



AUBURN
UNIVERSITY

OFFICE OF
TECHNOLOGY TRANSFER



2011 ANNUAL REPORT

Innovations for a Better World

Message from the Assistant Vice President



The Office of Technology Transfer of Auburn University is pleased to present its annual report for FY 2011.

The primary mission of OTT is to ensure that intellectual properties generated through research and other creative activities by faculty, students, and staff are commercialized for the public benefit, and to generate revenue that is distributed to the inventors and university units while protecting university interests and complying with federal law.

This issue illustrates the breadth of research under way in the fields of agriculture, veterinary medicine, and materials science. For example, selected bacteria are used to improve crop production and other bacteria are used in the biological control of diseases in catfish. Also, novel seed-producing sunn hemp varieties are described. In addition, lightweight composite materials and low cost production of carbon nanotubes have been developed.

The Canine Detection Research Institute is making a major contribution to the safety of U.S. citizens through its canine breeding, training, and deployment of dogs that can detect explosives. The uniqueness of this program is that the dogs can detect the 'vapor wake' of someone who has handled explosives without invading a person's privacy.

After years of trying, Congress finally passed the America Invents Act of 2011 (Patent Reform). There are several ways that this act will impact universities; one of which is the change from a 'first to invent' to 'first to file' system that will put the U.S. in line with the rest of the world with respect to patenting. The implications of this and other aspects of the act will be provided to the campus in another communication.

The Auburn Chapter of the National Academy of Inventors (NAI) is entering its first full academic year with a full slate of active officers who have developed bylaws that have been approved by the membership. The chapter is planning at least two events this year with outside speakers.

Entering its sixth year, the Alabama Launchpad Business Plan Competition has been restructured and is under the governance of the Economic Development Partnership of Alabama. The new program has 'pre-seed' and 'seed-ready' stages and successful applications will undergo market assessment by Frost and Sullivan. The prize money has been increased to \$175,000-\$450,000 from a maximum of \$100,000.

The OTT Marketing Intern Program continues to grow with six students working this summer on business plans for possible submission to the Alabama Launchpad Competition, marketing technologies, the use of social media in university technology transfer, and methods for recruiting potential management teams for startup businesses. We appreciate the College of Business for helping to identify highly qualified students from their MBA and undergraduate programs.

The OTT staff wishes to express their appreciation to the faculty, staff, and students who have participated in the technology transfer process over the past year.

A handwritten signature in black ink that reads "John D. Weete". The signature is written in a cursive, flowing style.

John D. Weete
Assistant Vice President for Technology and Commercialization (Acting)
weetejd@auburn.edu

OTT Mission: To serve Auburn University through the commercialization of its intellectual property.

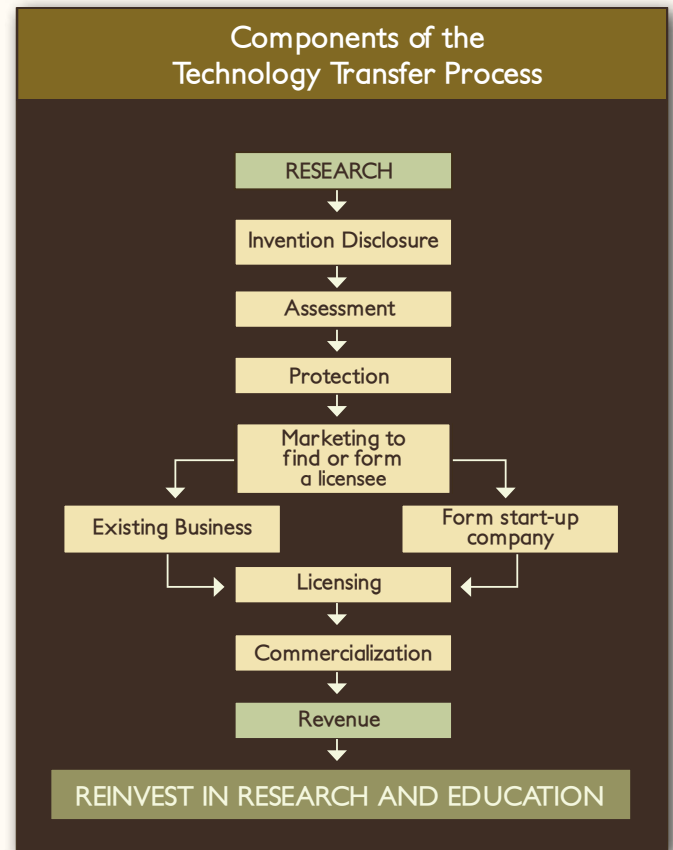


TECHNOLOGY TRANSFER

Technology Transfer is the process by which research discoveries, inventions, and other creative works are transformed into valuable products and services that benefit society. This process may be long and complex, requiring creativity, skill, and persistence.

At Auburn, the Office of Technology Transfer has the responsibility for the commercialization of intellectual properties produced by faculty, students, and staff. OTT's staff comprises six full-time staff members, two part-time staff members, and several student interns who work on behalf of the university to identify, evaluate, and protect intellectual properties created at Auburn, as well as manage the marketing and licensing of these properties.

The office uses a structured process to analyze the commercial potential of new ideas and technologies coming out of Auburn's colleges, schools, research centers, and institutes. This is accomplished through a cooperative approach with the inventors, diligent market research, and focused marketing efforts. We take pride in supporting the university's mission through intellectual property commercialization.



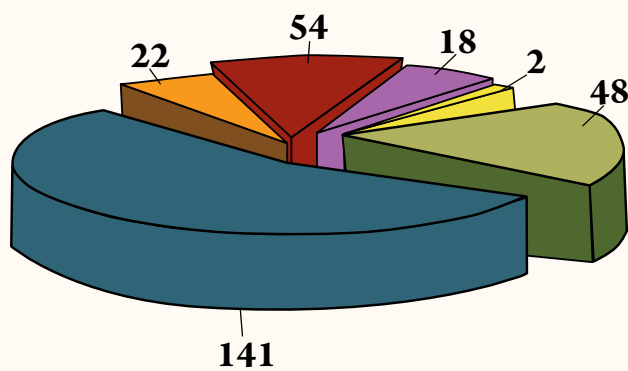
Why technology transfer?

- To increase the likelihood that new discoveries will provide tangible benefits to the general public.
- To help create a venue that attracts, develops, and retains the very best students, faculty, and researchers.
- To improve the flow of research dollars and resources to the academic community.
- To enable collaborative research relationships with industry.
- To enrich the educational experience through student internship programs and other hands-on learning activities.
- To leverage business partnerships to stimulate regional and national economic development.
- To enhance the reputation and stature of the university.

Spotlight on Metrics

Office of Technology Transfer Metrics					
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Invention Disclosures	110	84	87	105	64
U.S. Patent Applications Filed:					
Standard	5	26	15	17	12
Provisional	121	120	65	91	63
Other (Div., CIP, Cont.)	10	7	1	2	4
U.S. Patents Granted	19	12	14	25	17
Total Granted U.S. Patents Still Active	125	137	126	149	161
Licenses/Options Executed	13	16	15	25	20
Active Licenses/Options	42	54	66	63	67
Start-up Companies Formed	3	1	0	1	3
Total Active Start-up Companies	12	14	14	14	17
Option and License Income	\$553,614	\$675,132	\$693,452	\$770,135	\$630,334

IP Agreements Executed in FY 2011



- Option Agreements
- Material Transfer Agreements
- Non-Disclosure Agreements
- Teaming and Collaboration Agreements
- Other IP Agreements
- License Agreements

Spotlight on Commercialization

TECHNOLOGY LICENSED



STUDENT TEAM TAKES CATTLE VACCINE TO THE TOP

In the summer of 2009, the Office of Technology Transfer was contacted by an MBA student at the University of Louisville regarding an Auburn technology for a vaccine to protect cattle from parasitic horn flies. The UofL MBA curriculum is designed to have groups of students write business plans with an eye toward launching viable companies upon graduation.

The technology, initially developed by Mary and Ed Cupp, retired Auburn University professors of entomology, limits the ability of horn flies to properly feed. This, in turn, is expected to reduce local horn fly populations and minimize the negative effects on cattle. The economic impact of horn fly parasitism – largely due to reduced beef and milk production — approaches one billion dollars per year in North America alone.

An option was granted to the student team for the vaccine patents, and the conceptual company TNG Pharmaceuticals was born. Over the next 18 months, the team worked on a business plan for the vaccine and then began submitting to various business plan competitions. They won first place awards at competitions at the University of Cincinnati and the University of Nebraska. Then in April 2011, they took home the grand prize at the Rice University Business Plan Competition, the world's largest and richest business plan competition. The top prize is valued at \$641,600 in cash, in-kind services, and investment awards.

Later in the summer, the technology was formally licensed to TNG Pharmaceuticals, now an operating company. In a bit of serendipity, the Cupps had moved to Kentucky – about one hour from Louisville – and plan to work with TNG going forward. The company plans to pursue further validation of their product, dubbed FlyVax, before seeking regulatory approval.



The TNG student team visits New York City where they rang the closing bell for the NASDAQ.

“I cannot say enough good things about the Office of Technology Transfer and its staff. Their best quality to me is their flexibility. They realize that every situation is different and they simply cannot set up a set of rigid rules for every technology advancement. They have been willing to work with me in different ways on different projects to maximize the development of new technology. They truly are a great asset for researchers at Auburn.”

*Scott McElroy
Department of Agronomy and Soils
College of Agriculture*

Spotlight on Commercialization

BIOLOGICAL CONTROL



USING BACTERIA TO IMPROVE CROP PRODUCTION

For more than 20 years, Joe Kloeppe, professor in the Department of Entomology and Plant Pathology, has studied beneficial bacteria that enhance plant development. These bacteria, dubbed rhizobacteria, can directly enhance plant health and growth, but can also deter pathogens and pests. Whether overcoming dangerous bacteria, attracting beneficial insects, or repelling destructive ones, various strains of rhizobacteria have been demonstrated to show improvements in crop yield.

Research into rhizobacteria as inputs to agriculture is actively conducted worldwide. For years the work was mainly conducted in universities and other public sector laboratories. Beginning in the 1990s, a few companies developed products consisting of rhizobacteria, but commercialization was slow. In the past three years, there has been a swelling of commercial interest in using rhizobacteria. This interest is fueled by the record profits in many agricultural crops and the predictions for continued high prices for agricultural commodities given both the rapidly growing middle classes in China and India, and uses of food commodities as energy crops.

Consequently, Kloeppe's work has had a breakthrough in potential commercial applications. One strain has been licensed for use as a biofertilizer and biopesticide in numerous seed and soil applications. Another license is under negotiation with a different company for additional applications.



"The Office of Technology Transfer has provided me over the years with great advice in retaining intellectual property rights and support in patenting my lab's technology, including interviews at the patent office in Alexandria, VA. This patent portfolio is now invaluable when it comes to contract research and licensing our technology. I have not seen equally effective OTT support for colleagues at other universities. OTT has been the deciding factor that made me stay at Auburn University when attractive positions elsewhere became available."

*Bernhard Kaltenboeck, DVM, PhD
Department of Pathobiology
College of Veterinary Medicine*

Spotlight on Commercialization



COLLABORATION YIELDS SPONSORED RESEARCH TO TACKLE PATHOGEN CONTROL IN AQUACULTURE

Farm-raised channel catfish are susceptible to a variety of pathogens that can kill fish and reduce yields. The leading pathogen in the southeastern U.S., the bacteria *Escherichia ictaluri*, causes enteric septicemia in catfish, leading to economic losses of between \$20 and \$30 million per year.

Mark Liles, associate professor in the Department of Biological Sciences, specializes in the study of biological control agents. He teamed with Jeff Terhune, associate professor in the Department of Fisheries and Allied Aquacultures, to study ways to apply biological control agents to prevent disease in catfish. After researching a variety of avenues, they joined forces with Joe Kloepper of the Department of Entomology and Plant Pathology. Many of the rhizobacteria previously isolated to benefit plant health and reduce disease have shown great promise in preventing disease in channel catfish.

A recently awarded National Science Foundation Phase II SBIR grant, together with the Lucigen Corporation of Middleton, Wisc., supports controlled trials of these beneficial bacteria in developing them for disease prevention in channel catfish aquaculture. Some of the work is also being sponsored by an agriculture company, which has an option to the technology. This research focuses on bringing solutions to the marketplace that can make a positive impact on catfish aquaculture.

“This project is a great illustration of the ways that Auburn faculty from different departments and colleges can bring together their expertise to achieve a common objective,” said Liles. “With the support of the Office of Technology Transfer, this research will find its way from the Auburn research laboratories to the catfish producers in the southeastern U.S.”



A Bacillus strain culture (purple) secretes antibiotic compounds that kill surrounding bacteria. Here, a known aquaculture pathogen shows little growth in a “kill zone” around the Bacillus.

Spotlight on Technologies

COLLABORATIVE RESEARCH



SYNTACTIC FOAM TECHNOLOGY TAKES THIRD PLACE AT ALABAMA LAUNCHPAD

A business plan based on a novel material took the third-place prize at the 2011 Alabama Launchpad Governor's Business Plan Competition held on the campus of the University of South Alabama in Mobile in April.

The plan was based on a novel composite foam invented by Hareesh Tippur, McWane Professor in the Department of Mechanical Engineering, and his former graduate student, Rahul Jhaver. The lightweight material has improved strength and energy absorption properties over similar products currently available on the market, and could see applications in the aerospace, maritime, and automotive industries.

"Certainly it is an honor to have been selected as a top choice among a field of highly competitive entries into this year's competition," said Tippur. "The diversity and depth of plans presented to Launchpad in this and the previous rounds clearly showcase the cutting-edge activities that are ongoing in the state."

Drafting of the business plan was led by Paul Swamidass, director of the Thomas Walter Center for Technology Management. Working with several graduate students and the Office of Technology Transfer, Swamidass and his team submitted the business plan which was selected as one of nine finalists from an original field of 36. Brian Wright, OTT's associate director for commercialization, gave the final presentation.

This marks the fifth team based on Auburn technologies to make the Launchpad finals, the third under the leadership of Swamidass and the second team to place in the competition.

OFFICE OF TECHNOLOGY TRANSFER INTRODUCTION INITIATES FRUITFUL COLLABORATION

Tippur's and Zhang's (facing page) invention disclosures led to an unexpected consequence: collaboration and funding. The overlap in their research was initially identified at OTT, and an introduction was made. The two began studying how Zhang's technology could be used to coat such materials as glass microspheres (see picture at right) and fly ash. These coated materials could then be incorporated into composite foams, Tippur's area of expertise. It is anticipated that these structural foams will be stronger, more energy efficient, and more energy absorbent than similar materials on the market. Tippur and Zhang were recently awarded a three-year, \$300,000 National Science Foundation grant for this collaborative research.

"As one of Auburn University's research centers, NCAT regularly deals with domestic and international clients to evaluate or develop new technologies. Establishing research agreements with clients often involve issues related to intellectual property, confidentiality, and legal jurisdiction. The Office of Technology Transfer has consistently helped us work through the contracting process by discussing challenges and opportunities with our researchers and negotiations with the potential clients, often communicating directly with potential clients to resolve issues in a timely manner. It is refreshing to deal with a university office that facilitates solutions rather than creates obstacles."

*Randy West, PhD, PE
Director
National Center for Asphalt Technology*

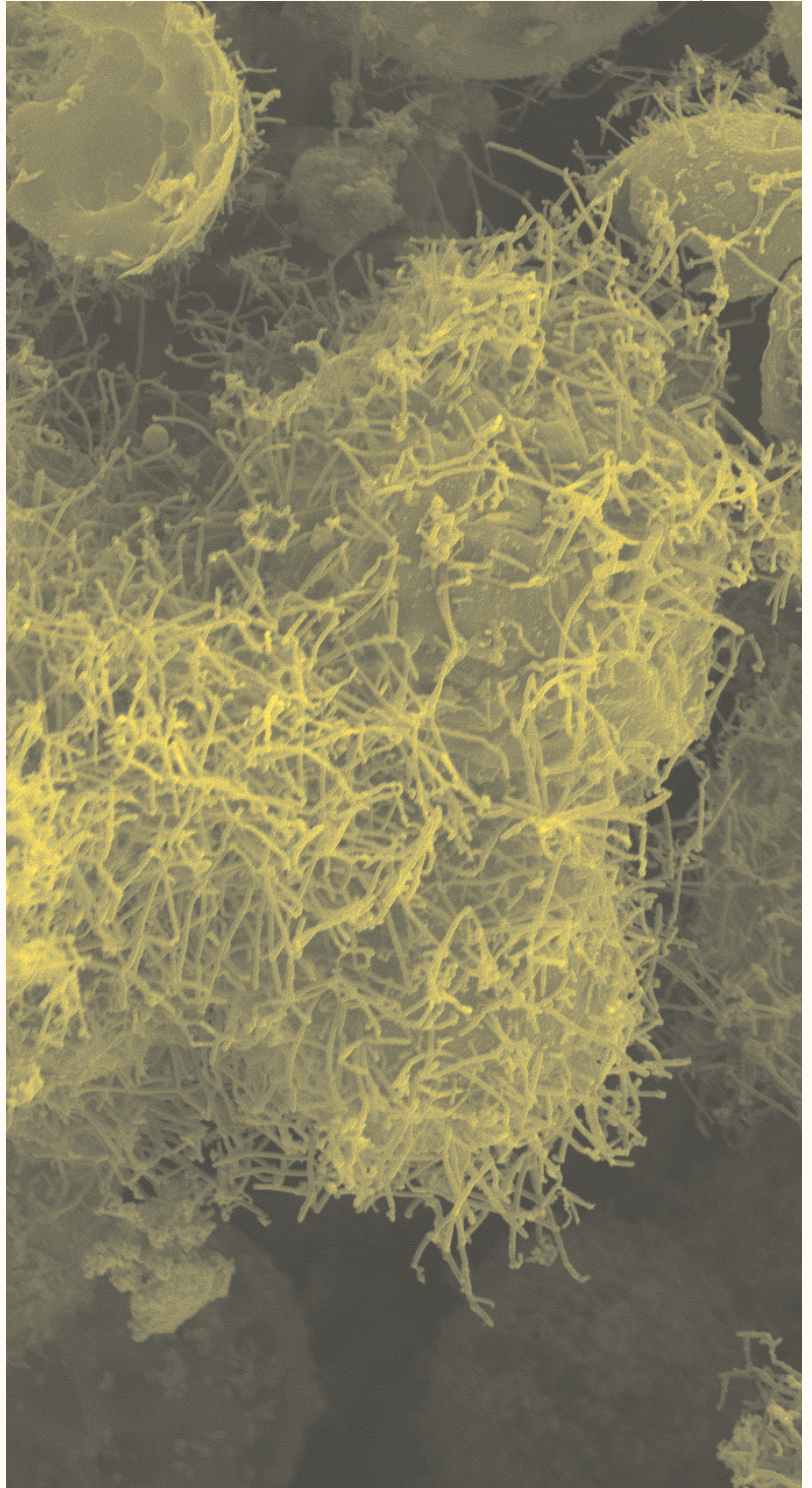


NANOCOMPOSITE MATERIAL GENERATING A BUZZ

Carbon nanotubes, or CNTs, have been shown to exhibit strength 100 times greater than steel at 1/6th the weight, conductivity 6 times greater than copper, and thermal conductivity equivalent to diamond. However, adoption into end products has been limited to date for two primary reasons: 1) expense of CNT production; 2) difficulty in dispersing CNTs effectively into other materials.

Xinyu Zhang, assistant professor in the Department of Polymer & Fiber Engineering, along with a collaborator at the University of Alabama, has devised a potential solution to this problem. By utilizing a microwave process, CNTs can be generated on surfaces of materials for a fraction of the cost of current methods. Further, by placing them directly on substrates, they are more easily dispersed within a matrix material when composites are formed. Zhang has demonstrated CNT growth on numerous materials, including carbon fibers, glass fibers, and fly ash.

His work has been published in *Chemical Communications*, and was later featured in *Chemical and Engineering News* and the prestigious journal, *Nature*. Further, the Office of Technology Transfer, through its marketing intern program and in coordination with UA's OTT, has generated an initial business plan based on this technology. The plan focuses on creating stronger and lighter carbon fiber composites for applications in the alternate energy industry. It was submitted to the 2011-12 Alabama Launchpad competition and has successfully made it through the first phase of the competition. Additionally, a candidate CEO has formed a new company and has optioned the technology for possible future licensing.



Electron micrograph showing carbon nanotubes grown on glass microspheres. These can be used to make strong, lightweight composite forms.

REAL SOLUTIONS



AUBURN-TRAINED CANINES IMPROVE PUBLIC SAFETY AND NATIONAL SECURITY

The Auburn University Animal Health and Performance Program, and its Canine Detection Research Institute, have created a patent-pending novel detection asset – the Vapor Wake Detection canine. These canines are bred for specific traits and are trained to sample plumes of air – the vapor wake – coming from persons and what they are carrying as they pass through check points or crowds. These highly trained and conditioned dogs, teamed with specially trained handlers, detect explosives without invading a person's privacy.

The Transportation Security Administration, the Federal Protective Service, U.S. Capitol Police, and other federal and state agencies are successfully using Vapor Wake Detection dogs to identify threats posed by explosives.

Auburn's College of Veterinary Medicine solely developed the technology, which includes a canine breeding program, production of dogs, training, and deployment procedures. Patent applications that cover technology, breeding strategies, and training and handling procedures are filed, as well as trademark applications for Vapor Wake Detection graphics and logos.



Left to right: Alabama Cong Mike Rogers, U.S. Homeland Security Secretary Janet Napolitano, Auburn University President Jay Gogue with Ed Ross, an Amtrak Handler and a graduate of Auburn's Vapor Wake Detection training program, and canine Zeta. Robert Gillette (in the background) is director of the Canine Detection Research Institute.

Patent and Invention Disclosure Committee 2011-12

The Auburn University Patent and Invention Disclosure Committee provides advice and makes recommendations as needed by the Office of Technology Transfer and the Office of the Vice President for Research on issues related to academic technology transfer. We thank these individuals for their service.

Christopher Easley, Chemistry and Biochemistry

Bernhard Kaltenboeck, Pathobiology

Tsailu Liu, Industrial Design

Scott McElroy, Agronomy and Soils

Jayachandra Rampapuram, Pharmacal Sciences

Paul Swamidass, Aviation and Supply Chain Management, Committee Chair

David Umphress, Computer Science and Software Engineering

Douglas White, Nutrition and Food Science

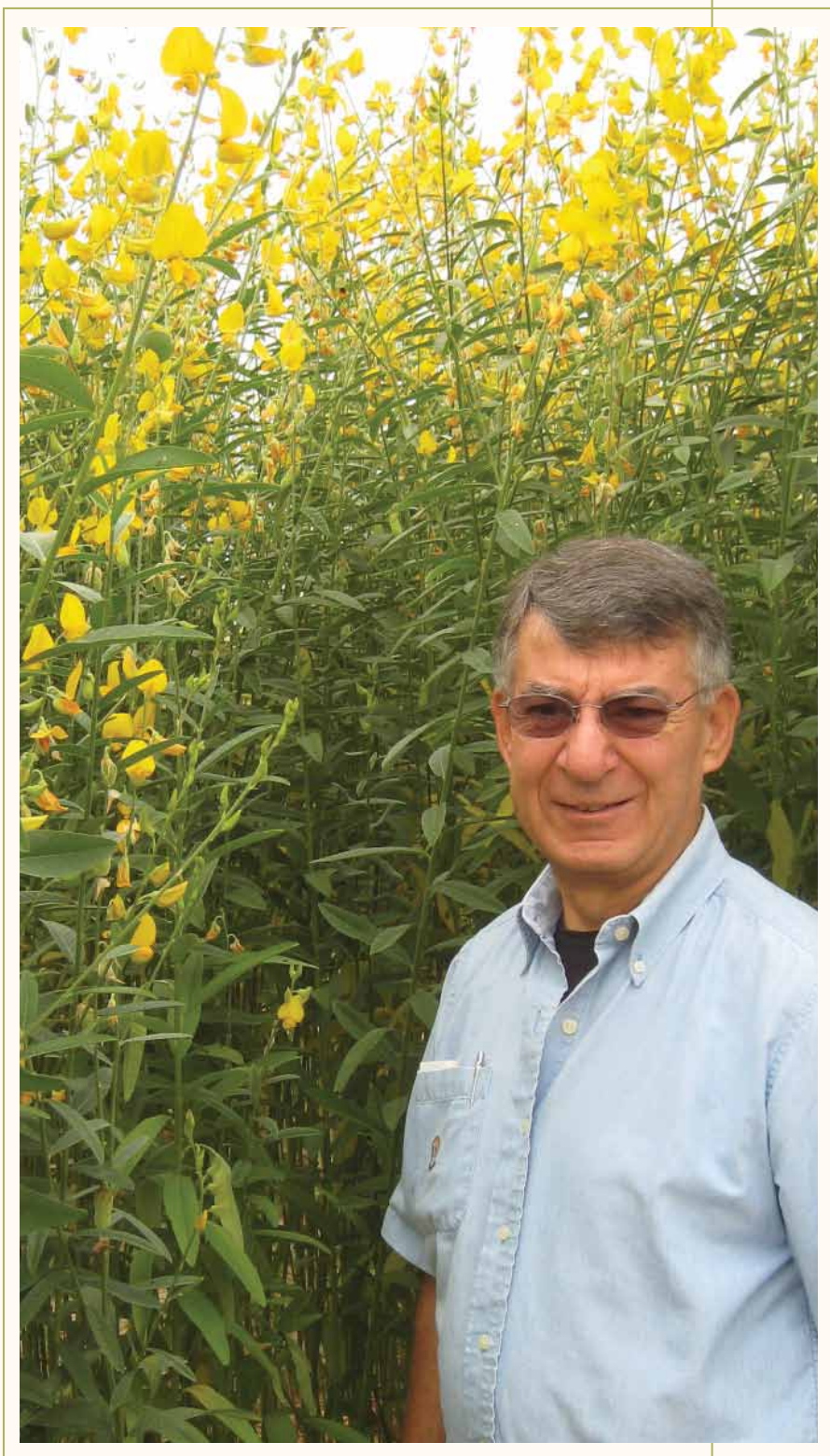
Dongye Zhao, Civil Engineering



SUNN HEMP VARIETIES ENABLE DOMESTIC SEED PRODUCTION

Dr. Jorge Mosjidis' plant breeding program, aimed at developing sunn hemp cultivars that can produce seed under the climatic conditions of Alabama (humid subtropical climate), has been on-going at Auburn University since 2002. Recently, it has yielded AU Golden and AU Durbin, the only two sunn hemp cultivars that can be used to produce commercial seed in the continental United States. Considered an excellent summer cover crop in the southeastern U.S., sunn hemp fixes nitrogen to the soil, suppresses weeds and nematodes, adds organic matter to soil, reduces soil erosion, and can be used as a forage crop with certain animals. Currently, supply of all sunn hemp seed to U.S. producers is imported into the continental U.S. and is not adequate to meet the demand. Through its biomass production and unique qualities, sunn hemp can help to minimize the costs of fertilizer, herbicides and nematicides. Auburn is looking for AU Golden and AU Durbin to be a boon to Alabama farmers.

Mosjidis is an experienced plant breeder who also has a number of other ground cover/forage cultivars that have been licensed for seed production, as well as a licensed utility patent for the inherent animal nematicidal qualities found in *Sericea lespedeza*.



Dr. Jorge Mosjidis in a field of blooming sunn hemp.

Spotlight on Inventors

EXCELLENCE IN INNOVATION



AUBURN UNIVERSITY ESTABLISHES A NATIONAL ACADEMY OF INVENTORS CHAPTER

In the fall of 2010, Auburn University became the fifth charter member institution of the National Academy of Inventors, joining University of South Florida, Georgetown University, Boston University, and the University of Cincinnati. On May 2, 2011, the university celebrated the creation of the Auburn University Chapter of the National Academy of Inventors by inducting 42 individuals into the AU chapter as charter members, and presenting what will become an annual Excellence in Innovation Award. The first recipient of the award was Dave Worley for his biocidal technology that is being commercialized by Halosoure Corporation in Seattle.

The AU chapter has elected officers, and bylaws have been written. Plans are in the works for at least two speakers that may be of interest to the broader inventive community. The chapter hopes that the organization can serve to encourage creative thinking and the spirit of innovation on the Auburn University campus, promote and enhance the development and utilization of inventions, and provide advice and guidance to new and existing inventors in their work.

Elected officers are Ram Gupta, president; Zhongyang Cheng, president-elect; James Barbaree, vice president; and Gwynedd Thomas, secretary. Faculty interested in joining the chapter may contact one of the officers or the Office of Technology Transfer for membership information.



John Weete presents the 2011 Excellence in Innovation award to Dave Worley, professor emeritus of the Department of Chemistry and Biochemistry.

"My research efforts at Auburn University have greatly benefited from the Office of Technology Transfer. By having expertise in both intellectual property and science, and the business acumen to help researchers bring their technology to the marketplace, OTT staff members are integral to the research efforts at Auburn University. Due to their efforts, my lab has been able to find the ideal commercial partners and negotiate collaborative research arrangements that are beneficial to all concerned."

*Mark R. Liles
Department of Biological Sciences
College of Sciences and Mathematics*

Spotlight on Inventors



Great university scientists, scholars, and educators are teaching the next generation of researchers and inventors. Although every invention and every inventor is unique, some things are common to all. It takes imagination, ingenuity, and persistence to be an inventor.

Introducing the Auburn University Chapter of the National Academy of Inventors

The National Academy of Inventors was founded to recognize and encourage inventors who have a patent issued from the U.S. Patent and Trademark Office; enhance the visibility of university technology and academic innovation; encourage the disclosure of intellectual property; educate and mentor innovative students; and translate the inventions of its members to benefit society. The academy will edit the international journal *Technology and Innovation - Proceedings of the National Academy of Inventors*.

OTT celebrates the imagination and ingenuity of our inventors as members of the Auburn University Chapter of the National Academy of Inventors.

Charter Members:

Thomas A. Baginski
Henry J. Baker
James M. Barbaree
Mary K. Boudreaux
Royall M. Broughton
Mark E. Byrne
Zhongyang Cheng
Bryan A. Chin
Nancy R. Cox
Robert N. Dean
William A. Dozier
Rex A. Dunham
M. Daniel Givens

Elizabeth A. Guertal
Ram B. Gupta
Curtis J. Hansen
Jong Wook Hong
Tung-Shi Huang
Tamara F. Isaacs-Smith
Bernhard Kaltenboeck
Dong-joo Kim
Joseph W. Kloepper
Tsailu Liu
Jorge A. Mosjidis
Raymond "Buzz" Powell
Christopher B. Roberts

Rodrigo Rodriguez-Kabana
Alexandre Samoylov
Tatiana I. Samoylova
Lewis G. Scharpf
Curtis G. Shannon
Adit D. Singh
Bruce F. Smith
Charles E. Stroud
Paul M. Swamidass
Gwynedd A. Thomas
Chin-Che Tin
John D. Weete
S. Davis Worley
Dongye Zhao



Auburn University NAI chapter officers (left to right): Jim Barbaree, Zhongyang Cheng, Gwen Thomas, and Ram Gupta.

Honorary Charter Members: Jay Gogue • Daniela Marghitu • John M. Mason

The Auburn University Office of Technology Transfer wishes to acknowledge and thank the faculty, staff, and students who disclosed inventions in FY 2011 and participated in the technology transfer process. Thank you for continuing to drive innovation at Auburn University.

“This past year, the Office of Technology Transfer has been an important resource for faculty and students in the Department of Kinesiology. Last spring, OTT visited with the College of Education and provided an overview of the services they offered. At that meeting, we realized that Kinesiology could potentially be a major player in this arena. Since then, our department has submitted 16 disclosures; filed four U.S. patent applications; put in place 4 NDA, MOU, MTA, Teaming and Testing agreements; and had two U.S. patent, trademarks, and copyrights issued.

These accomplishments would not have occurred without the hard work and efforts of the people who work in the Office of Technology Transfer. They not only helped us with faculty innovations, but have been instrumental in promoting student innovations as well. The department taught a graduate-level Tech Transfer course summer 2010. The Office of Technology Transfer provided resource information and assisted with the delivery of that course. From that course, five student innovations were submitted. In addition, the Office of Technology Transfer has met with faculty interviewees in Kinesiology. We view Auburn’s Technology Transfer Office as a great resource for faculty on Auburn’s campus, and a way to recruit quality faculty.”

*Mary Rudisill
Department of Kinesiology
College of Education*

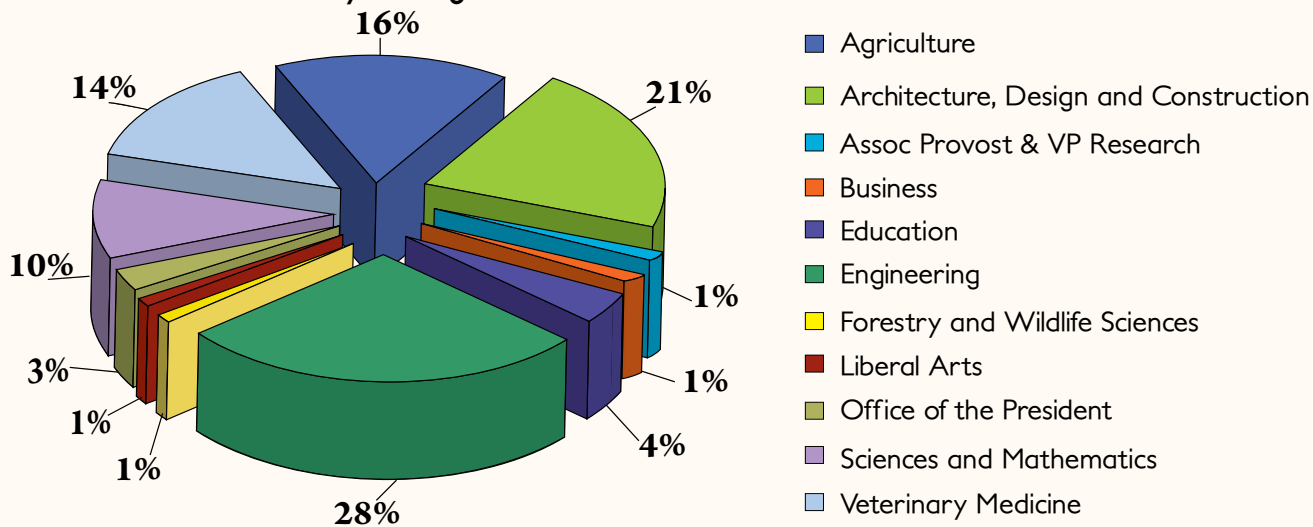
Individuals by Department or Unit Submitting FY 2011 Disclosures

Aerospace Engineering	1
Agronomy and Soils	1
Alabama Agricultural Experiment Station	1
Anatomy, Physiology and Pharmacology	1
Animal Health and Performance	2
Architecture	2
Associate Provost and Vice President for Research	1
Biological Sciences	1
Building Science	10
Campus Recreation	1
Chemical Engineering	13
Chemistry and Biochemistry	4
Civil Engineering	1
Clinical Sciences	1
Division of External Affairs/ATAC	1
Educational Foundations, Leadership and Technology	1
Electrical and Computer Engineering	3
Entomology and Plant Pathology	8
Forestry and Wildlife Sciences	1
Industrial and Systems Engineering	1
Industrial Design	16
Intercollegiate Athletics	1
Kinesiology	5
Management	1
Materials Engineering	3
Mechanical Engineering	2
National Soil Dynamics Lab	2
Office of the President	1
Pathobiology	10
Physics	1
Polymer and Fiber Engineering	3
Poultry Science	2
Scott-Ritchey Research Center	5
Sociology, Anthropology and Social Work	1

U.S. Patents Issued in FY 2011

Number	Title	Inventors
7,807,042	System for and Method of Patch Clamp Analysis	Vitaly J. Vodyanoy, Charles D. Ellis, Solomon Yilma, Bogdan M. Wilamowski, Thomas A. Hasling
7,811,952	Methods and Compositions for Vaccination Comprising Nucleic Acid and/or Polypeptide Sequences of Chlamydia Psittaci	Stephen A. Johnston, Katherine Stemke-Hale, Kathryn F. Sykes, Bernard Kaltenboeck
7,823,811	Apparatus and Method of Processing Raw Materials	Ken Mosley, Kenneth T. Nickerson, Rick Renniger
7,833,316	Doped Supported Zinc Oxide Sorbents for Regenerable Desulfurization Applications	Hong Yang, Priyanka Dhage, Bruce J. Tatarchuk
7,838,232	CalDAG-GEF1 Gene Mutations Associated with Thrombopathy	Mary K. Boudreaux
7,872,108	Method of Isolating Proteon Nucleation Centers from Blood and Other Biological Materials	Vitaly J. Vodyanoy, Alexandre M. Samoylov, Oleg M. Pustovyy
7,871,772	Method of Isolation and Self-Assembly of Small Protein Particles from Blood and Other Biological Materials	Vitaly J. Vodyanoy, Alexandre M. Samoylov, Oleg M. Pustovyy
7,887,880	Preparation and Application of Stabilized Metal Nanoparticles for Dechlorinated Hydrocarbons in Soils; Sediments, and Groundwater	Dongye Zhao, Feng He
7,906,074	A Fluidic Array System for Biological, Chemical, and Biochemical Assessments	Jong Wook Hong, Jihyun F. Kim, Tae Kwang Oh, Sung Ho Yoon
7,937,759	System and Method for Protecting Communication Devices from Denial of Service Attacks	Chwan-Hwa Wu, J. David Irwin, Chun-Ching Huang, Chien-Cheng Wang
7,939,376	Patterned Die Attach and Packaging Method Using Same	Leora Peltz, R. Wayne Johnson
7,977,473	Use of Non-Crystalline Cellulose as a Medicine Tablet Medium	Yoon Y. (Y.Y) Lee
7,984,865	Apparatus and Method of Processing Raw Materials	Ken Mosley, Kenneth T. Nickerson, Rick Renninger
7,999,268	Low Temperature Impurity Doping of Silicon Carbide	Chin-Che Tin, Adetayo V. Adedeji, Ilkham G. Atabayev, Bakhtiyar G. Atabaev, Tojiddin M. Saliev, Erkin N. Bakhranov
8,009,120	Reinforcement Fabrics with Electronic Transmission Capabilities	Gwynedd Thomas, Andrew Sivulka, Lloyd S. Riggs, David J. Elton
PP22,159	Kiwi Plant Named "AU Golden Sunshine:	William A. Dozier, Bryan S. Wilkins, James A. Pitts, Curtis J. Hansen, Qinghong Chen, Zhongqi Qin, Yingchun Jiang, Xia Gu, Aichun Xu, James D. Spiers, Floyd Woods
PP22,140	Kiwi Plant Named "AU Golden Tiger:	William A. Dozier, Bryan S. Wilkins, James A. Pitts, Curtis J. Hansen, Qinghong Chen, Zhongqi Qin, Yingchun Jiang, Xia Gu, Aichun Xu, James D. Spiers, Floyd Woods

**Invention Disclosures Submitted to OTT
in FY 2011 by College or School**





AUBURN UNIVERSITY

OFFICE OF TECHNOLOGY TRANSFER

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