



IGB NEWS

Upcoming Events
Monthly Profiles
Happenings at IGB

Image Of The Month

IP @ IGB

Department Announcements

Volume 9 Number 8

UPCOMING EVENTS

IGB Art of Science Exhibit

IAA Credit Union
January 3 to February 28, 2017
808 IAA Drive, Bloomington, IL

IGB Seminar (GEGC)

Title to be Announced
January 17, 2017, 12:00 p.m.
612 Carl R. Woese Institute for Genomic Biology

Patrick J. Brown, PhD
University of Illinois Urbana-Champaign
Department of Crop Sciences

IGB Seminar (ACPP)

Title to be Announced
January 24, 2017, 12:00 p.m.
612 Carl R. Woese Institute for Genomic Biology

Cheryl London, DVM, PhD
The Ohio State University
College of Veterinary Medicine

IGB Seminar (MMG)

Title to be Announced
January 31, 2017, 12:00 p.m.
612 Carl R. Woese Institute for Genomic Biology

Paul Jensen, PhD
University of Illinois, Urbana-Champaign
Department of Bioengineering

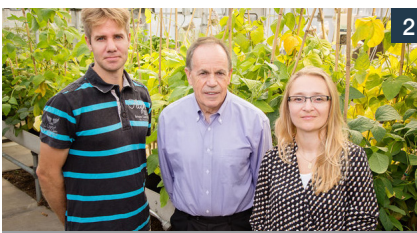
IGB Postdoctoral Association

Understanding the Academic Job Search
February 2, 2017, 12:00 p.m.
612 Carl R. Woese Institute for Genomic Biology

Alexis Thompson
Assistant Dean of Graduate Student
Development and Postdoctoral Affairs
Graduate College
University of Illinois at Urbana-Champaign

Come at 11:45 for pizza and socializing!

FEATURED NEWS



2

Scientists tweak photosynthesis to boost crop yield



3

Effects of European contact on First Nations peoples



4

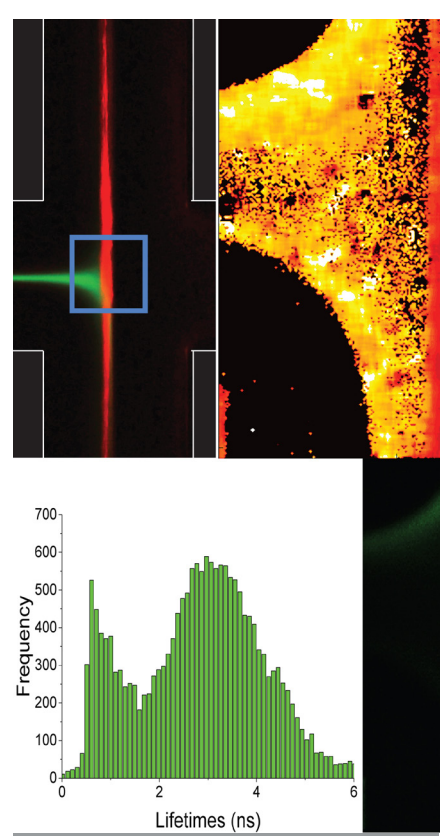
Monthly Profile:
Susan Schantz



5

On the Grid:
Happenings at IGB

IMAGE OF THE MONTH



Fluorescence lifetimes provide a valuable tool for distinguishing among fluorescing species where more traditional means such as intensity or spectral signature may be insufficient. In these images, a Zeiss LSM 710 microscope was used in conjunction with fluorescence lifetime imaging (FLIM) from ISS to measure lifetimes *in-situ* as an oligopeptide assembled in a microfluidic device. Image courtesy of Lawrence Valverde from Brenda Wilson's Lab.

IGB News

Share your news with the IGB. Send ideas on stories, articles, and features to nvasi@illinois.edu.



Scientists tweak photosynthesis to boost crop yield

Researchers report in the journal *Science* that they can increase plant productivity by boosting levels of three proteins involved in photosynthesis. In field trials, the scientists saw increases of 14 percent to 20 percent in the growth of their modified tobacco plants. The work confirms that photosynthesis can be made more efficient to increase plant yield, a hypothesis some in the scientific community once doubted was possible.

Many years of computational analysis and laboratory and field experiments led to the selection of the proteins targeted in the study. The researchers used tobacco because it is easily modified. Now they are focusing on food crops.

“We don’t know for certain this approach will work in other crops, but because we’re targeting a universal process that is the same in all crops, we’re pretty sure it will,” said University of Illinois plant biology and crop sciences professor Stephen Long, who led the study with postdoctoral researchers Katarzyna Glowacka and Johannes Kromdijk. ([Watch a video about the research.](#))

The team targeted a process plants use to shield themselves from excessive solar energy.

“Crop leaves exposed to full sunlight absorb more light than they can use,” Long said. “If they can’t get rid of this extra energy, it will actually bleach the leaf.”

Plants protect themselves by making changes within the leaf that dissipate the excess energy as heat, he said. This process is called nonphotochemical quenching.

“But when a cloud crosses the sun, or a leaf goes into the shade of another, it can take up to half an

hour for that NPQ process to relax,” Long said. “In the shade, the lack of light limits photosynthesis, and NPQ is also wasting light as heat.”

Long and former graduate student Xinguang Zhu used a supercomputer at the National Center for

Stephen P. Long, a professor of crop sciences and of plant biology, center, with postdoctoral researchers Johannes Kromdijk, left, and Katarzyna Glowacka, increased plant yield by altering a mechanism plants use to protect themselves from excess solar energy.

Supercomputing Applications at the U. of I. to predict how much the slow recovery from NPQ reduces crop productivity over the course of a day. These calculations revealed “surprisingly high losses” of 7.5 percent to 30 percent, depending on the plant type and prevailing temperature, Long said.

Long’s discussions with University of California, Berkeley researcher and study co-author Krishna Niyogi – an expert on the molecular processes underlying NPQ – suggested that boosting levels of three proteins might speed up the recovery process.

To test this concept, the team inserted a “cassette” of the three genes (taken from the model plant *Arabidopsis*) into tobacco.

“The objective was simply to boost the level of three proteins already present in tobacco,” Long said.

The researchers grew seedlings from multiple experiments, then tested how quickly the engineered plants responded to changes in available light.

Two of the modified plant lines consistently showed 20 percent higher productivity, and the third was 14 percent higher than the unaltered tobacco plants.

“Tobacco is grown for its leaves, which were substantially increased,” Kromdijk said. “But in food crops, it will be whatever we eat from the plant – the fruit, the seeds or the roots – that we will need to increase.”

“Now we can do this genetically, and we are actively working on repeating our work in various food crops,” he said.

“This finding offers some rare good news at a time of dire forecasts of future food shortages,” Glowacka said.

“The United Nations predicts that by 2050 we’re going to need to produce about 70 percent more food on the land we’re currently using,” Long said. “My attitude is that it is very important to have these new technologies on the shelf now because it can take 20 years before such inventions can reach farmer’s fields. If we don’t do it now, we won’t have this solution when we need it.”

The Bill and Melinda Gates Foundation funded this research, with the stipulation that any new agricultural products that result from the work be licensed in such a way that the technology is freely available to farmers in poor countries of Africa and South Asia.

This work was conducted as part of the Realizing Increased Photosynthetic Efficiency program at the IGB. ■

Written by Diana Yates. Photo by L. Brian Stauffer. Read additional coverage in [The New York Times](#).



For First Nations peoples effects of European contact are recorded in the genome

A study of the genomes of 25 individuals who lived 1,000 to 6,000 years ago on the north coast of present-day British Columbia, and 25 of their descendants who still live in the region today, opens a new window on the catastrophic consequences of European colonization for indigenous peoples in that part of the world. The study is reported in the journal *Nature Communications*.

“This is the first genome-wide study – where we have population-level data, not just a few individuals – that spans 6,000 years,” said University of Illinois anthropology professor Ripan Malhi (above), who co-led the new research with former graduate student John Lindo (now a postdoctoral researcher at the University of Chicago) and Pennsylvania State University biology professor Michael DeGiorgio.

The research team included members and representatives of the Canadian aboriginal communities of the Lax Kw’alaams and Metlakatla First Nation, Coast Tsimshian people whose oral histories indicate they have lived in the region for millennia. A previous study by Malhi and representatives of these First Nations showed a direct maternal link between ancient individuals buried in the region and the indigenous people living there today, an ancestry long claimed by the Metlakatla First Nation, one of the groups that participated in the study.

The new study confirms the previous findings by analyzing the exome, the entire collection of genes that contribute to a person’s traits.

“Oral traditions and archaeological evidence to date have shown that there has been continuous aboriginal occupation of this region for more than 9,000 years. This study adds another layer of scientific data

linking the actual ancestral human remains to their modern descendants through their DNA over a span of 6,000 years,” said Barbara Petzelt, an author of the study and a liaison to the Metlakatla community. “It’s exciting to see how this tool of DNA science adds to the larger picture of Coast Tsimshian pre- and post-contact history – without the taint of historic European observer bias.”

In the new study, the team found that variants of an immune-related gene that were beneficial to many of those living in the region before European contact proved disadvantageous once the Europeans arrived.

The genomes of a majority of the ancient individuals contained alleles, or variants, of the HLA-DQ gene that differed from the variants that today are common in their descendants, the researchers found. Statistical analyses revealed that the ancient variants were under “positive selection” before European contact. This means that those variants helped the native peoples survive and thrive in northwest North America.

However, those same HLA-DQ alleles suffered a dramatic decline in the indigenous population about the time the Europeans arrived, the researchers found.

“The modern individuals show a marked decrease in the frequency of the associated alleles,” the researchers wrote.

“One of the alleles is 64 percent less common today than it was before European contact, which is a dramatic decline,” Lindo said.

Further analyses pointed to a steep population decline among the ancestors of modern Coast Tsim-

shian, a “reduction in effective population size of 57 percent,” the researchers reported. This dramatic die-off occurred roughly 175 years ago, about the time that European diseases were sweeping through native groups in that part of North America.

“First Nations history mainly consists of oral stories passed from generation to generation. Our oral history tells of the deaths of a large percentage of our population by diseases from the European settlers. Smallpox, for our area, was particularly catastrophic,” said Joycelynn Mitchell, a Metlakatla co-author on the study. “We are pleased to have scientific evidence that corroborates our oral history. As technology continues to advance, we expect that science will continue to agree with the stories of our ancestors.”

The researchers tested several other hypotheses that might explain the dramatic decline of those ancient alleles.

“The only scenario compatible with this stark change in diversity is negative selection, suggesting that previously advantageous HLA-gene variants became disadvantageous, possibly contributing to the population decline that occurred upon European contact,” DeGiorgio said.

“We knew the history of this group through archaeological evidence, oral histories and written histories,” Malhi said. “And now we also know it through genomic data.”

The National Science Foundation, the U. of I. Office of the Vice Chancellor for Research and the Eberly College of Science at Pennsylvania State University supported this research. ■

Written by Diana Yates. Photo by L. Brian Stauffer.

MONTHLY PROFILE



Susan Schantz is Professor of Comparative Biosciences; she is a member of the Beckman Institute for Advanced Science and Technology, the Neuroscience Program, and the Carl R. Woese Institute for Genomic Biology. She directs the NIEHS Training Program in Endocrine, Reproductive and Developmental Toxicology and the NIEHS-USEPA Children's Environmental Health Research Center at Illinois.

Susan Schantz: Working toward a cleaner, safer world

The advice that Susan Schantz (MME) gives after many years directing a training program for pre-doctoral and postdoctoral fellows could easily be expanded to a philosophy for all areas of research.

"I've tried to not exactly re-invent ourselves, but to make sure that every time we go in for competitive renewal . . . I try to make it new," Schantz said, describing her approach to renewing the NIH grant that funds the program for junior researchers in environmental toxicology. "[Each time,] we have something that's new and exciting about the way we're going to do it."

Since she joined the Illinois College of Veterinary Medicine Department of Comparative Biosciences in 1990, Schantz has applied this forward-looking attitude to her own research. Her laboratory uses a broad array of approaches to investigate the biological impact of environmental toxicants, particularly those that disrupt hormonal signaling.

Schantz' work has examined a range of environmental chemicals, including polychlorinated biphenyls (PCBs), bisphenol A (BPA), and phthalates. She has worked with a diverse set of animal models and human subjects to better understand how these and other substances affect wellbeing, particularly neural and cognitive health.

"I've done a lot of different projects over the course of my career, from working with elderly people to working with babies, which I'm doing now, and pregnant moms," Schantz said. "I've always been very interdisciplinary; I started out in psychology as an undergraduate student, so I've always been interested in brain and behavior, but then I went into environmental toxicology for my PhD, so I've melded those two interests together in everything I do."

Schantz completed her PhD at the University of Wisconsin-Madison, investigating reproductive toxicology in primates. In her postdoctoral work at Wayne State University, she drew on her dual academic interests in an epidemiological study that

looked for health effects of environmental contaminant exposure in young children.

In her present research, working with animal models such as rats allows Schantz to do more controlled studies and accumulate data more quickly than would be possible in a study of human sub-

"We were really interested in the gut-brain axis idea and whether the microbiome could be a mediator for chemical exposure to be affecting the brain."

jects; by combining the mechanistic understanding that comes from these studies with her epidemiological research, she is also to form a more complete picture of how different environmental toxicants act on human populations.

Recently, Schantz' interest in pursuing new ideas and using novel approaches led her to join a nascent research theme at the IGB, Microbiome Metabolic Engineering (MME). The team is focusing on how human health and nutrition are influenced by microbiomes, the communities of diverse microscopic organisms that live in and on the body. Several years ago, Schantz became interested in how the gut microbiome interacts with chemicals from the external environment and how these interactions affect health; in one of her projects that focuses on infant health, she has already begun collecting stool samples to investigate this relationship.

"The main focus of the study is neurodevelopment and how prenatal exposures might be affecting neurodevelopment, so we were really interested in the gut-brain axis idea and whether the microbiome could be a mediator for chemical exposure to be affecting the brain," she said. The MME theme, she explained, will have "a toxicology angle to it, not just in terms of human studies, but also other approach-

es that we might take to look at how environmental exposures could be affecting the microbiome; cell systems, animal models, and then also human studies."

Two other major endeavors Schantz has recently joined are expanding the scale of her work and its ability to directly address societal challenges. This fall, Schantz and colleagues at the University of Illinois and the University of California, San Francisco were granted \$2.9 million by the NIH to participate in a nation-wide initiative to quantify the effects of environmental exposures on child health.

The NIH-funded effort, Environmental influences on Child Health Outcomes (ECHO), aims to bring together scientists like Schantz and find an effective way to combine their separate research cohorts and questions. Schantz, for example, will receive neurodevelopmental and cognitive data from other study groups within ECHO, and in exchange will collect and share data on a wide range of health measures with her own study group.

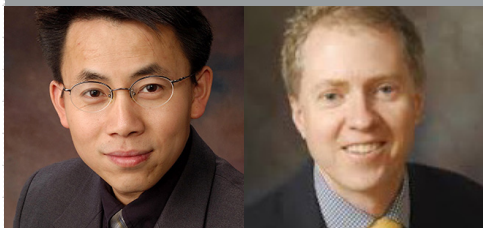
Schantz is also involved in Project TENDR (Targeting Environmental Neuro-Developmental Risks), a collaborative effort that brings together scientists, health professionals, and environmental activists to address concerns over environmental toxicants and their impact on human health. Schantz feels a sense of responsibility to use her expertise in environmental toxicology to help ground the group's decisions and actions in scientific fact.

"I've always taken the attitude until recently, just do the best research you can in this field, and then let policy-makers take that work and run with it . . . two years ago, I was asked to join Project TENDR, which is trying to do just that," Schantz said. "We need to take more responsibility to make sure the science gets out, and that it gets out accurately." ■

Written by Claudia Lutz. Photo courtesy of College of Veterinary Medicine.

ON THE GRID HAPPENINGS AT THE IGB

AWARDS



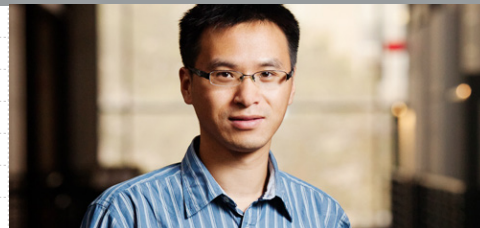
JIANJUN CHENG & BRIAN CUNNINGHAM

Jianjun Cheng, Professor, Materials Science and Engineering (RBTE) and Brian Cunningham, Professor, Electrical and Computer Engineering (ONC-PM Theme Leader/MMG) were elected 2016 Fellows of the American Association for the Advancement of Science.



ANDREW ALLEYNE

Andrew Alleyne, Professor of Mechanical Science & Engineering (BSD) was awarded the 2016 Charles Stark Draper Innovative Practice Award from the American Society of Mechanical Engineers.



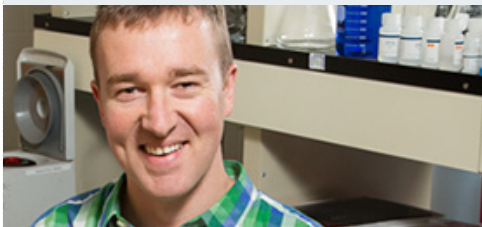
TING LU

Ting Lu, Assistant Professor, Department of Bioengineering (BSD/BCXT/MME) was named a 2017-2018 Center for Advanced Study (CAS) Beckman Fellow.



HYUNJOON KONG & REBECCA STUMPF

Hyunjoon Kong, Associate Professor and Centennial Scholar in Chemical and Biomolecular Engineering (RBTE) and Rebecca Stumpf, Associate Professor of Anthropology (BCXT/CGRH) received 2016 Campus Distinguished Promotion Awards.



BRENDAN HARLEY

Brendan Harley, Associate Professor, Chemical & Biomolecular Engineering (RBTE Theme Leader) was selected to participate in the National Academy of Engineering's 22nd annual U.S. Frontiers of Engineering symposium.



RUBY MENDENHALL

Ruby Mendenhall, Associate Professor in Sociology, African American Studies, Urban and Regional Planning, and Social Work (CGRH/GNDP) received an Innovation Excellence Award from the International Data Corporation (IDC).



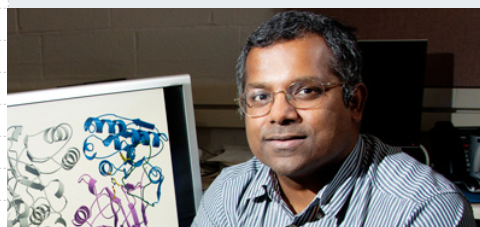
AMY WAGONER JOHNSON & IWONA JASIUK

Amy Wagoner Johnson, Associate Professor, Mechanical Science and Engineering (RBTE) and Iwona Jasiuk, Professor, Mechanical Science and Engineering (RBTE), were named as 2017-18 Center for Advanced Study (CAS) Associates.



MADHU KHANNA

Madhu Khanna, Professor of Agricultural and Consumer Economics (EBI) was named a Fellow of the American Applied Economics Association.



SATISH NAIR

Satish Nair, Professor, Biochemistry (MMG/MME) was appointed to the I.C Gunsalus Endowed Professorship in the College of Liberal Arts and Sciences.

ON THE GRID HAPPENINGS AT THE IGB

GRANT



GRAND CHALLENGES EXPLORATIONS GRANT

The IGB has received a Grand Challenges Explorations grant, an initiative funded by the Bill & Melinda Gates Foundation. Patrick Degnan, Assistant Professor of Microbiology (CGRH/MME, middle) in collaboration with Professor of Anthropology Rebecca Stumpf (BCXT/CGRH, right) and Associate Professor of Microbiology Rachel Whitaker (BCXT, left), will work to better understand how antimicrobial resistance (AMR) spreads in different environments by examining the flow of AMR genes in microorganisms between adjacent human and chimpanzee populations in eastern Africa. The title of the research project is “CRISPR capture: surveillance of AMR in mobile microbiomes.”

ONLINE COURSE



IGB MOOC

What is a genome, and how genomes define life on earth? These are the central questions explored by the IGB's new massively open online course (MOOC), entitled “Genomics: Decoding the Universal Language of Life,” releasing on Coursera in January 2017. The course content will be free for everyone, and is designed to be accessible for students of all ages and backgrounds. IGB Director Gene Robinson is the main instructor for the course. In addition, each unit features several IGB researchers as guest instructors. Key concepts are conveyed through whimsical animations, as well as images and footage of IGB research.

Those who take the course will discover how IGB researchers are deciphering the language of genomes to learn how to develop sustainable food and fuel supplies, improve disease treatment and prevention, and protect our environment.

POSTDOCTORAL ASSOCIATION



IGB POSTDOCTORAL ASSOCIATION MEETING

The IGB PDA will be having a meeting on Thursday February 2, 2017 at noon in 612 IGB on Understanding the Academic Job Search. Alexis Thompson from the Postdoctoral Affairs Office will give this talk. Come with questions! As always, we will have pizza for lunch. Come early (11:45) for food and socializing.

DONATE



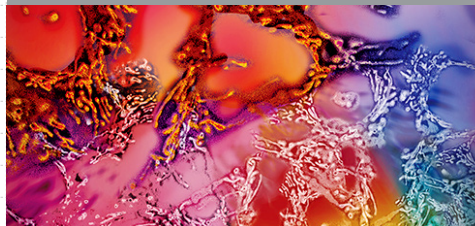
BLOOD DRIVE

The IGB is having a blood drive on February 3, 2017 in IGB Conference Room 612 from 8:00 a.m. to 1:00 p.m.

Remember—one pint of blood can save up to 3 lives, the number one use of blood products is to help people fighting cancer. Every donor is a hero in the eyes of the person who is receiving that blood donation!

Sign up at www.bloodcenterimpact.org, call Darci Edmonson at 244-2200 or email at darci@illinois.edu.

DONATE



ART OF SCIENCE SHOWS

The Art of Science: Images from the Carl R. Woese Institute for Genomic Biology traveling exhibit will have two upcoming shows:

- **Bloomington IAACU**
January 3 to February 28, 2017
- **Illinois State Capitol, Springfield**
February 27-March 10 and March 29, 2017

FOX FAMILY E&I PROGRAM



FOX FAMILY ENTREPRENEURSHIP AND INNOVATION CERTIFICATE PROGRAM REGISTRATION

Registration is now available for the Fox Family Entrepreneurship and Innovation Certificate Program. The Entrepreneurship and Innovation program at the IGB provides an opportunity for academics to combine their scientific and technological background with business methodologies, introducing scientists to intellectual property, business fundamentals, venture funding and the Illinois entrepreneurial ecosystem.

The spring certificate program will start January 30, 2017. Tuition will be \$150 for the semester to cover meal and teaching costs. A form for completion of payment will be emailed in December. Deadline to apply is December 31, 2016. Register at <http://www.igb.illinois.edu/content/Certificate-Registration>.

DEPARTMENT ANNOUNCEMENTS

BUSINESS

REVISED: HOLIDAY BREAK REDUCED SERVICE DAYS

In light of President Killeen's email on November 22, 2016, the information in the November Newsletter about the Holiday Break Schedule is no longer applicable. Specifically, employees will not be required to use benefits in order to receive compensation this year during the Reduced Service Day period (December 28, 29, and 30).

Friday, December 23, 2016

1/2 Gift Day (from Chancellor and the President) and 1/2 Excused Day p.m.

Monday, December 26, 2016

Christmas Day Observed

Tuesday, December 27, 2016

Day after Christmas Holiday Observed – Designated Holiday

Wednesday, December 28, 2016

1/2 Gift Day (from Chancellor and the President) and 1/2 Excused Day p.m.

Thursday, December 29, 2016

1/2 Gift Day (from Chancellor and the President) and 1/2 Excused Day p.m.

Friday, December 30, 2016

1/2 Gift Day (from Chancellor and the President) and 1/2 Excused Day p.m.

Monday, January 2, 2017

New Year's Day Holiday Observed

As in the past, IGB will be closed starting December 23, 2016 thru January 2, 2017 and most employees will not be working those three days. Please note these three gift days will be treated like the existing "half gift day/half excused day" in that the gift days must be used December 28th, 29th, and 30th; they cannot be "saved" to use at another point in time.

Questions regarding reduced service days, please contact Jacinda King at 244-2276 or jkking@igb.illinois.edu. ■

OPERATIONS AND FACILITIES

IGB BUILDING HOLIDAY SCHEDULE & INFORMATION

December 23 - January 2

- The IGB building will be closed December 23 through January 2. All exterior doors will be locked and all card access doors will require entry with a valid IGB prox card. Please take care when entering or leaving the IGB not to allow someone you do not recognize into the IGB.
- If you notice any urgent building issues (water leaks, CT room temperature problems, etc.) please call 333-0340 for the Public Safety Dispatch Office. This number is answered by Public Safety during off-hours and they will be able to assist you. Emails sent to facilities@igb.illinois.edu during this time will not be immediately addressed.
- IGB administrative offices will be closed December 23 through January 2.
- IGB Shipping and Receiving will be closed December 23 through January 2. No packages or email will be received or sent during this time period. Do not place orders for any packages that will be scheduled for delivery during this time. If you have any questions related to shipping, receiving, or mail, please contact IGB Shipping and Receiving (receiving@igb.illinois.edu). If you have questions related to purchasing, please contact the IGB Business Office (purchasing@igb.illinois.edu).
- Array Cafe will be closed December 23 through January 2.
- If you are in the building when it is closed, please turn off all lights when you leave your area.
- "No parking" areas are still enforced when the building is closed. IGB bagged meters on Mathews and IGB dock parking spaces are

permit parking only. Ticketing/Towing may occur at vehicle owner's expense if parked in non-assigned space.

- Please be aware of the potential for ice forming on streets, sidewalks, and parking lots across campus. Using customary winter caution is the most important means of protection against injury. Also, look at the walkway in front of you frequently or even continuously, if necessary, when you suspect there could be slick spots. To report persistent areas of ice accumulation, please contact the Service Office, 217-333-0340.
- Please be mindful of the expiration date on your I-card. If your card is scheduled to expire during the Holiday break, make plans to visit the I-card center soon to update your card. If your card expires, your card access is automatically deactivated.
- With the holidays approaching, please be reminded to take extra care when entering the IGB both via the exterior doors during off-hours and doors leading into secured spaces within the IGB at any time. Do not let unknown people into the IGB or secured spaces. Anyone needing access should be directed to Operations and Facilities for prox card or key access permissions. Be aware of people loitering around the doors and grabbing the door before it closes behind you to gain access. Absolutely NO doors should be propped open – this compromises IGB security. We should all be observant of our surroundings and report any suspicious behavior immediately by calling 911 from a Campus phone.
- The University of Illinois Public Safety website has helpful information regarding personal safety, as well as other topics of interest. <http://www.dps.uiuc.edu/universitypolice/campusafety.html>
- Additional information is available at [Seasonal Announcements](#). ■

DEPARTMENT ANNOUNCEMENTS

IP @ IGB

THE OFFICE OF TECHNOLOGY MANAGEMENT (OTM) INTERNSHIP PROGRAM

A great opportunity available to graduate students here at UIUC is to work part-time as a Commercialization Analyst for OTM. As a commercialization analyst intern your role is to take inventions that have been disclosed to OTM and perform a preliminary screen to assess their viability in terms of ability to be patented as well as marketed. This entails diving into each disclosure to understand the technology, the problems it solves, how it can be adapted into a product, and finally determining what the consumer market for that technology is. This analysis is then used by technology managers who work with inventors to protect and market those ideas.

The following is a view of OTM from the perspective of commercialization analyst Gregory Miner (Biochemistry PhD candidate). Sage Dunham (Chemistry PhD candidate) will write a complementary piece in the February 2017 newsletter.

What function does OTM serve?

Before applying for the commercialization analyst internship I had no real concept of what OTM was or what service they provided the university. If I had to guess I would have assumed they merely facilitated obtaining patents and ensured the paperwork was properly completed with the goal of making the university money. The biggest misconception I had was that the goal of the OTM is to make money, in reality the goal is to get university inventions out into the public where they can make a real impact while at the same time enhancing the visibility of our faculty. After a few months working here I've come to realize that in fact the only thing I got right was that one of the services the OTM provides is help obtaining patents.

Not only have I come to learn the role of the OTM at UIUC but I've also gotten to see how disclosures are handled from start to finish. What surprised me the most was that the technology managers are themselves former scientists from industry and academia and therefore are able to truly understand the research and the impact it can have. This I think is one of the biggest assets the OTM has to offer, an inventor can bring their work to someone who has knowledge and experience in their field and discuss their options. The value in this is immense as the invention isn't an abstract concept that is merely sold but is rather understood and thus they can offer insight that may increase commercial value and have knowledge of what else is out there that may be similar. This level of scientific understanding combined with a knowledge of the market and often times industry connections allows a clear view of the way forward as far as actually getting the idea from the lab bench to the consumer.

I've also come to appreciate the range of outcomes that working with the OTM can lead to. Originally I assumed the only reason to patent an invention was if you desired creating a startup and running your own business which didn't appeal to me as I would rather be focused on research. While this certainly can be an end goal of disclosing to the OTM, there are many others. Often times an inventor will disclose with the hopes of licensing the technology to an established corporation, this allows the technology to enter the world and potentially generate revenue for the lab while allowing the inventor to continue focusing on research. Another outcome commonly hoped for is establishing a collaboration with an industry partner to enable a sponsored research agreement (SRA), which directly funds the lab from a source other than grants.

How has it improved my research?

While the internship has been fantastic as far as understanding the patenting process, intellectual property, and marketing, the largest impact has been the new perspective and thought I take into conducting my own research. A large portion of our work as commercialization analysts is performing deep literature searches in order to assess novelty and patentability. While performing this work has greatly improved my ability to perform literature searches which can be very useful, the greatest benefit has been the exposure to a vast array of research. During most of my graduate career my study has been highly focused on one subject with no time to broaden my interests. This type of focus is useful from the perspective of finishing a thesis, however it can make it difficult to evaluate what you would like to do once you've obtained your degree. Not only has it increased my awareness of the current state of research, it has also allowed me to have an awareness of the challenges and issues current research is trying to overcome.

Where can I find more about this internship?

If you are interested in learning more about this internship, OTM is hosting several information sessions around campus in January, including one in Roger Adams Lab room 117 on January 26 at noon and in IGB 3000 on January 27 at noon. Please visit <http://otm.illinois.edu/internships> for full date and location information. The deadline for applications is February 10, 2017.

Where can I learn more about the OTM?

The OTM is located in 319 Ceramics Building and for more information about OTM's mission, activities, and services, please visit our website - otm.illinois.edu. This website contains links to disclosure forms as well as the inventor's handbook (otm.illinois.edu/disclose-protect/inventors-handbook), an easy-to-follow guide to patenting your inventions. If you have other questions about the patentability of your technology please contact our Technology Managers, RK Narayanan at rkn@illinois.edu and Lisan Smith at lisan@illinois.edu. ■

OTM Tip of the Month: Check with OTM to see if you have patentable IP!

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IMAGE OF RESEARCH COMPETITION

Submissions are now being accepted for the 2017 Image of Research competition, which is co-sponsored by the Scholarly Commons and the Graduate College. The Image of Research celebrates the diversity of graduate student research at the University of Illinois at Urbana-Champaign. Graduate and professional students from all disciplines are invited to submit entries, which include an image that represents their research (either concretely or abstractly) and a brief written narrative. Entries can be submitted through January 15, 2017 via the Image of Research website (<http://publish.illinois.edu/imageofresearch/>).

Awards will be presented at a reception on April 5, 2017 in conjunction with the Annual Graduate Student Appreciation Week. The awards are: First Prize (\$500), Second Prize (\$300), Third Prize (\$200), Honorable Mention (\$100), and a People's Choice Award (\$100). Please consider submitting an entry or encouraging a student to submit an entry!! ■

RECENT PUBLICATIONS

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