elsevier, London.

Presentations

Sarah Haines and Richard Foot, a teacher in residence at the Center for Science & Mathematics Education, presented work performed on an NSF grant at the National Association for Biology Teachers annual conference in Minneapolis. The title of the presentation was "Using Native Species to Affect Water Quality and Enhance Student Motivation for Environmental Science Literacy."

Sarah Haines and staff from the American Forest Foundation conducted several presentations at the National Science Teachers Association conference in Baltimore. They were: "The Project Learning Tree Early Childhood Curriculum,"

“Global Connections: Forests of the World,” “Green Schools,” and “Biotechnology Applications and Environmental Risk for Grades 9-12.”

Jay Nelson presented an invited talk with former Towson graduate student co-authors K.J. Taylor and K. Gastrich entitled “Phenotypic plasticity of performance capacity and thermal tolerance in blacknose dace (*Cyprinidae*) from different populations” at the Society for Experimental Biology Annual Meeting in Prague, Czech Republic, June 2010.

Jay Nelson co-organized and co-chaired a symposium on climate change and fish physiology at the 9th International Congress on the Biology of Fishes. Barcelona, Spain, July 2010. He also gave two talks and was a co-author on two other talks presented there.

Journal and Reviewing Activities

Sarah Haines had a book review for the environmental science textbook “Forestry Field Studies” appear in the summer 2010 issue of The Science Teacher.

Sarah Haines reviewed manuscripts for The Science Teacher and The Journal of College Science Teaching.

Barry Margulies was appointed to the editorial boards of Journal of Microbial & Biochemical Technology and World Journal of Virology.

Meghan May reviewed a grant proposal for the Binational Agricultural Research and Development Fund.

Jay Nelson reviewed a manuscript entitled “Variation in the behavioral and molecular components of endurance swimming in zebrafish (*Danio rerio*)” for the Journal of Experimental Biology.

Jay Nelson reviewed a manuscript entitled “Repeatability of standard metabolic rate, active metabolic rate, and body mass in young brown trout (*Salmo trutta*) fed a moderately restricted die” for the Journal of Experimental Biology.

Jay Nelson reviewed a manuscript entitled “Cardiorespiratory responses to hypoxia in the African catfish, *Clarias gariepinus* (Burchell 1822), an air-breathing fish” for the Journal of Comparative Physiology - B.

Rich Seigel was a technical reviewer for several proposals for the state of Florida’s State Wildlife Grants Program.

Rich Seigel was a reviewer for a manuscript in the journal Functional Ecology.

Workshops and Workshop Presentations

Sarah Haines, Bob Blake (ELED), and Adam Frederick (Sea Grant) conducted a half-day workshop at the National Science Teachers Association conference in Baltimore. The topic was “Environmental Science in the Classroom and the Field.”

Sarah Haines and Cindy Ghent conducted a workshop titled “Environmental Experiences for Early Childhood” at the National Science Teachers Association conference in Baltimore.

Community Outreach

Sarah Haines served on the technical review committee for the Chesapeake Bay Trust’s environmental education grants program for the 2011 year.

Other Activities

Sarah Haines was appointed to the North American Association for Environmental Education’s Accreditation Board. She will serve a three year term.



DEPARTMENT OF CHEMISTRY

Publications

Ryan Sours is principal author with two former Towson undergraduate coauthors (including Tissa Thomas, Project Administrator of the Noyce Scholarship Program) of the following paper:

Mazzarino, RC*, Thomas, TJ*, Sours RE, "Chromatographic determination of impurity binding affinities on biomineral crystals." CrystEngComm, 13 (2011) 1096-1102.

Lev Ryzhkov is principal author with three former Towson undergraduate coauthors of a paper in press:

Fraind, A*, Turncliff, R*, Fox, T*, Sodano, J. and Ryzhkov, L. R. "Exceptionally high decarboxylation rate of a primary aliphatic acyloxy radical determined by radical product yield analysis and quantitative 1H-CIDNP spectroscopy." Journal of Physical Organic Chemistry.

Ellen Hondrogiannis is coauthor on a paper submitted for publication in the journal Food Chemistry:

Hondrogiannis, E., Peterson, K., Zapf, M., Roy, W. "The Elemental Composition of Cumin Samples Using Wavelength Dispersive X-Ray Fluorescence and Determination of the Country of Origin."

Research Presentations

Maria Brown* (REU student from 2009) presented the results of her research at the Society for Environmental Toxicology and Chemistry North America (SETAC NA) meeting in Portland, OR, November 2010 as a platform presentation titled "Combined effects of sodium chloride and copper to the amphibian species, Cope's gray tree frog (*Hyla chrysoscelis*) and green frog (*Rana clamitans*)" and received an award for 2nd place for undergraduate platform presentation. Co-authors were Emily Dobbs* (REU student), Joel Snodgrass (TU Biology), and David Ownby.

Ryan Casey presented a poster at the SETAC NA meeting in Portland, OR, November 2010, titled "An enriched stable isotope tracer technique to estimate the soil Zn pool available to *Lumbricus terrestris* (L.) across a salinization gradient" with co-authors Derek Rodgers** (M.S. in Environmental Science graduate), Steve Lev, David Ownby, and Joel Snodgrass.

Ellen Hondrogiannis and three of her Masters in Forensic Sciences research mentees presented research posters at the International Forum on Process Analysis and Control; OnSite Annual Meeting for Homeland Security, Forensics, and Environmental Remediation in Baltimore, MD, January 2011:

Cates V. and Hondrogiannis, E., "Inductively Coupled Plasma/Mass Spectrometry Characterization of Sulfamide, a Chemical Precursor to the Neurotoxin Tetramethylenedisulfotetramine."

Peterson K. and Hondrogiannis E., "The Elemental Composition of Cumin Samples Using Wavelength Dispersive X-Ray Fluorescence and Determination of the Country of Origin."

Hummert P. and Hondrogiannis E., "Method Development for the Recovery of Nitrates on Various Fabric Matrices Using Ion Chromatography with Conductivity Detection."

Faculty/Staff Professional Development

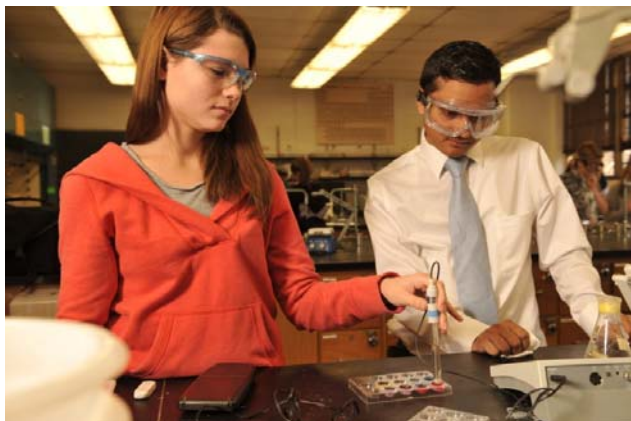
Tim Bruncker reviewed a grant proposal for the American Chemical Society – Petroleum Research Fund Undergraduate New Investigator Program.

Rodney Dixon attended the "Maryland Citizen's Conference on Offshore Wind Power" on December 4, in Annapolis, MD. The conference was organized by the Chesapeake Climate Action Network.

Dan Macks reviewed a chapter for the American Chemical Society for their book "Enhancing Learning with Online Resources, Social Networking, and Digital Libraries."

David Ownby reviewed articles for the journals Environmental Pollution and Wetlands.

Ryan Sours was a reviewer for the Intel Science Talent Search.



Students working in a chemistry lab.



DEPARTMENT OF COMPUTER AND INFORMATION SCIENCES

Publications and Presentations

The paper authored by Gabriele Meiselwitz and Suranjan Chakraborty: Exploring the Connection between Age and Strategies for Learning New Technology Related Tasks, presented at ISECON 2010 (Information Systems Educator Conference), Nashville, TN, October 28-31 was selected as one of the top papers of the conference and will be published in the Information Systems Education Journal (ISEDJ).

Kevin Reed (doctoral student AIT) and Gabriele Meiselwitz (advisor) have a paper "Teacher Agents: The Current State, Future Trends, and the many Roles of Intelligent Agents in Higher Education" accepted for presentation at HCI International 2011 (Human Computer Interaction International), Orlando, FL, July 9-14.

Portia Pusey (doctoral student ISTC) and Gabriele Meiselwitz (advisor) have a paper "Assessment in large- and small-scale Wiki Collaborative Learning Environments: Recommendations for Educators and Wiki Designers" accepted for presentation at HCI International 2011 (Human Computer Interaction International), Orlando, FL, July 9-14.

Christopher Connolly (doctoral student AIT) and Gabriele Meiselwitz (advisor) have a paper "Use of Social Networking in Education and Senior Users" accepted for presentation at HCI International 2011 (Human Computer Interaction International), Orlando, FL, July 9-14.

Chao Lu and his grad students David Li and Mu Zhou were invited to give a talk on their research project "Efficient Algorithms and Implementation for Error-free Matrix Computation Using P -adic" at The Catholic University of America on November 17. This project is funded by the Air Force Office of Scientific Research.

The paper "Possibilities and impossibilities in Kolmogorov complexity extraction" by Marius Zimand has been published in SIGACT News, December 2010 issue. This is a survey paper, invited for the Computational Complexity column of SIGACT News.

Suranjan Chakraborty's article "Road to 'Stardom' in Globally Distributed Teams: An Examination of a Knowledge-centered Perspective using Social Network Analysis" with S. Sarker, S. Sarker and S. Kirkeby has been accepted for publication in the Decision Sciences Journal.

Suranjan Chakraborty's article "Agility in Software Vendor's Software Development Team Configurations: Some Preliminary Observations" with S. Sarker, S. Sarker, S. Rai , N. Ranganadhan has been accepted for publication in the Journal of Global Information Technology.

Suranjan Chakraborty presented his research titled "Examining the role of inference in the requirements elicitation process during information systems development" at 31st International Conference on Information Systems, St. Louis, Missouri Dec 12 -15.

Xinwe Fu, Nan Zhang, Aniket Pingley, Wei Yu, Jie Wang, and Wei Zhao, "The Digital Marauder's Map: a WiFi Forensic Positioning Tool," to appear in IEEE Transactions on Mobile Computing (TMC), 2011.

Yuefeng Huang, Xinyu Yang, Shuseng Yang, Wei Yu, and Xinwen Fu, "A Cross Layer Approach Handling Link Asymmetry for Wireless Mesh Access Networks," to appear in IEEE Transactions on Vehicular Technology (TVT), 2011.

Wei Yu, Xun Wang, Adam Champion, Dong Xuan, and David Lee, "On Detecting Active Worms with Varying Scan Rate," to appear in International Journal of Computer Communications (IJCC), 2011.

Zhen Ling, Xinwen Fu, Weijia Jia, Wei Yu, and Dong Xuan, "A Novel Packet Size Based Covert Channel Attack against Anonymizer," in Proc. of the 28th Conference on Computer Communications (INFOCOM) Mini-Conference, May 2011.

Zhen Ling, Junzhou Luo, Wei Yu and Xinwen Fu, "Equal-sized Cells Mean Equal-sized Packets in Tor?" in Proceedings of ICC Communication and Information System Security Symposium, June, 2011.

S. Acharya, G. Joshi, "Improved Anti-Virus Defense Via Efficient Clustering Techniques", International Journal of Computer Science and Network Security, Vol. 10, No. 6, June 2010.

S. Acharya, B. Namovicz, J. Wiseman, "A Hybrid Root-kit for Linux Operating System", Colonial Academic Alliance Undergraduate Research Journal, Vol. 1, Iss. 1, October 2010.

S. Acharya, T. Parker, "SOAuth2: Cross Application Authentication for Improving OAuth 2.0 Security," International Conference on Information and Computer Applications (ICICA), March 2011.

S. Acharya, S. Srikittipraphas, "SPHP: Towards Security in PHP Applications," 2011 Annual Meeting of the Southeast Decision Sciences Institute (SE DSI), Savannah, GA, February, 2011.

S. Acharya, D. Kim, "A Model for Risk Assessment, Design and Evaluation of a HealthCare Information System," 7th Annual International Conference on Computer Science and Information Systems, June 13-16, Athens, Greece. [Abstract accepted - final paper due March, 2011].

S. Acharya, "GCD: Global Collaborative Defense against Large-Scale Cyber Attacks," book chapter accepted in Situational Awareness in Computer Network Defense: Principles, Methods and Applications, IGI Global, USA, <http://www.igi-global.com/>. Final chapter submission – March 2011.

S. Acharya, "Accelerating Firewalls: Tools, Techniques and Metrics for Firewall Optimization" book chapter accepted in Situational Awareness in Computer Network Defense: Principles, Methods and Applications, IGI Global, USA, <http://www.igi-global.com/>. Final chapter submission – March 2011.

Blair Taylor attended the 2011 CCLI-TUES PIs Conference in Washington, D.C., January 26-28 and presented a poster on the project "Building Security In: Injecting Security throughout the Undergraduate Computing Curriculum."

James Braman, Alfreda Dudley, Giovanni Vincenti, Kathy Wang and Kidd Colt's article "Gaining Insight into the Application of Second Life in a Computer Course: Student's Perspectives" was accepted to the 14th HCI International Conference on Human-Computer Interaction (HCI 2011), Orlando, FL, July 9-14.

Services to the Discipline

Suranjan Chakraborty was appointed to the Editorial Board of the Journal of Information Technology Cases and Applied Research (JITCAR).

Suranjan Chakraborty completed invited and completed reviews for Decision Support System Journal and the European Conference on Information Systems.

Wei Yu served as Submission chair of IEEE/SADFE 2011 Sixth International Workshop on Systematic Approaches to Digital Forensic Engineering, Program Committee Member of IEEE GLOBECOM (Computer and Communications Network Security Symposium 2011, Next Generation Computer Networks 2011), IEEE International Conference on Communications (Computer and Network Security Symposium) 2011, 4th International Conference on New Technologies, Mobility, and Security (NTMS) (New Technologies & Services Program).

Wei Yu served as journal and conference paper reviewer for IEEE Transactions on Parallel and Distributed Systems (TPDS), IEEE Transactions on Signaling Processing, four papers on IEEE International Conference on Communications (ICC), five papers on International Conference on New Technologies, Mobility, and Security (NTMS).

James Braman reviewed several articles for the 2011 International Conference on Information Science and Applications to be held in Juju, Korea.

Grant & Awards

Chao Lu received two industry grants in November 2010 to support grad students' research:

1. Topic on "Informatics in Palliative and Hospice Care," from Medical Decision Logic, Inc, for \$9,500 to support a grad student.
2. Topic on "Web Access of Health Database System at HDE," from Health Data Essentials, for \$6,918 to support a grad student.

"Smart Grid Priority Action Plans Support: Network Assessments for Smart Grid Applications," 12/2010 06/2012, Wei Yu (PI), Subcontract from Prometheus Computing Inc. (funded by National Institute of Standards and Technology), \$181,000.

Michael O'Leary, Scott Hilberg & Suranjan Chakraborty received \$87,360 for 2011 from MHEC BRAC Higher Education Investment Fund for "Expanding the Reach of the IT Programs at Towson University."

Announcements

Robert Hammell was recently elevated to the grade of Senior Member in the IEEE (Institute of Electrical and Electronics Engineers). Only 8% of the IEEE's approximately 400,000 members hold this grade.



DEPARTMENT OF MATHEMATICS

Publications

Linda Cooper's paper "Eratosthenes Meets the GPS: Measuring the Earth's Circumference" was published in the Fall 2010 issue of Ohio Journal of School Mathematics.

Michael Krach's activity "The Name Game: An Integer Activity" was published in the Ohio Journal of School Mathematics, Number 62, Fall 2010, page 44.

Sohrab, Houshang signed a new contract with Birkhauser to start working on the second edition of his textbook Basic Real Analysis. The new manuscript will be submitted in two to three years.

Tatyana Sorokina and Sergiy Borodachov's paper "An optimal multivariate spline method of recovery of twice differentiable functions" was accepted for publication in BIT Numerical Mathematics.

Workshops

Gail Kaplan and Michael Krach presented a Professional Development workshop for the faculty of Don Bosco Cristo Rey High School in Takoma Park on Critical Thinking as an Instructional Practice on December 9.

Community Outreach

Honi Bamberger, Maureen Yarnevich, and Judy Macks began an on-site weekly mathematics support initiative with Cherry Hill Elementary/Middle and Patapsco Elementary/Middle by meeting with both Principals, Tracey Garrett and Rita Mullally on January 18. Each Towson University faculty member will be working with specific grade level teachers and students every week until the end of the Baltimore City Public School's academic year.

Professional Reviews

Honi Bamberger reviewed an article for the NCTM Journal, Teaching Children Math and read, reviewed and made recommendations for 12 Mathematics Education Trust (MET) grant proposals for Equity in Mathematics at the Middle School level.

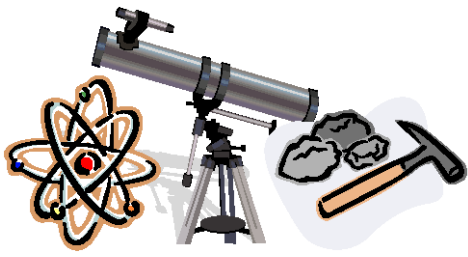
Raouf Boules served as a member of a panel that reviewed applications for the 2011 Air Force Summer Faculty Fellowship Program.

Raouf Boules refereed an article for the Journal of Signal, Image and Video Processing.

Service to the Discipline

Linda Cooper, Howard Kaplon and students in their respective spring 2011 sections of MATH 231 Basic Statistics are representing Towson University in a multi-institutional regional study sponsored by Ithaka, a not-for-profit research organization, investigating the effectiveness and satisfaction of a hybrid (online with recitation period) statistics course compared to a traditional statistics course. The online curriculum being used is part of Carnegie Mellon's Open Learning Initiative Project. Alexei Kolesnikov, Judith Macks, and Felice Shore met with students of three sections of MATH 231 the first day of class, introducing the study and soliciting volunteers.

Martha Siegel attended the Joint Mathematics Meetings in New Orleans, January 6-9, 2011, where she led an invited focus group of mathematicians who are involved with professional science masters-type programs. The focus of the discussion was the undergraduate mathematics curriculum that would be most advantageous for students pursuing these interdisciplinary and applied mathematics degrees. In her recent appointment as chair of the Mathematical Association of America Committee on the Undergraduate Program in Mathematics (CUPM), she also was an active participant in a similar focus group for graduate coordinators at Ph.D.-granting institutions at the same meetings and a discussion session at the American Mathematical Society Undergraduate Directors forum. CUPM is writing a new curriculum guide to majors in the mathematical sciences.



DEPARTMENT OF PHYSICS, ASTRONOMY & GEOSCIENCES

Dr. Eddie Loh has announced his retirement effective this spring. Dr. Loh has served the university for over 40 years. PAGS wishes him the best in his retirement.

In Fall 2010, Dr. Lottero-Perdue's cohort of Elementary Education/Special Education interns in Harford County developed, modified and taught six outdoor science lessons at Harford Glen Outdoor Environmental Education Center for the entire 3rd grade at Abingdon Elementary School. Approximately 120 children, 6 classroom teachers, and 30 parents spent the day at Harford Glen on November 21 from 9:15 a.m. to 2:45 p.m., rotating through lessons about weathering, erosion, landforms, sediment, and bodies of water that were related to the *Changing Earth* unit the interns taught for their SCIE 376 Teaching Science in the Elementary School course.



Two TU interns prepare students for their exploration of what is in the water at Harford Glen.

Grants and Grant Proposals

Dr. Lottero-Perdue is a co-PI on a proposal submitted to the National Science Foundation Discovery Research K-12 (DRK12) program entitled, "Exploring the Efficacy of Engineering is Elementary (E4)." The PI is Dr. Christine Cunningham, director of Engineering is Elementary at the Museum of Science, Boston, and a co-PI is Dr. Liz Parry, NC State University.

Dr. Lottero-Perdue's proposal, "Engineering Adventures: A Summer Camp Proposal for Harford Community College," was awarded by Harford Community College (\$4660) and funded by a major technical contractor in northeastern Maryland. Dr. Lottero-Perdue will teach two camps to elementary children in the summer of 2011 using *Engineering Adventures* (EA) curriculum created by the Engineering is Elementary (EiE) team at the Museum of Science, Boston. This is the pilot year for the EA curriculum; Dr. Lottero-Perdue and 20 other pilot year testers from across the country will provide the EiE team with important feedback about the EA curriculum.

Intelligence Community Postdoctoral Research Fellowship Program: Investigation of the limits of electromagnetic cloaking, \$358,721, submitted by PI Vera Smolyaninova.

Publications

Phuoc Ha's paper "Analytic solution to leading order coupled DGLAP evolution equations: A new perturbative QCD tool," co-authored with M. M. Block, L. Durand, and D. W. Mc Kay, has been accepted for publication as a regular article in [Physical Review D](#).

Dr. Lottero-Perdue submitted two single-authored papers for peer-review to the American Society for Engineering Education (ASEE). Both of these are related to her SySTEMic Project work:

“Classroom Teacher – Enrichment Teacher Pairs: Co-Teaching as a Means to Implement Elementary Engineering Education”

“Making Elementary Engineering Work: Lessons from Partnerships and Practice—The SySTEMic Project, Maryland”

Abstracts of these papers were accepted in Fall 2010, yet participation in the 2011 ASEE conference requires that full papers be accepted via a peer review process.

Vera N. Smolyaninova, Igor I. Smolyaninov, “Fluorescence Enhancement in a ‘Trapped Rainbow Waveguide Array,’” submitted to Journal of Applied Physics.

Miranda, R.J. (2010). “Urban middle school teachers’ beliefs about science learner characteristics: Implications for astronomy curriculum.” Astronomy Education Review, 9(1), 010117.

Presentations and Abstracts

Jan. 11, 2011: Undergraduate student Leanne Curtin presented a poster with Dr. Jennifer Scott and Dr. Charles Danforth of the University of Colorado at the American Astronomical Society Meeting in Seattle, WA entitled “Ionic Column Density Measurements Of Low Redshift Metal-Rich IGM Absorbers.”

Dr. Rommel Miranda presented his research paper entitled, “Investigating the influence of astronomer-educator partnerships on urban middle school students’ science learner characteristics,” at the 2011 The Association for Science Teacher Education International Conference in Minneapolis, Minnesota.

Dr. Ronald Hermann and Dr. Rommel Miranda presented a workshop entitled, “Implementing open inquiry: Ideas for engaging students,” at the 2010 National Science Teacher Association Regional Conference on Science Education.

Dr. Alex Storrs presented two posters at the 217th meeting of the American Astronomical Society in Seattle, WA the second week of January. One was titled “Observation of the LCROSS Impact with HST” and the other (in the education section) “Who’s Dropping Your Class?” Each had two student coauthors.

Community Engagement and Professional Service

Professional Development (PD) for all 3rd grade teachers in Harford County Public Schools to teach the *Motion, Energy & Mechanical Engineering* unit was completed on January 24, 2011. Dr. Lottero-Perdue was present at the professional development to provide support to the seven SySTEMic Project master teachers who provided the PD.

Pilot teachers for the 1st grade SySTEMic Project unit, *States of Matter and Chemical Engineering*, will be teaching the unit in the late winter/early spring. This involves approximately 30 classroom teachers and nine enrichment teachers across eight elementary schools in Harford County.

Dr. Lottero-Perdue is a reviewer for Project Lead the Way’s Principles of Engineering course workbook (Cengage Publishing).

Dr. Lottero-Perdue is a reviewer of four full papers submitted to the 2011 American Society for Engineering Education (ASEE) conference.

Dr. Reizelie Barreto offered hands-on activities to families during the Science Night Program at Pleasant Plains Elementary School. This afterschool program was coordinated by the Army Research Laboratory (ARL) and delivered by scientists from ARL and faculty members from Loyola University, Morgan State University, Stevenson University, and Towson University.

Dr. Reizelie Barreto received a Guest Researcher Invitation by the Army Research Laboratory. She will provide leadership and expertise in some outreach programs offered by the Army Research Laboratory.

Dr. Alex Storrs gave planetarium shows on December 17 and on January 21 at Towson University. He also did a show January 25 for a Montessori school.

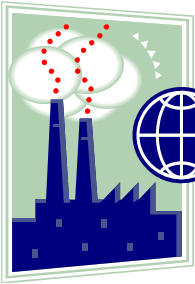
Dr. Rommel Miranda and Project ASTRO coordinator, Jim Reynolds, presented a workshop entitled, “Galileo’s Telescope and the Scientific Method,” at the 2010 Science and Mathematics Education Conference at Morgan State University.

Dr. Rommel Miranda served as a panel reviewer for the NSF Advanced Technological Experiences (ATE) Program; Washington D.C.

Dr. Rommel Miranda presented a portable planetarium show presented to 30 students (Grades K-5) at Tridelphia Ridge Elementary School, Ellicott City, MD.

Dr. Rommel Miranda served as the Local Manager of Services for People with Disabilities for the 2010 National Science Teacher Association Regional Conference on Science Education.

Dr. Vera Smolyaninova reviewed physics tests for American Institute for Research.



ENVIRONMENTAL SCIENCE AND STUDIES PROGRAM

On December 21, Matthew Jennette defended his Masters Thesis. His thesis, which he completed with a committee consisting of Dr. Joel Snodgrass as his thesis advisor and Drs. Don Forester and Richard Seigel as members of his committee, was entitled "Variation in age, body size, and reproductive traits among urban and rural amphibian populations."

On December 10, students completing the Senior Seminar class presented the results of their semester-long project to an appreciative audience including the Acting Chief of Parks, William Vondrasek, the Science Coordinator of the Baltimore City Public Schools, Dr. Katya Denisova and staff from the Baltimore City Office of Sustainability, Office of Planning, and Tree Baltimore, as well as students and faculty from Towson University. The project entitled "Releaf Baltimore" was very well received.

Dr. Denisova, the Science Coordinator of the Baltimore City Public Schools, has invited the students who completed the "Releaf Baltimore" project to present their findings to a group of Baltimore City teachers.

Dr. Wolfson, Director of Environmental Science and Studies, has been appointed the Chair of the Education Committee of the Maryland Agriculture Resources Council. She and the other members of the committee are developing public educational programs at the Baltimore County Center for Maryland Agriculture.

Dr. Lori Kiyatkin, Assistant Professor of Corporate Strategy and Entrepreneurship, Department of Management, College of Business and Economics, and Dr. Jane Wolfson are overseeing the activities of three students (two management, one environmental science and studies) who are collaborating on a project analyzing the economic and environmental effectiveness of a new energy retrofit training program initiative for Baltimore Center for Green Careers, a Civic Works project.



MOLECULAR BIOLOGY, BIOCHEMISTRY BIOINFORMATICS (MB3) PROGRAM

On January 12, Dr. Larry Wimmers assumed the Director position of the MB3 program, replacing Dr. James Saunders who had been Director of the MB3 program for almost seven years.

On November 6, November 20 and December 4 the MB3 club hosted refreshments and served as student role models for three Hackerman Academy Saturday Morning Science programs as part of the community outreach and public service commitment of Towson University.

On November 19, 2010 the MB3 club held the penultimate meeting of its fall seminar series. The first presentation was by John Marisicano discussing his research on “Tristetraprolin and ARE Binding Protein”. The second presentation was by Amy Ransier who discussed her research on the “Epigenetics of Diatoms.”

On December 3, the MB3 club held its final seminar featuring Hong-Weng Pang discussing his research “Investigating the role of DNA repair protein Thymidine DNA glycosylase in ER+ and ER- breast cancer cell lines” and Kaitlin Burgos who presented her bioinformatics research entitled “Transglutaminase 2 modifies collagen type XI to regulate chondrogenesis in human bone marrow stem cells.”

On December 3, Jim Saunders organized and served as Chair of a discussion panel for the White House Science and Policy Office sponsored Dupont Summit entitled “A Truce? Strategic Partnerships in Science Education Between Community Colleges and Four Year Institutions.” James A. Saunders, Thomas Burkett, Collins Jones, and Philip Rous (2010) The Dupont Summit, Report Card at Midstream: The Obama Administration Faces Science, Technology & Environmental Policy Issues, Carnegie Institution for Science, abstract published at http://www.psocommons.org/dupont_summit/2010/schedule/9/

On December 12, Jim Saunders secured a donation of 30 gallons of absolute ethanol from a local biotech company for research projects within Fisher College of Science and Mathematics.

Jim Saunders, Professor, in the Department of Biological Sciences and in the Department of Chemistry, was awarded (\$142,320) in a Maryland Industrial Partnership Grant (MIPS) in collaboration with a Baltimore-based Biotechnology company named Plant Sensory Systems LLC (www.plantsensorysystems.com) for a one year grant on developing pest-resistant soybeans. The grant is renewable for a second year of funding pending satisfactory progress in the first year.

Jim Saunders was awarded a Fulbright Senior Scholars grant to organize and direct a workshop in Fayoum University, Egypt from January 6–18 on Molecular Biology, Bioinformatics and Proteomics. Following the successful completion of the workshop, Dr. Saunders was awarded a plaque from the President of Fayoum University for his continued support of technology development at Fayoum University.

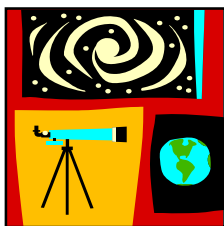
Jim Saunders presented an invited seminar entitled “Future developments in Biotechnology” to the faculty and students at Misr University for Science and Technology in Cairo, Egypt on January 19. Following the presentation, he was presented with a plaque from the President of Misr University for his involvement in helping to develop the curriculum in Biotechnology for the University and his support for higher education in Egypt.



CENTER FOR SCIENCE AND MATHEMATICS EDUCATION

The Center for Science & Mathematics Education hosted a professional development workshop for middle and high school teachers on January 22. The topic of the workshop was using online simulations to teach about water, carbon, and biodiversity. Brian Fath (BIOL) was a guest lecturer for the event.

The CSME co-sponsored a professional development workshop for early childhood educators on January 25 at Croyton Creek Nature Center in Montgomery County. Cindy Ghent (BIOL) facilitated the workshop.



HACKERMAN ACADEMY OF MATHEMATICS AND SCIENCE

Saturday Morning Science at Towson University

The Hackerman Academy Saturday Morning Science series continued its fall programs with a presentation on November 20, titled “Synaptic Fire! Activating the Brain and Body” by Karen Campbell Kuebler from the Department of Dance at Towson University. On December 5, Don Thomas presented the final fall program on “Commercial Space Travel: Reality or Just Science Fiction?”

The total attendance for the seven fall programs was 3,500.

The Spring 2011 Saturday Morning Science series started with a program on January 5 titled “The Day a Woodpecker Attacked the Space Shuttle” by Don Thomas. On January 19, Richard Anderson from the Snyder Foundation for Animals presented a program titled “Sharks!!!” to a near-capacity audience. Total attendance for these two programs was 950.



Richard Anderson from the Snyder Foundation for Animals brought plenty of shark specimens for the students to see up close at Saturday Morning Science.

Hands-On Science

Following each of the programs last fall and this spring, **Hands-On Science** activities were held for 25 elementary and middle school students. These hour-long activities allow the students to explore topics in more detail with themes related to each of the programs at Saturday Morning Science. On November 20 our Noyce Scholars prepared and led the hands-on activities. On December 5, January 5, and January 19 the activities were led by Mr. Ray Miller from the Aberdeen Proving Ground. The total attendance for the Hands-On Science activities this fall was nearly 200 elementary and middle school students.

Saturday Morning Science at Southside Academy

The Hackerman Academy held its inaugural Saturday Morning Science at Southside Academy program in Cherry Hill on January 19. The winter weather and school closures for Baltimore City Public Schools the prior week limited attendance to about 30, but it was a good start and it is anticipated that this series will gain momentum with increased attendance similar to the highly popular Saturday Morning Science series at Towson University. Following the presentation on “Living and Working in Space” by Don Thomas about 25 students participated in hands-on activities where they explored surface tension and why liquids form into round spheres when floating in space.

Outreach Activities

The Hackerman Academy visited the following schools, institutions, and community groups and made presentation on career planning, the Space Shuttle, spacesuit technology, and science in space reaching over 3,467 students, teachers, and family members, seniors, and community business leaders.

School Visits

- 11/16 Two presentations on living and working in space to 480 preK-5th graders at Spring Ridge Elementary School (Frederick County). Additionally a keynote presentation on "Achieving Your Dream" focusing on the importance of STEM education was presented to 170 students and parents as part of their STEM Night to showcase the various STEM activities at their school
- 11/19 Three presentations on living and working in space to 475 preK-8th grade students at Tench Tilghman Elementary/Middle School (Baltimore City) in cooperation with Dr. Honi Bamberger of the Math Department at Towson University.
- 11/22 Three presentations on living and working in space to 75 5th grade students at Thomas Jefferson Elementary School (Baltimore City).
- 11/23 Presentation on living and working in space to 98 students in grades 1-8 at The Summit School (Anne Arundel County) in cooperation with Dr. Honi Bamberger of the Math Department at Towson.
- 12/3 Presentation on living and working in space and spacesuit technology to 100 students in grades 9-11 at Clarksburg Hill School (Montgomery County) as part of the *Have Spacesuit Will Travel* Program.
- 12/15 Two presentations on living and working in space to 90 developmentally disabled students at Rock Creek School (Frederick County).
- 12/16 Presentation on living and working in space to 170 female students in grades 6-8 at The Roland Park County (Baltimore City).
- 12/20 Two presentations on living and working in space to 700 K-5th graders at Waterloo Elementary School (Howard County).
- 1/5 Two presentation on living and working in space to 724 students in grades K-5 at Hillcrest Elementary School (Baltimore County).
- 2/3 Presentation on space exploration to 150 preK-2nd grade students at the Immaculate Heart of Mary School (Baltimore County).

Additional Community Outreach

- 12/9 Presentation on living and working in space and STEM outreach at Towson University to 65 members of the Timonium regional Kiwanis Club.
- 1/3 Three part mini-course on Space Stations presented to 90 seniors at the Edenwald Retirement Center (Towson). Additional programs followed on 1/10 and 1/17.
- 2/1 Science fair mentoring at Maryland Science Center for 80 middle school students from Baltimore City Public Schools. This program is intended to encourage students to enter the Baltimore City Science Fair held at Morgan State and to help them develop their project ideas.

Guest Lectures at Towson University:

- 11/30 Guest lecturer for 15 undergraduates in the Career and Life Planning course discussing how to overcome obstacles in achieving your dream in life.
- 12/2 Guest lecturer for 15 undergraduates in the Career and Life Planning course discussing how to overcome obstacles in achieving your dream in life.
- 12/3 Guest moderator for student presentations and discussions in the undergraduate Bioethics course.

Advisory Board Participation

- 11/17 Scientific Advisory Council meeting for the Maryland Academy of Sciences.

- 1/19 Scientific Advisory Council meeting for the Maryland Academy of Sciences. At this meeting Don Thomas was elected vice chair of the Scientific Advisory Council and will become the chair of this council with a seat on the Board of Directors for the Maryland Science Center in 2012.
- 1/20 Gifted and Talented Education Advisory Board meeting for Baltimore City Public Schools.
- 1/26 Participated in the National Space Biological Research Institute five year review held in Houston, Texas.

Hackerman Academy in the News

- 12/16 Article titled "Gravity-defying: Retired Astronaut visits Rock Creek School" in the Frederick News-Post discussing the Hackerman Academy school visit on 12/15.
- 1/31 Featured guest on live 25 minute Maryland Public Television program called *Direct Connection* discussing the space shuttle program and STEM outreach activities at Towson University. This program will be rebroadcast on MPT numerous times during February and into March.



ROBERT NOYCE SCHOLARSHIP PROGRAM

In keeping with the Robert Noyce scholarship objective to promote professionalism among STEM teachers, the FCSM provides substantial annual monetary awards to students who want to become STEM teachers.

We are asking all faculty members to encourage students who are interested in becoming science or math teachers to apply for this prestigious award. In addition to financial support, the Robert Noyce Scholarship program will assist in cultivating students' personal and professional desire to become exceptional STEM educators.

We aim to produce outstanding STEM teachers and invite you to join us in achieving this goal. Applicants must apply by April 14th to be eligible for these awards.

You can find additional information about the program at <http://www.towson.edu/fcsm/Noyce/>. If you have any questions please contact us by email at noyce@towson.edu

Thank you for helping us to spread the word about this exciting opportunity!



TOPS (Towson Opportunities in STEM)

Programming

The TOPS Community celebrated another successful semester on December 10, 2010. This semi-annual event gives students a respite from the frenzied pace of finals week and allows their hard work throughout the semester to be recognized. Associate Dean Gail Gasparich and BEST Program Director Julie Damico joined in the festivities.

On-Campus Outreach

Annie McMahon was invited to attend a webinar coordinated by the Academic Advising Center. Due to technical difficulties the group was unable to remote into the session and chose to facilitate their own discussion. Annie shared the successes that the TOPS program has had retaining students and the framework of the TOPS Summer Experience. Members of the Academic Achievement Center and Residential Life staffs also participated in the rich discussion.

The Department of Housing and Residential Life invited Annie McMahon to participate in the Residential Assistant Training Program held on Friday, January 28. Annie worked with the Residential Assistant for the STEM Learning Community (and TOPS student) Leteisha Hunt to create new initiatives that will enhance the connections between the learning community and the TOPS Program.

On Tuesday February 22, from 12 pm-1 pm in Smith Room 340, Annie McMahon will facilitate a session entitled "Towson Opportunities in STEM: Creating Productive Learning Environments in FCSM." This session will be part of the larger "Tools for Inclusion: Succeeding in the Diverse Classroom" Workshop Series sponsored by the Education and Scholarship Working Group.