As the fiscal year 2013 gets off to a start, we’d like to take this issue of Technology Commercialization News to highlight some of the efforts and progress made by the office over the past semester. As covered in this issue, we have seen changes to the U.S. patent laws, recognized advancements in “green” research conducted and technologies developed at LSU, signed several new licensing deals for technologies developed at LSU, and continued a successful OIPCD internship program for LSU students.

We are looking forward to the coming semester and planning more outreach events for LSU research faculty and staff to enhance their understanding of the technology disclosure, evaluation, protection, and commercialization process. As always, your questions about intellectual property commercialization are welcome. We are always willing to meet regardless of the stage of research.

Peter J. Kelleher, PhD
Associate Vice Chancellor
**First-to-File: What Does It Mean?**


Under the Leahy-Smith America Invents Act, the United States will join most other countries on March 16, 2013, in switching from a first-to-invent system to a first-to-file system. If two different inventors attempt to patent the same invention, priority will be awarded to the first person to file a patent application, not necessarily to the person who invented it first.

What is the practical effect of this change? In most cases, not much. This particular aspect of the America Invents Act has received far too much publicity. Some perspective may be helpful. A surprisingly small number of patent applications have historically been involved in an “interference,” which is a Patent Office proceeding to award priority between two competing patent applications. Fewer than one percent of all patent applications end up in an interference. Of those that are involved in an interference, more often than not priority is ultimately awarded to the senior party anyway, the first one to file.

In a very small number of patent applications—fewer than one percent—this statutory change can indeed alter the outcome of priority contests between patent applications. For the vast majority of applications—over 99%—the change from first-to-invent to first-to-file will make no difference. To our knowledge, none of the 400+ U.S. patents that have issued to the LSU campuses over the years has ever been involved in an interference proceeding.

Does this mean that it makes no difference when a patent application is filed? No, the filing date is very important—but for the same reasons the filing date has always been important, not (primarily) because the United States has now adopted a first-to-file system. Patent rights can be lost by delay. Perhaps the most common reason why patent rights are lost is not that someone else got to the Patent Office with the same idea first, but that the inventor himself or herself publishes information about the invention before a patent application is filed. It may seem unfair, but an inventor’s publications can often be cited as “prior art” against the inventor’s own later-filed patent application. What counts as a publication for patent purposes is broader than what might be considered a publication in other contexts. For example (depending on the details), the following can sometimes be treated as a patent-defeating publication: a journal paper, an abstract, a poster, conference proceedings, a web page, or a dissertation. In the United States, one’s own publications will generally not bar patentability if a proper, fully enabling patent application is filed within one year of the earliest publication date. In most other countries, however, patent rights can be lost if the initial patent application is filed even one day after a publication. Keep in mind that the earliest publication often occurs online, and that viable foreign patent rights can be important to companies who are interested in commercializing university technology.

The take-home message is that if you think you may have a potentially patentable invention having commercial possibilities, then you should contact the campus Office of Intellectual Property, Commercialization & Development as soon as possible to discuss it further. They can help to coordinate patent filing dates and publication dates, so that potential patent rights are preserved without affecting your freedom to publish.
SPOTLIGHT—GREEN TECHNOLOGIES

In this increasingly eco-conscious world, research and development in “green” technologies has flourished. By definition, green technologies strive to enhance the environment in seven critical areas: renewable energy, energy efficiency, greenhouse gas reduction, pollution reduction and cleanup, recycling and waste reduction, sustainable agriculture, and education, compliance and public awareness. In keeping pace with cutting edge research trends, researchers and graduate students here at LSU are exploring green technologies, and several inventions have resulted from across campus.

LSU’s Department of Civil & Environmental Engineering has been a particularly hot area for developments in the green sector. Drs. Teresa Maria Gutierrez-Wing and Kelly Rusch have developed an improved algal lipid extraction technique. A key step in the process of converting algae to biofuel is extracting the energy-rich lipids from the algae. To extract the lipids from the algae the cell wall must be broken, allowing the lipids to be released. Several techniques exist for doing this step. Each of these techniques, however, has drawbacks. LSU’s method can be used with any kind of microalgae, and it is particularly useful for the ones that have thick cell walls. This novel method can be used on wet algal pastes, eliminating the drying step required by conventional techniques. Unlike conventional techniques that require large amounts of solvents, high temperature, and agitation or pressure to extract the lipids or pigments, the process uses only a small amount of solvent and energy, and it has a higher lipid recovery rate. This process offers a cost-efficient, environmentally friendly approach to extract lipids from algae.

Dr. Mostafa Elseifi invented a method of recycling the asphalt from roofing tiles and integrating it in road paving. The effects of this technology could allow companies bidding on road construction projects an advantage over competing firms by giving them the ability to cut costs by recycling pre-used asphalt.

Research performed by Dr. William Moe lead to the discovery a novel bacterium that when added to contaminated soils and groundwater has been shown to conduct bioremediation of chlorinated compounds present in environmental contaminants. Multiple areas around the world and even in Louisiana could benefit from the use of this bacterium that repairs the soil and groundwater. This technology allows contaminated soil and water the chance to be re-purified, and it allows the culprits of the original contamination to be discovered.

From the Department of Physics & Astronomy, Drs. Jonathon Dowling, Hwang Lee, and Marion Florescu have developed a new technology that increases the energy efficiency of solar panels by introducing more efficient photonic crystal into the construction of the panels. These new photonic solar crystals improve solar energy absorption, increasing electricity output and heat loss.

Dr. James Catallo of the Ecological Chemistry Lab in the School of Veterinary Medicine invented a novel approach to petroleum production that does not increase the net atmospheric greenhouse gases. The process involves taking biological material, or biomass, and treating it in super-heated water under pressure to create hydrocarbon mixtures similar to a light crude oil that can be further refined to make fuel. New Oil Resources, a start-up company founded by Dr. Catallo and business partner Dr. Gary Miller in 2009, licensed the technology and is currently working to develop a marketable product.

A sediment toxicity filter created by Mr. Benjamin Dubansky and Dr. Fernando Galvez of the Department of Biological Sciences allows scientists to more effectively test the toxicity of sediment contaminated by weathered crude oil. Prior to this invention, toxicity tests were conducted in test cups where the embryonic test fish could possibly be lost in the sediment at the bottom of the cup. The Dubansky/Galvez filter basket sequesters the embryonic fish from the sediment; therefore, scientists can examine the effect of sediment toxicity traveling through the water instead of allowing the fish to physically contact the contaminated sediment. This new technology could be beneficial to scientists by showing them where to conduct pollution cleanup more accurately.

LSU is making great strides in the development of useful green technology. These technologies and ongoing research at LSU provides the potential for groundbreaking advancements in the green sector.
LICENSE UPDATE

Gulf SERPENT Project Film Clip Licenses
For the past six years, Professor Mark Benfield of the Department of Oceanography & Coastal Studies has been funded by the Bureau of Ocean Energy Management (BOEM) on the Gulf SERPENT Project. The SERPENT Project is a global partnership with the oil and gas industry, including BP, Shell, and Chevron, among others, to collect video observations of deep-sea life forms using remotely operated vehicles (ROVs). Dr. Benfield’s research has been focused in the Gulf of Mexico. While conducting a survey below BP’s Thunder Horse rig, he caught rare footage of a 15-30 foot oarfish. No one had previously filmed the creature, which is thought to be the origin of the sea serpent legend, at such a depth—about 1600 feet below the ocean’s surface in the mesopelagic zone. The footage has now been licensed to two film companies, Icon Films and Gedeon Programmes, for use in their documentaries. Dr. Benfield has also filmed the Stygiomedusa gigantea, a species of giant deep-sea jelly fish. Until these SERPENT observations, its presence in the Gulf of Mexico was unknown. This footage has been licensed by Story House Productions for use in a documentary. For more information about the SERPENT project, visit http://www.serpentproject.com.

Software, film clips, images, and other digital media developed during your research may provide valuable licensing opportunities. If you have created these types of intellectual property, contact the OIPCD to discuss potential avenues to commercialization.

Microbial Insight
Civil & Environmental Engineering Associate Professor Bill Moe, former Biological Science Professor Fred Rainey, and their LSU research assistants Jun Yan and Brian Rash have discovered a bacterium at a “Superfund” site that transforms previously untreatable halogenated hydrocarbon solvents into harmless CO2, H2O, and halide ion. The LSU Office of Intellectual Property, Commercialization & Development has applied for patents to protect two uses of this bacterium: 1) The remediation of solvent-contaminated sites by introducing the organism to the site; and 2) DNA assays for the detection and quantification of the bacterium, which permits monitoring of the bacterium’s remediation progress. Tennessee-based Microbial Insights has licensed the latter application and is now developing field test kits for detecting and quantifying the bacteria in contaminated sites.

U.S. Synthetic
Hydrodynamic bearings have vast industrial applications and the accurate prediction of their performance is of the utmost importance. Professor Michael Khonsari and Research Assistant Professor Joonyoung Jang of the Department of Mechanical Engineering developed a software package for design and analysis of hydrodynamic thrust bearings. Drs. Khonsari and Jang are both members of the LSU Center for Rotating Machinery (CeRoM). This software has been licensed by U.S. Synthetic, a leader in the development and production of polycrystalline diamond cutters for oil and gas exploration.
LSU OIPCD Internship Program

In the summer of 2010, the OIPCD began an internship program to give LSU graduate students and upper-class students from a variety of disciplines the opportunity to work part-time providing business, legal, and technical research and analysis of LSU’s technologies. The internship program is intended to enhance OIPCD’s understanding of the technologies while providing students with an interesting and practical educational experience. Because internship opportunities in this field are relatively rare, we felt that students would gain significant job market advantages from interning at OIPCD.

Each semester, the internship is advertised through LSU Career Services. The internship is competitive with candidates being interviewed and selected based on how well their backgrounds and abilities match OIPCD’s projects at that time. To qualify, an applicant must either be in graduate school (including the LSU Law School) or be a senior-level undergraduate at LSU. Once hired, the interns go through a four-hour orientation where they learn the basics of university technology transfer, patent law, marketing intellectual property, and patent and market analyses.

The interns gain valuable hands-on experience in technology commercialization. While working for the OIPCD, the interns have the opportunity to meet and interact with a number of professionals including the OIPCD staff, patent attorneys, and inventors. They assist in screening inventions disclosed by LSU faculty and staff, identifying applications for the inventions, performing preliminary market and industry analysis for the applications, searching for prior art for the new technologies, and recommending disposition of technologies based on their findings. They also assist the OIPCD technology managers with the development of promotional materials for the technologies and implementation of marketing plans.

The program has been a great success for both OIPCD and the interns. Since the summer of 2010, OIPCD has hired 19 interns. They were graduate (master’s and PhD candidates) and undergraduate students from the College of Business, the Law School, the College of Engineering, and the College of Science. Fall 2010 and spring 2011 intern Dr. Anand Vishwanathan said, “Working at the OIPCD has been one of the best experiences in my career. This internship has given invaluable exposure to current developments in technology and the process of converting a professor’s invention into a commercial product. The field of technology transfer is a merger of a number of complicated fields such as science, law, and business. My internship was able to give me a comprehensive framework in understanding this merger. The staff is very friendly and always available in assisting with any questions that I have. Plus, there is always engaging work available. In employment interviews, people are impressed with the insight that I have developed through my work at the office. Anyone who is interested in pursuing a career in any aspect of technological innovation would be well served to pursue an internship with this office.”

This wonderful opportunity is for students from any academic area on campus who have an interest in evaluating and commercializing university inventions. This is a very hot area and the skills learned in this internship could really help graduates when they enter the job market.

“The skills I’ve taken away from this internship definitely will have practical use in my future. I’ve learned things that just aren’t taught in today’s classroom for most business students, but have practical and advantageous benefits in a marketing career.”

OIP Intern,
Summer 2010

“I thoroughly enjoyed participating in the program. I believe the knowledge and experience gained will greatly help me in my future. Learning how to research for specific information, about the patent process, and cold calls has given me invaluable experience.”

OIP Intern,
Fall 2010
Faculty seeking to start a company based on their research can find information about LSU policies and guidance for startups by visiting our website, www.lsu.edu/intellectual_property, and selecting “Startups” in the left side menu.

The Louisiana Business & Technology Center at LSU announces the creation of a Commercialization Clinic designed specifically for LSU researchers. It utilizes proven methodologies used at other universities and by over 10,000 researchers, scientists, and technology entrepreneurs globally. Registration is due by August 23 for the fall session which runs from August 29 through October 24. For more information, please contact Jason Boudreaux at (225) 578-7555 or jboud55@lsu.edu.

Technology Commercialization News is a bi-yearly publication developed and produced by the LSU Office of Intellectual Property, Commercialization & Development to highlight the progress being made in commercializing LSU’s research and the policies and procedures that guide the technology transfer process at LSU. We encourage every LSU employee involved in research and businesses interested in licensing LSU’s technologies to review and to familiarize themselves with these policies and procedures provided in detail on our website, www.lsu.edu/intellectual_property.

We welcome your questions about intellectual property and your suggestions for future newsletter articles.