Chancellor Announces 2011 Distinguished Research Awards

By Alex Russell

Chancellor Mark A. Nordenberg has announced the winners of the 2011 Chancellor’s Distinguished Research Award, which will be given to the following five faculty members:

**Jeremy Levy**, a professor in the Department of History and Philosophy of Science; Mary L. Marazita, a professor in and chair of the Department of Oral Biology in the School of Dental Medicine; John D. Norton, a professor in the Center for Craniofacial and Dental Genetics, a professor of human genetics in the Graduate School of Public Health, and a professor of psychiatry in the School of Medicine; Edouard Machery, a professor in the Department of Philosophy of Science, and Alexander Star, an assistant professor in the Department of Chemistry.

Levy, Marazita, and Norton are being honored in the senior scholar category, which recognizes “an outstanding and continuing record of research and scholarly activity,” while Machery and Star are being honored in the junior scholar category. Each awardee will receive a $2,000 cash prize and a $3,000 grant for research support and will be recognized at the University of Pittsburgh’s 35th annual Honors Convocation.

4400 Forbes Ave., Oakland.

Levy is a widely respected leader in the field of oxide electronics and quantum computation. The Chancellor’s Award selection committee said it was particularly impressed by the information provided in support of his nomination, including the letters of recommendation from well-known authorities in the fields of physics and astronomy. The chancellor, in his Feb. 9 letter informing Levy of the award, said Levy’s research has been described “as an unusual combination of depth, breadth, interdisciplinary focus, leadership, achievement, and high impact.” Levy received the Chancellor’s Distinguished Research Award in the junior category in 2004.

He received in 2008 the coveted Nano 50 Award for his invention of an oxide-based nanotransistor. In 2009, he was named a Fellow of the American Physical Society for inventing new approaches to creating electronic circuitry at scales that seem unimaginably small, such as working transistor with wires that were only two nanometers wide.

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You Are Invited

to join the celebration as Pitt students, faculty, alumni, and staff are recognized for their outstanding achievements and their contributions to the rich quality of life on campus and in the surrounding community.

35th Annual Honors Convocation

3 p.m.

Friday, February 25

Carnegie Music Hall

4400 Forbes Avenue

Honors Convocation is open to the public.

All honorees and their guests are invited to attend a reception immediately following the Honors Convocation.

From Season Tickets to Naming Rights, Courtesy of Jack, Georgia Smith

A retired managing partner of Ernst and Young's Pittsburgh office, Bigley has been a member of the University’s Board of Trustees since 1994 and formerly served as its vice chair.

“...That was the only way I could have come to the University,” says Bigley, who has repaid Pitt handsomely through both his generous financial support and his exceptional service to the University. A retired managing partner of Ernst and Young’s Pittsburgh office, Bigley has been a member of the University’s Board of Trustees since 1994 and formerly served as its vice chair. He has served on numerous board committees, including the Athletics Committee, and is a lifetime member of the Pitt Alumni Association. He received the Distinguished Alumnus Award from the Katz School in 1984 and was named Golden Panther of the Year in 1994.

Bigley was an accomplished Pitt student as well. He was a member of the Pitt Pathfinders, the Beta Alpha Psi business information honors society, and the Druids honors society, and he graduated cum laude. Smith also has provided outstanding service to the University. He has been an active member of the Pitt Alumni Association, holding leadership positions since 2004. He also serves on the Pitt-Greensburg Advisory Board.

As a student, he was a member of Student Government and served on the staff of The Owl yearbook and on the board of the Student Union.

Jeff Gleim, the University’s associate vice chancellor for alumni relations, said Smith is providing the Pitt Alumni Association with strong leadership: “He really leads by example and is always willing to do himself what he asks others to do.”

Smith firmly believes that all he has done for Pitt and its Alumni Association and athletics programs has been repaid to him many times over in the richness of the friendship he has enjoyed with the Bigleys and the many other friendships he has gained through his involvement with Pitt.

“It may be cliché,” says Smith, “but you get more than you give.”
Anthropologist Yolanda Covington-Ward’s Research Focuses on the Power of Dance and Gesture

By Sharon S. Blake

Yolanda Covington-Ward thinks her love of dance may have originated on the stage of her Bronx, N.Y., elementary school some 20 years ago. A shy, bookish, and serious fifth-grader, Ward was encouraged by a teacher to embrace her African heritage and culture. Soon she was transformed from a bookworm into an energetic, high-kicking performer whose head scarf flew off as she performed a West African dance before the entire school. The applause rocked the room as she exited the stage. “I can still remember that,” laughed Covington-Ward, an anthropologist and assistant professor of Africana Studies at Pitt. Dance and performance, she said, are what gave her the confidence she lacked and the courage to face life’s challenges.

Through the ensuing years, Covington-Ward built an impressive list of credentials. Her master’s and PhD work in anthropology at the University of Michigan took her to Panama, Belgium, and to the Democratic Republic of the Congo (DRC). It was in the Congo that she researched how people of the BisiKongo (Kongo) ethnic group used their bodies—not just in dance, but also in everyday life, even as a means to challenge authority.

Whether researching Kongo women’s use of trembling as a means to prophesy or looking at how dance shapes Liberian national identity, Covington-Ward has worked tirelessly to analyze how the body is used to transform social relationships and identities. She has been invited to lecture throughout the United States and the Congo, is proficient in four languages, and is passionate about teaching Pitt undergraduates the cultures, dances, and histories of Africa and its Diaspora.

She has been published in a number of peer-reviewed journals, among them African Studies Quarterly, Transforming Anthropology, African Research and Documentation, and the Journal of Religion in Africa. Her article on the performances of Kongo nationalism in the Congolese independence movement will be published in the Spring 2011 issue of the Journal of Black Studies.

For the past three years she has presented papers at the national conference of the American Anthropological Association, and she also has presented papers at the international conference of the African Studies Association and of the Association of Black Anthropologists.

She recently completed a two-year term as secretary of the Association for Africanist Anthropology.

Where her career has led her is far different from where it began. The oldest of six children and the first in her family to attend college, Covington-Ward was on the premed track at Brown University in the late ’90s. But her love of African culture and a study-abroad semester in Ghana kept pulling her toward anthropology. At Michigan, her mentor, Mbalia N’Kanga, urged her to follow her passion.

In 2005, she became the first student in 10 years to win a Fulbright award to the DRC. “When I got to the Congo, my mind and expectations were wide open,” she said, “I tried to see where dance fit into the larger scheme of things for the Kongo people.”

Covington-Ward’s research in the Congo included a 1920s religious movement founded in the Western province of Bas-Congo by prophet Simon Kimbangu. According to Covington-Ward, when word spread that Kimbangu embodied the Holy Spirit and healed people, crowds flocked to him. He was eventually arrested by the Belgian colonial administration and brought to trial. During the trial, Kimbangu “trembled,” a gesture some Kongoese believe suggested the presence of the Holy Spirit. The prophet was jailed for 30 years and died in prison. Her research into the religious movement was a turning point for her. “I realized people’s body movements had challenged prevailing authority.”

Her studies also took her to Luozú, a rural town that lacked electricity and where residents used a cupped form of handclapping—bula makonko—to open and close prayer and to ask for forgiveness. There, Covington-Ward encountered Bundu dia Kongo, a radical nationalist group that combined spiritual elements with political goals. Members also encouraged the use of the bula makonko gesture as a means of greeting people. By reviving bula makonko, which existed at the time of the Kongo Kingdom, the group hopes to restore the power and influence of that kingdom, said Covington-Ward.

The young anthropologist also examined the history of the Grand March, a dance of African heritage and former slaves, largely from Virginia and Maryland, brought with them when they emigrated to Liberia. It became the dance of the American elite in Liberia, said Covington-Ward, and helped the country shape its identity as one of the two independent African countries during the late 19th and early 20th centuries. Now it’s an important part of the lifestyle of many Liberians of different ethnic backgrounds living in the United States.

Yolanda Covington-Ward stands in the Cathedral of Learning’s African Heritage Nationality Room. She is wearing a skirt and top made out of fabric given to her by a Nigerian friend. The type of fabric used is popular throughout West Africa and is often worn to such events as weddings or formal dances.

BlackHistoryMonth
Chancellor Announces 2011 Distinguished Teaching Awards

Graham Hatfull
Mary Margaret Kerr
Matthew Luderer
John O’Donnell
Sanjeev Shroff

University of Pittsburgh Chancellor Mark A. Nordenberg has announced the 2011 Chancellor’s Distinguished Teaching Awards, which will be given to the following five Pitt faculty members:

Graham Hatfull, the Eberly Family Professor, Howard Hughes Medical Institute Professor, and chair of the School of Arts and Sciences’ Department of Biological Sciences;

Mary Margaret Kerr, professor and chair of the School of Education’s Department of Administrative Policy and Studies;

Matthew Luderer, professor in the Pitt-Greensburg Department of Chemistry; and

Sanjeev Shroff, professor and Gerald McGinnis Chair in Bioengineering, associate chair of the Swanson School’s Department of Bioengineering, and professor of medicine.

Each awardee will receive a $2,000 cash prize, a grant of $3,000 for the support of his or her teaching activities, and recognition at the University of Pittsburgh’s 35th annual Honors Convocation, to be held at 3 p.m. Feb. 25 in Carnegie Music Hall, 4400 Forbes Ave., Oakland.

Hatfull was recognized for his positive impact on the Department of Biology’s teaching mission. “As a recipient of a third HHMI Faculty Development Award, Professor Hatfull has worked in urban and child psychiatry. Also licensed as a teaching assistant training program for the firm theoretical foundation that will remain an important asset throughout their careers,” the chancellor wrote.

Luderer was selected to receive the award because of his “many contributions to the Biology and Chemistry curricula of the University of Pittsburgh at Greensburg.” The chancellor wrote in his notification letter. Specifically, Nordenberg cited Luderer’s development of an organic chemistry laboratory manual, which was published by McGraw Hill in 2007. In addition, Luderer also has been chosen by 45 students as a mentor for their undergraduate senior capstone experiences.

As is evident from your outstanding student evaluations, your classroom teaching is inspiring while simultaneously making a traditionally difficult subject, Organic Chemistry, enjoyable for your students.

Shroff was selected for his “excellence in his role as a clinical faculty member in the service of public health. “As a physician with academic and clinical responsibilities in the field of critical care medicine, you have used your expertise far beyond the University,” the chancellor wrote in his award letter to Shroff. As a regular volunteer for numerous medical missions, Baldisseri was instrumental in designing and implementing the first intensive care unit in the capital city of Swaziland in southern Africa. Following the devastating 2010 earthquake in Haiti, she was part of a team that within three days brought the Society of Critical Care Medicine Fundamentals of Critical Care Support course to physicians in the Dominican Republic caring for Haitian earthquake victims. Recently, she founded the Critical Care Disaster Foundation, which is dedicated to working and teaching in areas preemptively, before a disaster strikes. “Further, you are incorporating this new knowledge in the training of students within the University of Pittsburgh’s 35th annual Honors Convocation, to be held at 3 p.m. Feb. 25 in Carnegie Music Hall, 4400 Forbes Ave., Oakland.

Sanjeev Shroff

Baldissi, Cooper, and Glasco Win 2011 Chancellor’s Distinguished Public Service Award

By Alex Russell

Chancellor Mark A. Nordenberg announced the winners of the 2011 Chancellor’s Distinguished Public Service Award, which will be given to the following three faculty members:

Marie Baldissi, a professor in the Department of Critical Care Medicine, Pitt School of Medicine;

Rory Cooper, Distinguished Professor and FISCA-Paralyzed Veterans of America Chair in the Department of Rehabilitation Science and Technology, Pitt School of Health and Rehabilitation Sciences; and

Laurence Glasco, a professor in the Department of History, School of Arts and Sciences.

Each awardee will receive a $2,000 cash prize, a grant of $3,000 for the support of his or her public service activities, and recognition at the University of Pittsburgh’s 35th annual Honors Convocation.

Each awardee will receive a $2,000 cash prize, a grant of $3,000 for the support of his or her public service activities, and recognition at the University of Pittsburgh’s 35th annual Honors Convocation.
The science of bioengineering is profoundly changing the world of medicine as we know it. Continued research and technological breakthroughs have revolutionized the discipline, resulting in advances never before thought possible. Cardiac-assist device for infants whose hearts don’t pump adequately, a blood-treatment tool that allows ventilator-dependent people to breathe without a ventilator, a high-tech bandage used successfully to repair injured hearts, and materials that help regenerate bone and then dissolve once the job is done.

University of Pittsburgh researchers are at the forefront of this surge in innovation. They are applying their expertise to create a myriad of new devices, spurring the creation of start-up companies as well as research partnerships involving an array of industries.

Such accomplishments are in no small part the result of the idea-nurturing environment that researchers find on the University’s Swanson School of Engineering, its School of Medicine, and its other schools of the health sciences; the University of Pittsburgh Medical Center (UPMC) health network; and the Pitt-UPMC McGowan Institute for Regenerative Medicine.

The results have been widely recognized, with Pitt in recent years being ranked as one of the nation’s top universities for bioengineering research and education. In 2010, for example, U.S. News and World Report ranked Pitt’s graduate program in bioengineering 12th in the nation overall, along with the University of Michigan and University of California, Berkeley. Among public institutions, Pitt was ranked fourth best. In the 2010 rankings by the National Research Council, Pitt’s undergraduate program was ranked seventh out of 53 programs.

Another indicator of the caliber of Pitt’s bioengineering research is the amount of funding the Swanson School’s Department of Bioengineering receives from competitive federal funding programs. In 2009 and 2010 alone, Pitt bioengineering researchers were awarded $5.6 million to develop a heart-assist pump for infants and toddlers, part of a $23.6 million effort by federal government and private benefactors, primarily the National Institutes of Health,及其 core competencies are broad—cellular biology, gene therapy, imaging, biomaterials, bioengineering, and biomechanics among them—and they use their expertise to develop medical devices, biomaterials, engineered tissue, and cell-based therapies.

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Charting the Future Through Bioengineering

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affecting everything from the heart and vascular tissue to the lungs and nervous system.

Not only does such breadth of expertise provide for rich collaboration within the University, it also attracts privately funded entities, enticing them to form the partnerships that the McGowan Institute views as part of its mission. “We are seen as a place where people do serious work in regenerative medicine. And, to some extent, we are a magnet to companies that are interested in that space,” says Alan Russell, director of the McGowan Institute and University Professor of Surgery in Pitt’s School of Medicine.

Several companies have also evolved from the work of Pitt bioengineering researchers. Russell’s work in the decontamination of chemical weapons through the use of enzymes led to the creation of Agentase, a South Side company that is now a subsidiary of ICX Technologies. Agentase develops products for detecting and addressing chemical contamination in settings that range from war zones to hospitals.

More recently, Russell’s lab is focusing on deepening the complex chemistry that would allow researchers to more effectively and efficiently separate cells as part of their work to develop new regenerative medicine technologies. “Surfaces that interact with certain cells in interesting ways is of significant interest to us,” says Russell. “In regenerative medicine, people are separating cells all of the time. Today, if you want to separate cells you have to modify those cells in some way and use a machine to tease one cell away from another. We are interested in whether it is possible to design surfaces that wouldn’t require you to modify the cell. Then you could begin to classify and separate cells on the basis of their functionality rather than on the basis of what they stick to in a machine.”

Russell’s laboratory is also investigating certain aspects of sugar’s generating capacity in the hopes of developing an alternative power source that would help satisfy the world’s thirst for electricity. “It is definitely feasible,” he says. “Whether it is scalable and how much power you can generate is a different issue. But we can switch on a light bulb with cells of Coke.”

From Lab to Bedside

The field of bioengineering is recognized for researchers’ ability to move new technologies out of the laboratory into practical use. The Sonic Flashlight™, developed by Pitt Professor of Bioengineering George Stetten, is among the many ideas born in Pitt laboratories that have found their way to the marketplace and patients’ bedsides.

The Sonic Flashlight™ is a handheld ultrasound probe with a mirror and miniature display attached to it. The design allows images to be viewed directly by medical practitioners without their having to turn their heads and view a screen, as is required in traditional ultrasound imaging. The probe enables users to see what lies beneath the skin as a real-time, floating image.

UPMC clinical trials demonstrated the value of the device in helping nurses more comfortably and accurately, without having to turn their heads to view a screen, to turn their heads to view a screen, as is required in traditional ultrasound imaging.

George Stetten, is among the many Pitt professors who have found their way to the marketplace and patients’ bedsides. While such respira-
tory support is critical, it presents problems of its own, including the risk that the process causes additional damage to already-diseased lungs.

Alung Technologies, a Pittsburgh-based start-up, is conducting clinical trials in Europe involving a respiratory-assist device that does the job of a ventilator—with out the ventilator. The product was developed in the laboratory of William Federspiel, the William Kepler Whitford Professor of Bioengineering, Surgery, and Chemical Engineering.

“Takes a small amount of blood outside the body and runs it through an artificial lung cartridge that was specifically designed to be very efficient at removing carbon dioxide from the bloodstream, and it also adds oxygen into the bloodstream,” says Federspiel. Federspiel’s laboratory is also exploring the possibility of taking that concept one step further: a device that would perform the same function without having to draw blood from patients. “The idea,” he says, “is to have a catheter that sits in a blood vessel and oxygenates and removes carbon dioxide to provide respiratory support.” This was the dream of one of Federspiel’s early collaborators at Pitt, the late cardiothoracic surgeon Brack Hatler, with whom Federspiel founded Alung Technologies.

Federspiel is also investigating new technologies for treating sepsis, a serious whole-body inflammatory reaction to an

Pitt professor of bioengineering George Stetten holds The Sonic Flashlight™ a handheld ultrasound probe with a mirror and miniature display attached to it. Developed by Stetten, the device allows images to be viewed directly by medical practitioners without having to turn their heads to view a screen, as is required in traditional ultrasound imaging.
infection in blood or tissues. Federspiel’s laboratory is working with John Kellum in the School of Medicine’s Department of Critical Care Medicine to develop a device that filters a sepsis patient’s blood through a cartridge of absorbent beads designed to remove the chemical molecules that orchestrate the body’s innate immune system. “By removing them from the bloodstream, we are able to calm the reaction to this infection and mitigate the effects associated with sepsis,” Federspiel said.

**Matters of the Heart**

For patients who experience post-infarct ischemic cardiomyopathy, which is heart failure following a heart attack, the prognosis is rarely good. Scar tissue forms, the wall of the heart thins, and the heart’s ability to pump diminishes to the point where extreme measures, such as a transplant, are necessary.

In his laboratory, William Wagner is exploring technologies that could offer such patients a far more attractive option. One is an elastic patch designed to support the damaged part of the heart and help it heal. Another is an injectable gel that at body temperature becomes an elastic girdle to reduce stress on the healing heart tissue.

Both materials are being developed with such tissue-regenerative properties as the ability to deliver drugs that spur healing and the capacity to degrade safely within the body. “We’re developing material that will fulfill a function, often a mechanical function—like an internal crutch or girdle—but will go away over time and allow the body, as it heals, to take over that function on its own,” says Wagner, deputy director of the McGowan Institute and a professor of surgery, bioengineering, and chemical engineering at Pitt.

Many materials used in biomedical applications today were originally made for other purposes, such as for hosery or wire insulation. But Wagner’s lab designs them from scratch for specific medical situations, aiming for deep biocompatibility and function. For the heart patch, which is surgically implanted over the heart’s damaged area, researchers in Wagner’s lab engineered a thin sheet of polyurethane with several key properties: the elasticity necessary to protect the healing heart tissue’s high stress, the molecular makeup to degrade into materials that are not toxic to the body, and the ability to precisely deliver “growth factors,” which are naturally produced proteins that stimulate cell division and promote tissue regeneration.

In addition, Wagner can tweak the material’s molecular design to make it softer or stiffer, degrade faster or slower, break down with a specific enzyme, and deliver a specific drug. Wagner’s team is also exploring a three-dimensional hydrogel engineered to be a liquid at cold temperatures that quickly forms an elastic patch at body temperature. Such properties make it possible to administer support to a damaged heart by way of injection rather than through open-chest surgery.

“The question we’re addressing with all of this is whether there is something we can do to improve the outcomes of these patients before the heart completely fails,” says Wagner.

**Devices as Living Tissue**

In the laboratory of Michael Sacks, the John A. Swanson Endowed Chair in the Department of Bioengineering, advances in tissue engineering are being made in understanding the complex structure and function of human heart valves. One long-term goal is for young children with congenital defects to no longer have to endure multiple valve surgeries as they reach maturity. Surgical replacement of the pulmonary heart valve in young children is often initially very successful, yet problems occur as these children literally outgrow the implanted valve. Pediatric cardiac surgeons have to go in every several years to replace it with another valve,” says Sacks. “It often takes multiple surgeries to bring that child to adulthood. One of the big challenges is that all of those surgeries have associated mortality and morbidity.”

Sacks, one of the world’s leading authorities in cardiovascular biomechanics, is applying his expertise to gaining deeper insight into the heart valves’ structure and function—a critical step toward engineering a living replacement valve that will grow with the child, just like a healthy natural valve would.

**Biomechanics**

Biomechanics is a multi-disciplinary science, as evidenced by a heart valve project being developed in the labs of principal investigator Michael Sacks (right), the John A. Swanson Endowed Chair in the Department of Bioengineering, William Wagner (left), deputy director of the McGowan Institute and a professor of surgery, bioengineering, and chemical engineering, and a research colleague at Children’s Hospital Boston. The team is working to develop a living tissue replacement heart valve. Wagner’s research team is generating new polymer scaffolds that can function in the demanding heart valve environment and gain a deeper understanding of how the native valve works, says Sacks. “In terms of the valve, we’ve made a lot of strides in understanding how to fabricate the scaffolds, how to model them, and how to seed and grow valve-like tissues. While clinical trials remain a long-term goal, we currently have a much better understanding of what our design endpoints are, how the valve works, and what is necessary to replace it.”

**To create a living-tissue replacement heart valve, researchers are investigating a strategy that involves seeding a biocompatible polymer scaffold with cells. The cells, once implanted, would grow a living-tissue valve capable of functioning and developing as a natural heart valve does.**

The question we’re addressing with Sacks’ laboratory, a research colleague’s laboratory at Children’s Hospital Boston, and William Wagner’s laboratory at Pitt. Work on such a replacement valve for children is still in the early stages. One major challenge is to understand what happens when the replacement valve is implanted in a living heart and the body begins the process of remodeling.

“*What we have been able to do is gain a deeper understanding of how the native valve works,*” says Sacks. “In terms of the valve, we’ve made a lot of strides in understanding how to fabricate the scaffolds, how to model them, and how to seed and grow valve-like tissues. While clinical trials remain a long-term goal, we currently have a much better understanding of what our design endpoints are, how the valve works, and what is necessary to replace it.”

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Restoring Neural Function

Brain damage from injury or disease can often result in the permanent loss of function, such as the ability to move an arm. But Pitt bioengineers are developing technologies aimed at helping patients regain such abilities and improve their quality of life.

In Tracy Cui’s laboratory, researchers are investigating ways to convince the brain to tolerate implantable devices that can, it is hoped, restore some lost function. These researchers are also looking into methods of engineering healthy neural tissue.

Devices implanted in the brain can be rendered useless if the brain rejects them or covers them with scar tissue. Cui’s laboratory is trying to ensure a better outcome so an electrode that listens to neurons’ electrical signals won’t have those signals muted by scar tissue. The goal is to develop a device that enables patients who’ve lost a certain function to control, for example, a robotic arm with their thoughts.

One strategy for creating a more biocompatible electrode is to coat it with proteins that exist in the brain. “Basically, we try to trick the brain tissue into thinking that the chip is not a foreign body,” says Cui, a Pitt professor of bioengineering, and other Pitt scientists are seeding electrically conductive polymer scaffolds (below) with neural stem cells. The hope is that once the scaffold is implanted, electrical current can be used to coax the stem cells into becoming neurons or other cells necessary to restore lost brain activity.

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Charting the Future Through Bioengineering

Engineering healthy neural tissue is one approach to restoring brain-directed functions. To grow such tissue, Tracy Cui, a Pitt professor of bioengineering, and other Pitt scientists are seeding electrically conductive polymer scaffolds (below) with neural stem cells. The hope is that once the scaffold is implanted, electrical current can be used to coax the stem cells into becoming neurons or other cells necessary to restore lost brain activity.

Continued from page 7

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One strategy for creating a more biocompatible electrode is to coat it with proteins that exist in the brain. “Basically, we try to trick the brain tissue into thinking that the chip is not a foreign body,” says Cui, a Pitt professor of bioengineering. Another approach is to put an electrically switchable polymer on the electrode that, when activated, pumps an anti-inflammatory drug to control scar tissue or neurotrophic factors to promote neuron health. The National Institute of Neurological Disorders and Stroke and the U.S. Department of Defense fund the research.

Cui’s laboratory is also investigating how spinal cord tissue tolerates an implantable device designed to stimulate the neural circuit, restoring arm or leg movement or sensory functions that have been impaired by injury. The underlying concept of the device is similar to that of cochlear implants used to restore hearing loss.

Engineering healthy neural tissue is another approach to restoring brain-directed functions. To grow such tissue, Cui and other Pitt scientists are seeding electrically conductive polymer scaffolds with neural stem cells. The hope is that once the scaffold is implanted, electrical current can be used to coax the stem cells into becoming neurons or other cells necessary to restore lost brain activity.

Solders and others who suffer traumatic brain injuries are not the only ones who would benefit, says Cui. “As the population gets older, there’s an increasing number of patients with diseases like Parkinson’s and Alzheimer’s. So we really need to find a way to replace and regenerate neurons.”

Mending Bone

Prashant Kumta is developing advanced technologies to help overcome severe bone defects and injuries. Kumta holds the Edward R. Weidlein Chair in the Swanson School of Engineering and is a professor in the Departments of Bioengineering, Chemical and Petroleum Engineering, and Mechanical Engineering and Materials Science. Using his expertise in bioceramics and biometallurgy, he is developing implantable materials and delivery systems for ceramics, natural and synthetic polymers, and metals and novel nanoparticles. The goal? To be able to repair “critical bone defects,” such as a missing segment of bone too substantial for the body to heal on its own.

One such advanced material to be tested in clinical trials is a biocompatible and bioresorbable ceramic cement that is injected into the site of the defect as a scaffold. The scaffolds are designed to provide semi-load-bearing support and promote bone regeneration before they safely dissolve. “With these scaffold structures, the cement can be placed at the defect site, and in eight weeks the cement disappears and you have formed new bone,” Kumta says.

The U.S. Department of Defense, which funds the research, is particularly interested in this technology as a way to improve the outcomes of soldiers who have suffered severe craniofacial injuries. Kumta’s collaborators on the project include colleagues in Pitt’s Department of Bioengineering, School of Dental Medicine, and the McGowan Institute.

The cement comprises a calcium phosphate-based ceramic powder and other additives mixed with a fluid that contains nanoparticles on which researchers are able to bind growth factors and other signaling molecules that help regenerate bone. The porous nanostructured cement has the potential to greatly improve the prognosis for those with craniofacial injuries. Kumta is also working toward developing new metal-based technologies to regenerate load-bearing bone, which would enable surgeons to repair defects in the femur—for example, magnesium, in particular, has shown great potential for such applications, since it possesses mechanical characteristics identical to those of natural bone as well as the ability to safely dissolve in the body. Kumta and his colleagues are designing novel magnesium-based alloys to tap those characteristics for the benefit of patients with critical bone defects. “The ultimate dream,” he says, “is that the metal can be placed into a femur, and in a few weeks’ time, when the surgical incision has healed, the patient will be able to stand up and resume normal activities.”

More Work Ahead

Pitt bioengineering researchers like Kumta can look forward to continued demand for the kinds of technologies they have developed.

The aging population, a growing focus on health issues, and other factors are expected to sustain the demand for sophisticated materials, devices, and other technologies that emerge from bioengineering laboratories. “I think bioengineering is in the beginning of its growth phase,” says Russell. “And I think we are a long way off from seeing any change in that.”
Machery’s remarkable productivity in the six years since he received his PhD greatly impressed the award selection committee. Nordenberg, in his congratulatory letter to Machery, has mentioned that he has published more than 60 articles and book chapters in the most prestigious journals in both philosophy and psychology. “This is an exceptional record of accomplishment, particularly for someone in the early stages of his career. You are considered one of the best philosophers of cognitive science in the world, regardless of career stage,” the chancellor wrote. Machery was honored as a leading contributor to the development of experimental philosophy, a new area within the discipline. One nomination letter described Machery as “a force of nature … a strikingly original thinker … ferociously smart, and … astoundingly productive.” It is clear, Nordenberg wrote, “that you have achieved national and international eminence as an outstanding scholar in your field.”

Marazita is a leader in the field of cell lipid and palate genetics who has made significant contributions to understanding of this complex genetic birth defect. “Described as a talented scientist whose work has earned him a variety of disciplines, including statistics, human genetics, psychiatry, and oral biology, you have remained at the forefront of gene identification efforts for over twenty years,” the chancellor wrote in his letter notifying Marazita of the award. Marazita helped to establish the School of Dental Medicine nationally as a center for research in oral/dental disease, with particular strengths in genetics and pharmaceutical contributions to the School of Dental Medicine, as well as the other schools of health sciences at the University of Pittsburgh, cannot be overstated,” the chancellor wrote. “You have been awarded 53 grants from federal and state agencies and private foundations, totaling almost $48.5 million and have published more than 200 peer-reviewed papers.”

Nordenberg praised Norton for his accomplishments in the field of history and philosophy of science that have earned him national and international esteem as a scholar in the discipline. Norton has a particular interest in the research of physicist Albert Einstein (EPR-67), and he has earned the distinction of being “the world’s preeminent scholar on the genesis of Einstein’s theory of general relativity.” Nordenberg noted in his Feb. 9 letter informing Norton of the award, “The selection committee was particularly impressed with your detailed analysis of Einstein’s Zurich notebook and the many papers you have authored on Einstein’s thought and ideas on a variety of questions. … Your contributions to the philosophy of space and time, inductive logic, the role of thought experiments, and the ways scientific theories should be evaluated are all highly regarded. As one fellow scholar stated, ‘no one so brilliantly combines these disciplines as does John Norton.’” Nordenberg wrote. Norton also served as chair of the Department of History and Philosophy of Science as director of the Center for Philosophy of Science.

Star’s research has provided innovative contributions to carbon nanotube materials. “[Y]ou were among the first researchers to identify the role of carbon nanotubes in an effort to affect their biological properties, paving the way for their use in medical applications, as well as their safe and effective removal from the environment,” the chancellor wrote in Star’s award letter. “You also were one of the first researchers to recognize that single wall carbon nanotubes are an ideal platform on which to construct chemical sensing materials.” The award selection committee noted that Star’s research has been instrumental in fabricating new materials technologies, the Harbor Gardens Park office building, and the Manchester Craftmen’s Guild, a multidisciplinary arts and learning center, gallery, and auditorium with a concert hall that is a mecca for international jazz artists. A dedicated community servant, Fife was appointed to the City of Pittsburgh Zoning Board of Adjustment by Mayor Tom Murphy in 1994. Fife also served on the boards of the Pittsburgh Child Guidance Foundation, the Manchester Academic Charter School, the Citizens Advisory Council on the Efficiency and Effectiveness of City-County Government, and the Community College of Allegheny County, whose board’s Workforce Development Committee he chaired. At Pitt, Fife was a member of the Alumni Legislative Committee and a visitor of the School of Health and Rehabilitation Sciences.

Weis authored the Manchester Bidwell Corporation's state-of-the-art campus, the Drew Mathieson Center for Horticultural education and staff. A dedicated community servant, Fife was instrumental in securing the recommendation were enacted into law. Under Weis’ leadership, the committee produced a monumental report—completed in just 15 more legal and political review. Among Weis’ many honors include the American Judicature Society’s Edward J. Devitt Distinguished Service to the American Judges Conference, Technology in the Courts Committee, and Design Courtrooms and Court Facilities.

In 1989, then-Chief Justice of the United States William H. Rehnquist appointed Weis chair of the Federal Courts Study Committee to examine issues and problems facing the nation’s court system, the first study of its type to be undertaken in nearly 100 years. Under Weis’ leadership, the committee produced a monumental report—completed in just 15 more legal and political review. Among Weis’ many honors include the American Judicature Society’s Edward J. Devitt Distinguished Service to the American Judges Conference, Technology in the Courts Committee, and Design Courtrooms and Court Facilities.

Weis authored the Manning Mills V. Congoleum Corp. opinion in 1979, making him a sought-after member of many international legal forums. In the field of legal ethics, Weis authored a number of important opinions, including the 1981 dissenting opinion in Garden State Bar Association v. Middlesex County Ethics Committee, which was later reversed by the U.S. Supreme Court. The 1991 majority opinion in Stretton v. Disciplinary Board reversed a lower court’s nearly 100 years. Under Weis’ leadership, the committee produced a monumental report—completed in just 15 more legal and political review. Among Weis’ many honors include the American Judicature Society’s Edward J. Devitt Distinguished Service to the American Judges Conference, Technology in the Courts Committee, and Design Courtrooms and Court Facilities.
Awards&More

Software giant Microsoft selected Mengmeng Li, a computer science doctoral student in Pitt’s School of Arts and Sciences, as one of 10 aspiring women in computer science from the United States and Canada to receive the 2011 Microsoft Research Graduate Women’s Scholarship. The scholarship is intended to increase the number of women pursuing PhD degrees in computer science, a field traditionally dominated by men.

The one-year award includes $15,000 for the 2011-12 academic year, a $2,000 travel grant to a professional conference of the recipient’s choice, and a possible Microsoft Research internship. Li—whose research interests include networking, computer security, and piracy—was honored along with women postgraduate students from such institutions as the Massachusetts Institute of Technology, Stanford University, the University of California at Berkeley, and the University of Toronto.

Richard M. Kyle, a third-year student in the University of Pittsburgh School of Law, has been named a Robert Bosch Foundation Fellow for 2011-12. As a Bosch Fellow, Kyle will engage in intensive German language study as well as seminars with key German and European decision makers. He was one of 20 chosen nationwide from among more than 600 applicants.

In September 1984, the first group of Robert Bosch Foundation Fellows participated in a nine-month professional development program in Bonn. Now in its 26th year, the prestigious Robert Bosch Foundation Fellowship accepts 20 exceptional young professionals from the fields of public policy, law, business, and journalism as fellows.

The fellowship seminars will take place in major cities throughout Germany and across Europe to expose participants to the elements of the German government and the larger European Union. Each fellow will complete a high-level work placement in the public and private sectors. Kyle plans to work in the area of commercial legal reform and international dispute resolution in the German federal government and in a large German law firm.

A Fulbright Scholar in Germany in 2007-08, Kyle has participated in the extensive offerings of the Pitt law school’s Center for International Legal Education (CILE). He received a Pitt European Studies Center Foreign Language Area Studies Fellowship and was a member of Pitt law’s 2010 Willem C. Vis International Commercial Arbitration Moot team that competed in Vienna.

In addition, Kyle has assisted Pitt’s Ronald Brand—professor of law, founding director of the CILE, and the Chancellor Mark A. Nordenberg University Chair—in training students from Bahrain, Egypt, and Qatar for the 2011 Vis Arbitration Moot, traveling to Qatar, Bahrain, and Austria in a project for the Commercial Law Development Program of the U.S. Department of Commerce.

Two Pitt undergraduate students in the School of Arts and Sciences have been selected to receive the 2011 Woodrow Wilson-Rockefeller Brothers Fund Fellowship for Aspiring Teachers of Color. Pitt seniors Paulina Gonzales, an English literature and history major, and James Spears, an English literature major with a minor in history, are among 25 individuals nationwide selected for the second cohort of teaching fellowships.

Chosen through a competitive selection process, each fellowship provides a $30,000 stipend to complete a master’s degree in education, preparation to teach in a high-need public school, support throughout a three-year teaching commitment, and guidance toward teaching certification.

Spears, of Zelienople, Pa., will enter the Pitt School of Education’s Master of Arts in Teaching (MAT) Program this fall. The MAT program is designed to give students a complete school-year internship (with intern certificate) while taking two terms and two summer sessions of course work at the University in teaching methodology. In addition to receiving Pennsylvania state teacher certification, students completing this program will fulfill the requirements for the Master of Arts in Teaching degree.

In addition to pursuing his Pitt studies, Spears tutors both graduate and undergraduate students in Pitt’s Writing Center and serves as an undergraduate teaching assistant for the University’s peer tutoring course.

Gonzales, of Riverside, Calif., has yet to decide on her choice of graduate schools. At Pitt, Gonzales is business manager and tutor for Pitt’s Keep It Real. Her duties include tutoring resettled Somali-Bantu and Burmese middle-school-age refugees and assisting with arts projects at Arsenal Middle School in Lawrenceville.

Richard M. Kyle
Concerts


Rennie Conducts Beethoven Masterpiece, Symphony No. 6 (Pastoral) and, with soloist Lars Vogt, Piano Concerto No. 1, 8 p.m. Feb. 25, 26, 7:30 p.m. Feb. 27, Heinz Hall, 600 Penn Ave., Downtown, Pittsburgh Symphony Orchestra, BNY Mellon, 600 Penn Ave., Downtown, Pittsburgh Symphony Orchestra, PITT ARTS, Symphony Orchestra, BNY Mellon

Exhibitions

Westmoreland Museum of American Art, American Landscapes: Treasures From the Parrish Art Museum, through April 24, 135 Chevron Science Center.

Westmoreland Museum of American Art, American Landscapes: Treasures From the Parrish Art Museum and At the River’s Edge: Painting by Patrick Ruane, through April 24, 221 N. Main St., Greensburg, 724-837-1500, www.wmuseum.org.


Films


Lectures/ Seminars/ Readings

LTI$ Informational Schmooze for Researchers and Research Assistants, talk on Text Information Extraction System (TIES), Rebecca Crowley, director, Biomedical Informatics Graduate Training Program, Pittsburgh School of Medicine, 11 a m. Feb. 23, UPMC Cancer Pavilion, State 501, Conference Room 308, open to Pitt and UPMC faculty, staff, and students, Pitt Department of Biomedical Informatics, 412-624-4753.


“Edo Era Robots! ’It! The Art of Karakuri-ningyo,’” Arnem Bakalian, Pitt graduate student in East Asian studies, noon Feb. 24, 4130 Povar Hall, Asia Over Lunch Series, Pitt Asian Studies Center, 412-648-7370, asia@pitt.edu.


“Transparency 2011—the Budget and Your Career,” symposium, 9 a.m.-5 p.m. Feb. 25, University Club, American Association for Budget and Program Analysis, Pitt Graduate School of Public and International Affairs, free, registration required, www.aabpa.org.

“Decades of Asynchrony: Europe & Central Asia and the Dissolution of the Soviet Union,” 8th annual international graduate student conference sponsored by Pitt’s graduate organization for the Study of Europe and Central Asia, 1:30-5:45 p.m. Feb. 25 and 9 a.m.-4:30 p.m. Feb. 26, 4130 Povar Hall, free and open to the public, Center for Russian and East European Studies, Pitt Graduate and Professional Student Assembly, gosca.2011@pitt.edu, www.gosca.blogs.com.

Opera/ Theater/ Dance


“Black Angels Over Tuskegee,” Layon Gray’s historical drama based on real-life Tuskegee Airmen—the celebrated African American air squadron during World War II, 4 p.m. Feb. 27, also 2 p.m., Byham Theater, 101 Sixth Ave., Downtown, Pittsburgh Cultural Trust Guest Attraction, 412-466-6666, www.pgharts.org.

Pitt PhD Dissertation Defenses

YenHong Yang, School of Arts and Sciences’ Department of Chemistry, “Florescent Membrane-Targeted Nanoparticles for Detection of Nosocomial Infection Prevention Strategies,” 1 p.m. Feb. 22, Parkade Annex Conference Room, First Floor.

Chad M. Shade, School of Arts and Sciences’ Department of Chemistry, “Lanthane-Containing Nanomaterials Utilizing Lanthane Luminescence for Biological Applications,” 10 a.m. Feb. 23, 507 Eberly Hall.

Yvonne Chou, School of Medicine’s Cellular and Molecular Pathology Graduate Program, 11 a.m. Feb. 24, “Mesenchymal to Epithelial Reverting Transcription in Breast Cancer Metastases: A Key Rule For Re-Expression of E-Cadherin,” 515 Stair Biomedical Science Tower.
Promise and Perils

Pitt’s Ford Institute Plans Talk, Film Series to Highlight Situation in Sudan

By Amanda Leff Ritchie

The University of Pittsburgh’s Ford Institute for Human Security, focusing on the questions and issues facing Sudan, will offer a lecture by a veteran human-rights advocate as well as a film series about humanitarian issues in Sudan, the Congo, and Chad.

John Prendergast, the cofounder of the Enough Project, an initiative to end genocide and crimes against humanity, will deliver a free public lecture titled “Eye on Sudan: The Promise and Perils of Secession” at 12:30 p.m. Wednesday, Feb. 23, in 3911 Posvar Hall. Prendergast will be a Visiting Fellow at Pitt’s Ford Institute for Human Security, focusing on the Sudanese people are facing. Among them are disputes involving the north-south border and how to share oil wealth; Sudan’s oil fields are in the south and export facilities are in the north. He also will discuss the possibility of widespread fighting sparked by communal disputes in the regions of Abyei, South Kordofan, and Blue Nile.

The Ford Institute for Human Security will also host a free public three-part film series Feb. 23-28 featuring documentaries selected and presented by Prendergast. Each film screening will be introduced by Prendergast and followed by a question-and-answer session. Screenings will be held at 7 p.m. in the Frick Fine Arts Auditorium. A schedule and description of the films follow:

- **War Child: The Emmanuel Jal Story**
  - C. Karim Chrobog, 2008
  - will be shown Wednesday, Feb. 23. The film chronicles the odyssey of Emmanuel Jal, a former child soldier of Sudan’s civil war. Now an emerging international hip-hop star, he shares a message of peace for his beloved Africa. (93 min., PG-13)

- **3 Points: Peace, Protection, Punishment**
  - Josh Victor Rothstein, 2009
  - will be shown Friday, Feb. 25. When Tracy McGrady of the National Basketball Association heard about the challenges children from Darfur were facing in the Chad refugee camps, he traveled to Chad. 3 Points highlights the Darfuri refugees’ quest for quality education in the camps. Following his trip, McGrady cofounded the Darfur Dream Team with Prendergast. (60 min., PG-13)

- **The Greatest Silence: Rape in the Congo**
  - Lisa F. Jackson, 2007
  - will be shown Monday, Feb. 28. The film attempts to shatter the silence that surrounds sexual violence as a weapon of conflict. Tens of thousands of women and girls have been systematically kidnapped, raped, mutilated, and tortured by soldiers from foreign militias and from the Congolese army. Jackson, herself a victim of gang rape, tells her story while relating the stories of several other Congolese women. (76 min., Not Rated)

Prendergast will discuss the uncertainties faced by the people of southern Sudan following their peaceful vote to secede after two decades of war failed to bring independence. Despite Sudanese President Omar al-Bashir’s acceptance of the vote’s outcome, the prospect for peaceful secession remains unclear. Prendergast will discuss some of the challenges that the Sudanese people are facing. Among them are disputes involving the north-south border and how to share oil wealth; Sudan’s oil fields are in the south and export facilities are in the north. He also will discuss the possibility of widespread fighting sparked by communal disputes in the regions of Abyei, South Kordofan, and Blue Nile.

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For more information on the events or the Ford Institute for Human Security (www.fordinstitute.pitt.edu), contact Diane Roth Cohen at 412-648-7434 or drc51@pitt.edu.

PUBLICATION NOTICE The next edition of *Pitt Chronicle* will be published Feb. 28. Items for publication in the newspaper’s *Happenings* calendar (see page 11) should be received at least two weeks prior to the event date. *Happenings* items should include the following information: title of the event, name and title of speaker(s), date, time, location, sponsor(s), and a phone number and Web site for additional information. Items may be e-mailed to chron@pitt.edu, faxed to 412-624-4895, or sent by campus mail to 422 Craig Hall. For more information, call 412-624-3033 or e-mail robinet@pitt.edu.