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# The University of Georgia

Spring 2009



The Interdisciplinary Toxicology Program at the University of Georgia is comprised of graduate students, faculty, staff scientists, and post-doctoral fellows from several departments within the University. The program is committed to a high quality graduate education and excellence in research, and both faculty and graduate students have received national recognition for their endeavors. Our goal is to provide strong interdisciplinary graduate training, research and service programs in toxicology. This is accomplished by encouraging cooperation and sharing of resources and faculty in the Colleges of Public Health, Pharmacy, Veterinary Medicine, Forestry and Natural Resources and Agricultural and Environmental Sciences.

Interdisciplinary Toxicology Program  
**DIGEST**

From the Director–

Fellow Colleagues,

Welcome to our annual newsletter from the Interdisciplinary Toxicology Program at the University of Georgia. This year the field of toxicology was propelled into visionary thinking with the implementation of REACH and the National Academies report on Toxicity Testing in the 21st Century. REACH (Registration, Evaluation, and Authorization of Chemicals) is a European Commission (EC) comprehensive program for increasing its regulation of chemicals. The REACH legislation is based on the “Precautionary Principal” which shifts the burden from Government to Industry for proving, prior to marketing, that the chemical can be used safely. The National Academies report calls on fundamental changes in how toxicology data are collected. Students training in toxicology will become stewards for implementing a host of new tools for environmental and human health assessments.

We have updated our curriculum by creating a new class dedicated to molecular toxicology and offering students one of three emphasis areas, Mechanistic Toxicology, Ecotoxicology or Computational Toxicology. We have new toxicologists in the program! Keith Harris, Department Head of Pathology, in the College of Veterinary Medicine, Nick Filipov, Associate Professor in Physiology and Pharmacology in the College of Veterinary Medicine, and JS Wang, Department Head in the Department of Environmental Health Science, College of Public Health.

The interdisciplinary toxicology program was reviewed by the University this year; a standard procedure for departments every 7 years. The review process involved faculty, students, alumni, and administrators. I am very happy to report that we fared very well with several positive comments about our students and faculty. Collectively we have been very successful in obtaining grants, publishing findings in peer-reviewed literature, winning awards at national society meetings, and providing travel support for students. Kudos for the faculty, staff and students!

Fund raising is critical for us to support our graduate students. Our annual spring retreat (featured on page 4) is funded by non-state funds. Please consider making a donation to support our spring retreat. No amount is too small! This meeting continues to be our capstone event for bringing together faculty and students. Students showcase their research by presenting either posters or power point presentations. We offer a meal and present awards to the top 3 posters and platform presentation.

Kind Regards,

*Dr. Jeff Fisher*



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# Fall Social



New students meet new faculty at the Fall Social

The ITP faculty and students welcomed each other to a new session with the Fall 2008 social at Flinchum's Phoenix, cabin courtesy of the Warnell School of Forestry and Natural Resources. The event was well attended by faculty and students, and it served as a good opportunity for new persons in the program to share experiences with, and learn more about the program and university from others.

All attendees enjoyed the relaxed atmosphere of the cabin and a beautiful Friday afternoon, and chatted over food and drinks that were served. This fall social was, as usual, a good and fun way to start another academic year.

## TOXICOLOGY SEMINAR

The ITP sponsored a series of very interesting seminars in the past year, delivered by accomplished researchers from across the country. Seminar topics were focused on current and emerging human health safety issues. Catered receptions were hosted by the program after each seminar, and students and faculty took advantage of the opportunity to chat with the presenters in a more casual setting.

/// Dr. Richard Bull, Professor Emeritus in Pharmacology/Toxicology, Washington State University : "Are current risk management strategies for chlorination by-product health protective?" September 11, 2008

/// Dr. James N. McDougal, Boonshoft School of Medicine, Wright State University, Dayton, OH: "Dermal Risk Assessment Practices." October 30, 2008

/// Dr. Ted Henry, Center for Environmental Biotechnology, University of Tennessee; Research Council of the United Kingdom; Academic Fellow of the University of Plymouth, UK: "Environmental Toxicology of Nanomaterials: Ethical Responsibilities of Toxicologists." April 17, 2009.

Look out for announcements for upcoming toxicology seminars!

## POSTER PRESENTATIONS

SUZANNE BAIRD: ACUTE AND SUBCHRONIC ENANTIOSELECTIVE TOXICITY OF FIPRONIL TO THE FATHEAD MINNOW (*PIMEPHALES PROMELAS*)

PERTER HAZELTON: EVALUATING THE EFFECTS OF EMERGING CONTAMINANTS ON REPRODUCTION IN FATMUCKET (*LAMPASILIS SILIQUOIDEA*)

HONGBO MA: PHOTOINDUCED ECOTOXICITY OF OF MANUFACTURED ZNO NANOPARTICLES UNDER NATURAL SUNLIGHT TO A FREE LIVING NEMATODE *CAENORHABDITIS ELEGANS* **1ST PLACE**

SHEP MARTIN: DEVELOPMENT OF A PBPK MODEL FOR A PROMINENT N-ALKANE, TETRADECANE, FOUND IN AVIATION FUELS JP-8 AND S-8 **2ND PLACE**

GUOQING QIAN: SERUM LEVELS OF AFLATOXIN B1-LYSINE ADDUCT IN A US POPULATION COMPARED TO A HIGH RISK POPULATION IN CHINA  
SUSIE RITGER: ADDRESSING PUBLIC EXPOSURE TO PRIORITY SOLVENTS USING HUMAN PBPK MODELS

BIN SUN: INHIBITION OF CALCIUM-INDEPENDENT PHOSPHOLIPASE A2 ACTIVATES MAP KINASE PATHWAYS DURING CYTOTOXICITY IN PROSTATE CANCER CELLS

The ITP hosted its annual one-day spring retreat on the 6th of March, 2009. The retreat is used as a platform to showcase the program and as an opportunity for students to present their research. The retreat was opened by a welcome address given by the Associate Dean of the Graduate School, Dr. Knauft, followed by an update on ITP given by the program's Director, Dr. Jeff Fisher. This year's keynote speaker was Dr. Greene Shepherd, Clinical Associate Professor, Emergency Medicine at the Medical College of Georgia who discussed current practice and research opportunities in the clinical management of chemical poisoning. After the keynote address, doctoral students, who won the opportunity, gave platform presentations describing current results and future directions of their research. Presentations were given by:

/// Cory Gresham, Warnell School of Forestry and Natural Resources  
"Using Transgenic Medaka and Mouse Models to Investigate Mutations in Offspring Transmitted by Female Germ Cells". Advisor Richard Winn (Best Platform Award)

/// Arena Richardson, Department of Environmental Health Science,  
"Mouse Models for *Cronobacter* (*Enterobacter*) *sakazakii* Infection in Premature Infants". Advisor: Mary Alice Smith

# SPRING TOXICOLOGY RETREAT



/// Susan Ritger, Department of Environmental Health Science,  
"Integration of Experimental and Computational Approaches to Modeling the ADMET of Triadimefon". Advisor: Jeff Fisher

The retreat then broke up for a poster viewing session. As is the tradition, the retreat closed out with lunch, during which awards were presented for best presentation and posters.

DENITA WILLIAMS: RISK ASSESSMENT FOR LISTERIA MONOCYTOGENES-INDUCED STILLBIRTHS BASED ON DOSE RESPONSE IN PREGNANT GUINEA PIGS NONHUMAN PRIMATES

SHUO XIAO: EFFECTS OF PERINATAL BISPHENOL-A EXPOSURE IN MICE

LI XU: PREDOMINANCE OF AFLATOXIN EXPOSURE IN RURAL RESIDENTS OF SOUTHERN GUANGXI, CHINA

XIAOLING ZHANG: CELLULAR AND MOLECULAR MECHANISM OF BROMATE-INDUCED TOXICITY IN RAT AND HUMAN KIDNEY CELLS **3RD PLACE**

POST-DOC:

RAPHAEL TREMBLAY: EVALUATION OF FECAL AND URINARY PRODUCTS AFTER INHALATION OF AEROLIZED S-8 SYNTHETIC JRT FUELS IN RATS

NIK ZITOMER: ISOLATION AND CHARACTERIZATION OF 1-DEOXYSPHIGANINE, A NOVEL SPHINGOID BASE THAT ACCUMULATES IN CELLS FOLLOWING FUMONISIN B1 INHIBITION OF CERAMIDE SYNTHASE

STUDENT SUBMISSION (NON-TOXICOLOGY):

BABATOPE FATUYI: ENVIRONMENTAL EXPOSURE TO THYROID DISRUPTING CHEMICALS: KEY CONSIDERATION FOR DEVELOPING A BBDR-HPT AXIS MODEL FOR THE PREGNANT MOTHER AND FETUS

# Support the Interdisciplinary Toxicology Program

We would like to take this opportunity to invite you to make a financial contribution to the UGA Toxicology Program. You can make a secure credit card contribution online ([www.toxicology.rx.uga.edu/contact.asp](http://www.toxicology.rx.uga.edu/contact.asp)). When doing so, please type Toxicology Program in the form where it says "Specify other/multiple gift areas and dollar amounts benefiting each." Doing so will ensure that your gift is directed to the Toxicology Program.

The Interdisciplinary Program in Toxicology Fund is a University of Georgia Foundation discretionary account supporting the activities of the Interdisciplinary Toxicology Program. It enables the Program to host internationally recognized speakers, hold conferences and workshops and provide support for graduate students to attend national meetings to present scientific results.

If you prefer to make a donation the old-fashioned way, please fill out our form on the reverse side, print it and mail it to:

Interdisciplinary Toxicology Program  
The University of Georgia  
N124 Paul D. Coverdell Center  
Athens, GA 30602-7396



Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

I would like to contribute to the University of Georgia Foundation. My gift will be designated for the Interdisciplinary Program in Toxicology Fund.

The Interdisciplinary Program in Toxicology Fund is a University of Georgia Foundation discretionary account supporting the activities of the Interdisciplinary Toxicology Program. It enables the Program to host internationally recognized speakers, hold conferences and workshops and provide support for graduate students to attend national meetings to present scientific results.

Funds of this type are essential to the expansion and success of this campus-wide interdisciplinary training program.

Enclosed is my gift for \$ \_\_\_\_\_

Signature: \_\_\_\_\_

Please send this form with your check, made payable to the University of Georgia Foundation, to the Interdisciplinary Toxicology Program, N124 Paul D. Coverdell Center, Athens, GA 30602.

You may also make a secure credit card donation via our website at

<http://www.toxicology.uga.edu>.

Thank you for your support of the program!

# PROFESSIONAL SOCIETIES

## Upcoming 2009 Toxicology Society Conferences



The Society of Toxicologic Pathology (STP) 2009 Annual Meeting, June 20–25, 2009, Marriott Wardman Park Hotel, Washington, D.C

The Teratology Society 2009 Annual Meeting, June 27–July 2, 2009, The Westin Rio Mar Beach, Rio Grande, Puerto Rico.

Society of Environmental Toxicology and Chemistry North America 30th Annual Meeting, November 19-23, 2009, New Orleans Hilton Riverside, New Orleans, LA

Society of Toxicology 2010 Annual Meeting, March 7-11, 2010, Salt Palace Convention Center, Salt Lake City, UT

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## Society of Toxicology

The 48th annual meeting of the Society of Toxicology (SOT) took place in Baltimore, MD from March 15-19, 2009 and was attended by faculty and students from the ITP. Students and post docs were supported with the program's travel funds, and many of them made poster presentations. The meeting was attended by about 6,000 scientists from all over the world, and more than 2000 workshops, posters and platform presentations were delivered. Bin Sun, an international ITP PhD student who was attending his second SOT meeting had a better experience this time around: "I had chances to talk with people whose research interests were close to ours." He was very happy that many people found his poster very engaging. Another ITP PhD student, Shep Martin, was presented with the 'Outstanding Leadership' award at the conference for his work on publicity for the annual meeting, and the creation and evaluation of surveys of member interests and concerns. Shep is currently the Student Representative for the Risk Assessment Specialty Section (2007-2009) and serves on two SOT committees.



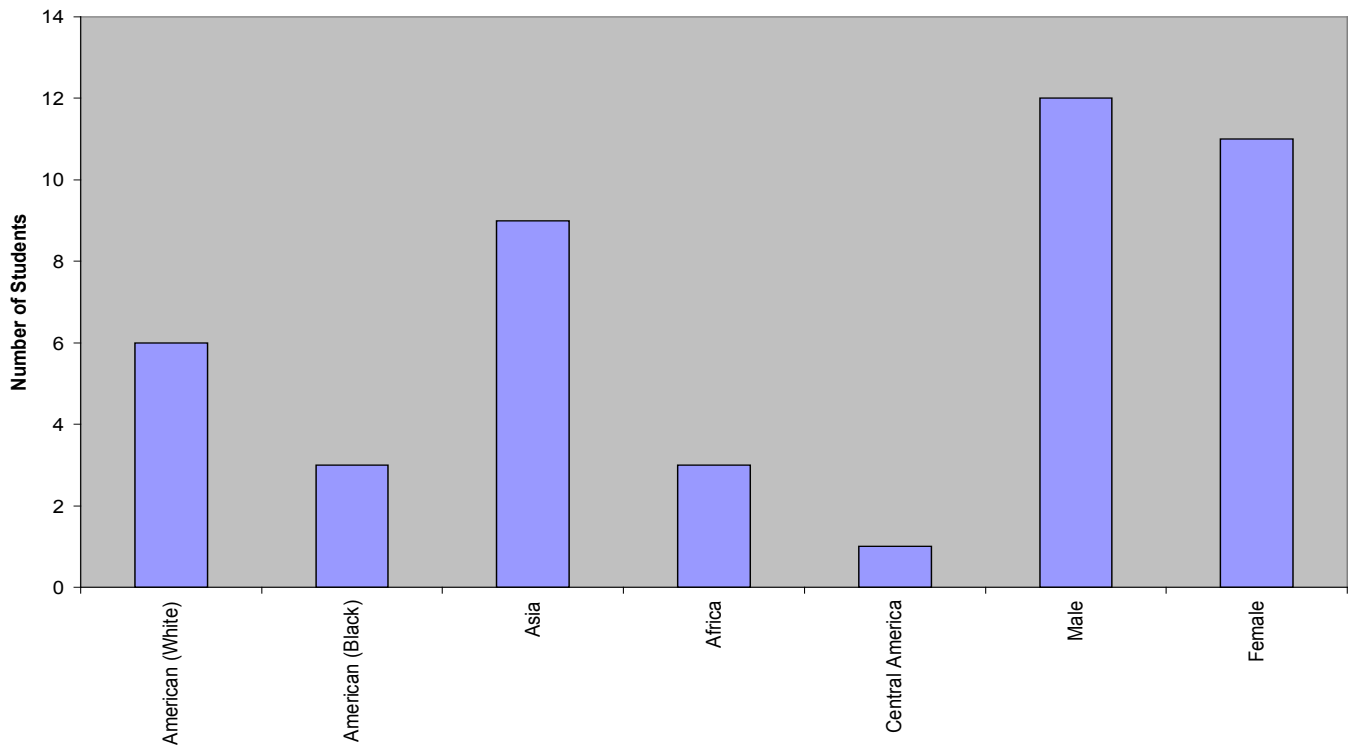
Despite the not too pleasant weather in Baltimore during the conference, attendees still used their time away from the conference to explore the city. Some used the opportunity of Baltimore's proximity to Washington DC to tour the nation's capital and see its many important monuments.

Shep Martin (2nd from left) receiving the "Outstanding Leadership Award" at the SOT

# PROGRAM INFORMATION

The ITP is a truly interdisciplinary and diverse graduate program. The program which is run out of the Graduate School of the University of Georgia is supported by resources and faculty from six colleges within the university. Forty-nine professors across the various colleges and departments affiliate with the program; teach toxicology classes and/or supervise ITP graduate students. Currently, there are 20 PhD and 3 masters students from all over the world in the program. Students' classroom, field and laboratory experiences are enriched by the diversity of backgrounds of their colleagues and faculty that participate in classes and research in the ITP.

**Student Demographics**



**Affiliated Faculty by College**

College	Agric. and Environmental Science	Family and Consumer Science	Forestry	Pharmacy	Public Health	Veterinary	Outside
Number of Faculty	4	2	2	14	10	14	3



# PROGRAM INFORMATION

The ITP supports attendance at academic conferences through its **travel funds**. This past year, many graduate students and post docs in the ITP received money from the funds and gave platform and poster presentations of their research at various conferences.

## **Society of Toxicology Annual Meeting**

A. Shep Martin

“Development of a Rat PBPK Model for a Prominent N-Alkane, Tetradecane, Found in Aviation Fuels JP-8 and S-8”

B. Susan Ritger

“Addressing Public Exposures to Priority Solvents Using Human PBPK Models”

C. Xu Li

“Predominance of Aflatoxin Exposure in Rural Residents of Southern Guangxi, China”

D. Bin Sun

“Inhibition of Calcium-Independent Phospholipase A2 Activates MAP Kinase Signaling During Cytotoxicity in Prostrate Cancer Cells”

E. Raphael Tremblay

“Evaluation of Fecal and Urinary Excretion Products after Inhalation of Aerolized S-8 Synthetic Jet Fuel in Rats”

F. Guoqing Qian

“Serum Levels of Aflatoxin B1-Lysine in a US Population Compared to a High Risk Population in China”

## **Freshwater Mollusk Conservation Society Meeting**

Peter Hazelton

“Evaluating the Effects of Emerging Contaminants on Reproduction in Fatmucket (*Lampsilis Siliquoidea*)”

## **American Society of Microbiology**

Leena Malayil

“Reservoir of the CTX Gene in a Non-Cholera Endemic Coastal Area”

## **International Association for Food Protection (IAFP) annual meeting**

Arena Richardson

“Invasion of *Enterobacter sakazakii* strains MNW2 and SK81 in neonatal mice”

## **49th Annual Teratology Society Meeting to be held in Puerto Rico**

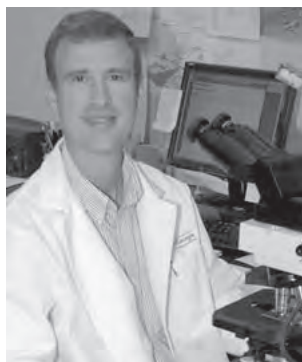
Denita Williams

Risk Assessment for *Listeria monocytogenes*-induced stillbirths based on dose response in pregnant guinea pigs and nonhuman primates.”

# FACULTY NEWS



The ITP welcomed several new faculty recently, while current faculty have been hard at work continuing advancement in the field of toxicology!



The ITP would like to welcome **Dr. Bruce LeRoy** to the program. Dr. LeRoy is a professor in the Department of Veterinary Pathology in the College of Veterinary Medicine. He joined the ITP in 2008. His research interests are canine and human prostate cancer, specifically assessing the utility of molecular biomarkers to improve diagnosis and detection of prostate cancer in dogs. His laboratory is also investigating the pathogenesis of osteoblastic metastasis of prostate cancer and the effects of cyclooxygenase-2-inhibition on prostate cancer, growth, invasion, and metastasis. Dr. LeRoy teaches Clinical Pathology, Diagnostic Pathology, Cytology Practicum, Cell Pathology and other courses.

## College of Veterinary Medicine

**Dr. Jia-Sheng Wang** currently serves as professor and head for the Department of Environmental Health Science, College of Public Health. Prior to his recruitment to UGA, Dr. Wang served as professor and division leader at the Department of Environmental Toxicology and The Institute of Environmental and Human Health, Texas Tech University. He obtained his MD in preventive medicine from Shanghai First Medical College and a Ph.D. in Pathology and Immunology from Boston University; he did postdoctoral research as a NIEHS fellow at the Johns Hopkins University. He worked as a visiting scientist at the Division of Toxicology in Massachusetts Institute of Technology, and as a senior research associate and research assistant professor at Johns Hopkins University School of Public Health. Dr. Wang is a full member of many professional societies. He is the president of SOT Food Safety Specialty (2009-2010) and the president of American Association of Chinese in Toxicology (2009-2011). Dr. Wang joined the ITP in 2008.



## Environmental Health Science



**Dr. John E. Vena** was appointed Head of the Department of Epidemiology and Biostatistics and University of Georgia Foundation Professor of Public Health in the College of Public Health in August 2008. He served as Professor and Chair of the Department of Epidemiology and Biostatistics at the Arnold School of Public Health, University of South Carolina. Dr. Vena was Professor of Social and Preventive Medicine at the State University of New York at Buffalo, School of Medicine and Biomedical Sciences and a research fellow at Roswell Park Cancer Institute (1981-2003) and Director of the Environment & Society Institute (1999-2003). Dr. Vena received his B.S. in Biology from St. Bonaventure University; his M.S. and Ph.D. degrees in Epidemiology from the State University of New York at Buffalo. He is a full member of many professional societies and a Fellow of the American College of Epidemiology. He currently serves on the Governing Council for Epidemiology for APHA. He has published extensively in the field of environmental and occupational epidemiology, lung, breast, and bladder cancer epidemiology. Dr. Vena teaches courses in epidemiologic methods and applications in occupational and environmental health. Dr. Vena joined the ITP in 2008.

## Epidemiology

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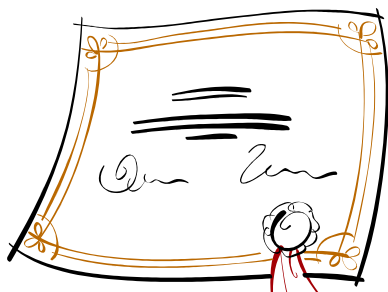


The ITP also welcomes **Dr. Keith Harris** to the program and UGA. Dr. Harris joined the University from Wyeth Research in Chazy, NY, where he served in several roles including the Vice President for Bioresources, R&D and Assistant Vice President for Pathology and Bioresources, Drug Safety. He was appointed the Head of the Department of Pathology, College of Veterinary Medicine and the first holder of the Barry G. Harmon Professorship in Veterinary Pathology in the Fall of 2008. Dr. Harris is a nationally recognized leader in pathology and has headed veterinary pathology departments in the United States Armed Forces and at several international pharmaceutical corporations. Dr. Harris also oversees the Georgia Veterinary Diagnostic Laboratories in Athens and Tifton with two other directors. He joined the ITP in 2008.

## College of Veterinary Medicine

# FACULTY NEWS

## FACULTY AWARDS



### **Dr. Ron Riley**

USDA-Agricultural Research Service South Atlantic Area Senior Research Scientist of the Year award (2008)

### **Dr. Marsha Black**

US EPA STAR, \$383,375, (March 2009- Feb. 2012)

"Environmental behaviors of solubilized carbon nanotubes in aquatic systems: transformation, sorption and toxicity exposure"

Co-PIs: Qingguo Huang, Zhengwei Pan and Marsha Black

## FACULTY OVERSEAS RESEARCH



Dr. Naeher (left) at a result presentation meeting in Peru. Dr. Phil Williams is to his right.

The University of Georgia is involved in research work in foreign countries and the ITP is no exception. Since 2002, an ITP affiliated EHS Associate Professor Dr. Luke Naeher has conducted studies to help understand indoor and outdoor air quality issues and exposure to air pollutants among various populations in Peru. Peru, like many other developing countries with economies largely dependent on the trade of natural resources, lacks a sophisticated framework for environmental management and regulation. The problem is exacerbated by lack of resources and research that would help generate information for solving the problem. Dr. Luke Naeher has been helping to fill this gap. Specifically, he has been studying traffic exposure among bus drivers and indoor exposure to woodsmoke among women in various cities and rural areas of the country.

This April, Dr. Naeher traveled with a team to Peru to present results of a stove intervention study conducted last summer in two towns, Chaguin and Huyatan. Results indicate that the intervention programs were effective at reducing indoor exposure to woodsmoke, and consequent acute health responses in study subjects. This study produces the first set of scientific data to support the country's stove intervention policy.

Dr. Naeher continues to conduct research work in Peru. Currently, he is conducting exposure and health studies for traffic exposures in Lima, and investigating exposure and health changes post stove intervention activities in San Marcos.

## ITP POST DOCS....

**Dr. Raphael Tremblay** obtained his B.Sc. in Chemistry from McGill University in Montreal. Following his interest in environmental science, he joined the graduate program at the Rosenstiel School of Marine and Atmospheric Science of the University of Miami. His Ph.D. in Marine and Atmospheric Chemistry focused on the study of organic composition of size-segregated aerosols and its use as a tool to trace anthropogenic pollution sources. Raphael joined the Environmental Health Science Department as a Postdoctoral Associate in 2007 bringing his expertise in atmospheric and analytical chemistry to Dr. Fisher's lab. Some of his current work focuses on data generation for PBPK modeling which involves characterization of laboratory generated fuel vapors and aerosols and method development for the quantification of fuel components in animal tissues. When not working, Raphael enjoys photography, camping and hiking and is an active cave diver.



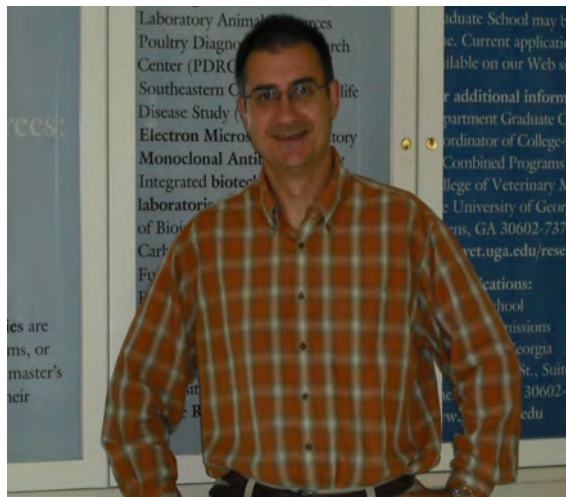
## AND UNDERGRADS!



**Joseph Rimando** is an undergraduate student conducting research in Dr. Ralph Tripp's lab with CURO (Center for Undergraduate Research Organization) funding support from the ITP. His research focuses on determining whether glycosaminoglycans (GAGS) on immune cell membranes enhance the binding of Respiratory Syncytial Virus (RSV) by its G-protein to CX3CR1 receptors on the cell. He is also investigating the specific GAGS that may be responsible for the enhanced binding. RSV is a major cause of lower respiratory tract illness in infants, young children, the elderly and the immunocompromised. Joseph's research will aid Dr. Tripp's studies designed to understand the cellular pathogenesis of RSV and develop effective vaccines and antiviral treatments against the disease.



# GRADUATE UPDATES



**Dr. Nikolay Filipov** was among the first graduates of the ITP PhD program in 1998. He is currently an Associate Professor in the Department of Physiology and Pharmacology which he joined in 2008. After graduating from the ITP, he worked as a post doc with the New York State Department of Health. He later joined Mississippi State University as an Assistant Professor in 2001, and became an Associate Professor in 2007.

Dr. Filipov says it was natural to come back to work at the University of Georgia. He has fond memories of his time at UGA as a student where he also obtained his Masters of Science degree in Physiology.

Dr. Filipov, who always wanted to have a career in academics, seeks to impart his students with a passion for science and research and the value of perseverance. He identifies the emergence of new measurement technologies, proteomics and metabolomics as some of the tools that have had the most profound impact on toxicology since he completed his program at UGA. The success tool-kit he will give to students in the program is to “have a solid foundation in basic knowledge and keep abreast of new technology”.

His research interests include inflammation and neurodegeneration; neuro-endocrine-immune communication in health and disease; and age-environment-gene (protein) interaction in neurodegeneration. Dr. Filipov joined the ITP in Fall 2008, and the program is welcoming him on board.

# NEW GRADUATES



The ITP would like to congratulate the following students who graduated in the past year



Tatiana Donata Burns (PhD)  
Advisor: Ken Voss  
PBS

Curtis Andrew Harris (PhD)  
Advisor: Cham Dallas  
PBS

Brooks Mcphail (PhD)  
Advisor: Jim Bruckner  
PBS

Lakshmi Kelemangalath (PhD)  
Advisor: John Wagner  
Phys/Pharm

David Robert Rouse (MS)  
Advisor: Jay Overmyer  
Entomology

William Shoults-Wilson (PhD)  
Advisor: Marsha Black  
EHS

Michelle Warner Norris (MS)  
Advisor: Richard Winn  
Forest Resources

Junshan Qiu (PhD)  
Advisor: Jim Bruckner  
PBS

Matthew Aaron Taylor (PhD)  
Advisor: Duncan Ferguson  
Phys/Pharm

# STUDENT NEWS

## STUDENT AWARDS



### **Arena Richardson**

Second Place Award for Poster Presentation -  
University of Georgia's Center for Food Safety Annual Meeting (March 2009),  
Third Place Award in the Developing Scientist Poster Competition  
International Association for Food Protection (IAFP) annual meeting (August  
2008)

Arena studies a rare the bacterium, *Enterobacter sakazakii* (*E. sakazakii*) in animal models. Arena's research was featured in the winter 2009 edition of the Graduate School Magazine. The article can be read online at <http://www.uga.edu/gradschool/news/winter2009/richardson.pdf>.  
Advisor: Dr. Mary Alice Smith

### **Denita Williams**

First Place Award for Poster Presentation -  
University of Georgia's Center for Food Safety Annual Meeting (March 2009),  
Outstanding Teaching Assistant Award for the University of Georgia

Denita's research focuses on the development and use of the pregnant guinea pig as an oral route model for human listeriosis due to *Listeria monocytogenes* infection. She is investigating the immunological effects of infection on the fetus as well as the invasive capabilities of the pathogen using in vitro studies.  
Advisor: Mary Alice Smith

### **Shep Martin**

Winner: SOT 2009, Student Advisory Council: Outstanding Leadership Award,  
Acknowledgement for 2007-2009 (2yrs) tenure as Society of Toxicology, Risk Assessment  
(Specialty Section: Graduate Student Representative)

Shep's research deals with the development of Physiologically-Based Pharmacokinetic (PBPK) models for complex hydrocarbon mixtures and selected individual hydrocarbon constituents following inhalation exposure in the rat.  
Advisor: Jeff Fisher

### **Cory Gresham**

Best Student Poster -  
39th Annual Meeting of the Environmental Mutagen Society; Genes and the Environment, from Molecular Mechanisms to Risk

Cory's research investigates the role of the oocyte in transmitting genetic damage to offspring. His work utilizes transgenic animal models to investigate mutations in offspring of mutagen exposed parents.  
Advisor: Richard Winn



# ITP Snapshots!



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