Pitt-Led Researchers Develop New Nanoscale Light Sensor Compatible With Etch-a-Sketch™ Nanoelectronics Platform

By Morgan Kelly

University of Pittsburgh researchers have created a nanoscale light sensor that can be combined with near-atomic-size electronic circuitry to produce hybrid optic and electronic devices with new functionality. The team, which also involved researchers from the University of Wisconsin at Madison, reports in Nature Photonics that the development overcomes one of nanotechnology's most daunting challenges.

The group, led by Jeremy Levy, a professor of physics and astronomy in Pitt's School of Arts and Sciences, fashioned a photonic device less than 4 nanometers wide, enabling on-demand photonic interaction with objects as small as single molecules or quantum dots. In another first, the tiny device can be electrically tuned to change its sensitivity to different colors in the visible spectrum, which may forgo the need for the separate light filters other sensors typically require. Levy worked with Pitt postdoctoral researcher and lead author Patrick Irvin, postdoctoral researchers Daniela Bogoroi and Cheng Cen, and Pitt graduate student Yanjun Ma. Also part of the team were University of Wisconsin-Madison researchers Chang-Beom Eom, a professor of materials science and engineering, and research associates Chung Wung Bark and Chad Folkman.

The researchers produced the photonic devices on available nanoelectronics platform developed in Levy's lab that works like a microscopic Etch A Sketch™, the drawing toy that initially inspired him. His technique, first reported in Nature Materials in March 2008, is a method to switch an oxide crystal between insulating and conducting states. Applying a positive voltage to the sharp conducting probe of an atomic force microscope creates conducting wires only a few nanometers wide at the interface of two insulators—a 1.2 nanometer-thick layer of lanthanum aluminate grown on a strontium titanate substrate. The conducting nanowires can then be erased with reverse voltage, rendering the interface an insulator once more.

In February 2009, Levy reported in Science that his platform could be used to sculpt a high-density memory device and a transistor called a “SketchFET” with features a mere two nanometers in size. In this recent work, Levy and his colleagues demonstrated a robust method for incorporating light sensitivity into these electronic circuits, using the same techniques and materials. Photonic devices generate, guide, or detect light waves for a variety of applications, Levy said. Light is remarkably sensitive to the properties of such nanoscale objects as single molecules or quantum dots, but the integration of semiconductor nanowires and nanotube photonic devices with other electronic circuit elements has always been a challenge.

“These results may enable new possibilities for devices that can sense optical properties at the nanoscale and deliver this information in electronic form,” Levy said.

Higher Medicare Spending on Rx Drugs Doesn’t Necessarily Mean Better-Quality Care, Zhang-Led Study Finds

By Anita Srikaneswaran

Medicare patients in regions that spend the most on prescription medications are not necessarily getting better-quality care, according to a new study of practices nationwide from the University of Pittsburgh Graduate School of Public Health (GSPH). The findings, published in the Nov. 3 issue of the Journal of Medicine, confirm earlier research that showed threats are a greater likelihood of high-risk or inappropriate prescriptions for drugs. Medicare beneficiaries

“Higher spending can be justified if it’s for drugs that are necessary and appropriate and improve patients’ health,” Zhang said.

But if certain drugs are being incorrectly prescribed to seniors, then that can lead to complications and expensive interventions, such as hospitalization. As we try to reform health care to get costs under control, we need a better understanding of how spending differs regionally to make a positive impact.”

Zhang and her colleagues assessed two measures of prescription quality from the Healthcare Effectiveness Data and Information Set. One measure indicates whether a Medicare beneficiary receives at least one high-risk drug—such as an antihistamine and muscle relaxants—that should be avoided in the elderly. The other assesses whether Medicare beneficiaries who have dementia, chronic kidney failure, or a history of pelvic or hip fractures are given prescriptions in the outpatient setting for drugs that shouldn’t be given to patients with those conditions.

Using pharmacy event and medical claims data as well as zip code information for more than 500,000 Medicare beneficiaries, the researchers determined that there was broad variation across regions in the quality of prescribing after adjustment for demographic variables and level of health risk. For example, at the top of the scale, 44 percent of elderly beneficiaries in Alexandria, Va., used high-risk drugs while only 11 percent in the Bronx, N.Y., did.

Regional where beneficiaries were more likely to be given prescriptions for high-risk or potentially harmful drugs did not necessarily spend more on drugs overall than regions where beneficiaries were less likely to use high-risk or harmful drugs.

In addition, the researchers found that regions where non-drug medical spending was higher also were the places where there was a greater likelihood of high-risk or harmful drugs being prescribed for Medicare beneficiaries.

“That contradicts the idea that high spending leads to better prescription practices,” Zhang said.

Katherine Baicker and Joseph P. Newhouse, both of Harvard University, coauthored the paper.
Pitt World History Center Plans Nov. 17 Lecture on Cross-Community Migration

The University of Pittsburgh World History Center will present a lecture by Lee Lucassen, a professor of social history at Leiden University, the Netherlands, at 2 p.m. Nov. 17, in Room 3703, Posvar Hall.

The free public lecture, titled “Mobility: Transition Revisited, 1500-1900: What the Cone of Europe Can Offer to Global History,” will be broadcast online from 2 to 3:15 p.m. that afternoon, with a two-minute delay, at http://mediasite.cids.pitt.edu. Viewers will be able to submit questions online during the session.

Lucassen’s lecture also will be available online following the completion of the broadcast.

A specialist in the fields of social, migration, and urban history, Lucassen has focused his research on the Roma and other itinerant groups. The lecture will address cross-community migration, adopting concepts from Pitt professor of history and director of the World History Center Patrick Manning’s argument that migrants moving over a cultural border are more likely to accelerate modernization. Lucassen considers six distinct forms of migration and also contrasts the regional variations of the Netherlands and Russia.

Lucassen’s recent publications on the theme of global history include Migration History in World History: Multidisciplinary Approaches (Brill Publishers, 2010) and Paths of Integration: Migrants in Western Europe (1800/2004) (Amsterdam University Press, 2006).

The event will be the World History Center’s inaugural presentation of a semiannual broadcast worldwide. A reception will follow the lecture. For more information, visit www.worldhistory.pitt.edu.

—By Patricia Lenardo White

Katz to Present “Art of Negotiation” Workshop Nov. 18

Pitt’s Joseph M. Katz Graduate School of Business will host a workshop on improving negotiation skills, titled “The Art of Negotiation,” and led by Heather Amet and Sara Simmons from the Women and Girls Foundation (WGF), the event will be held from 7:30 to 10:30 a.m. Nov. 18 in Room A of the University Club.

Presenters will help students and alumni identify negotiation opportunities, develop negotiation strategies, and recognize barriers to negotiating. While the program is designed specifically for women, the workshop is open to all alumni and students of the Katz School and the College of Business Administration. This event is free for students and $25 for alumni.

Amet is executive director of WGF, which works toward achieving equality for women and girls in Southwest Pennsylvania. Amet has spearheaded WGF’s efforts to increase women’s representation on the public and corporate boards of Pittsburgh and in elective office.

Simmons is WGF’s director of operations and programs. She also oversees the organization’s regional outreach efforts, including cultivating community relationships to increase WGF’s visibility and ability to advance the foundation’s mission throughout the region.

—By Jessica Myers

Cindy Skrzynski

Pitt Freshman Wins 2010 Pitt-BNY Mellon Jazz Scholarship

University of Pittsburgh freshman Jacob Sacks has been selected the winner of the 2010 Pitt-BNY Mellon Jazz Scholarship. The $5,000 tuition prize is awarded annually to a Pitt music student and is based on submitted tapes of jazz standards that are judged by a panel of nationally recognized jazz musicians.

Sacks, 18, was recognized Nov. 6 at the 2010 Pitt Jazz Concert. A Mt. Lebanon, Pa., resident, Sacks plans to declare a double major at Pitt in bioengineering and music composition. He grew up in a musical household—his mother, Ruth Sacks, has been a composer at age 8. His works garnered first, second, and third-place honors in the statewide PITA Reflections Program competition. He played piano for five years and violin for eight before discovering in high school his love for the guitar. Sacks has taken master classes with guitarists Joe Negri and Ken Karsh and has studied under R. J. Zimmerman, adjunct professor of guitar at Duquesne University.

This is the 24th year that Pitt and BNY Mellon have funded the scholarship. BNY Mellon Jazz supports nonprofit organizations engaged in live performances and jazz education and recognizes individuals and organizations that have made significant contributions to Pittsburgh’s rich jazz tradition.

—By Sharon S. Blake

Honors College, Thornburgh Forum Bring Judy Woodruff of PBS

Woodruff, a monthly program for Bloomberg Television.

In the fall of 2005, Woodruff was a visiting fellow at Harvard University’s Joan Shorenstein Center on the Press, Politics, and Public Policy, and, through fall 2006, was a visiting professor at Duke University’s Terry Sanford Institute of Public Policy.

Woodruff is founding chair of the International Women’s Media Foundation and serves on the boards of trustees of the Freedom Forum, the Newsroom, and the Urban Institute. She also serves as a member of the Knight Foundation Commission on Intercollegiate Athletics and the board of the National Museum of American History. She is a graduate of Duke University, where she is a trustee emerita.

Woodruff is a recipient of the Cine Lifetime Achievement Award, a Duke Distinguished Alumni Award, and the Edward R. Murrow Lifetime Achievement Award in Broadcast Journalism/Television.

Woodruff is also a faculty member at the University of Pittsburgh’s Department of Hispanic Languages and Literatures. She recently earned a PhD in political science from Pitt. Her dissertation is titled “Rethinking Judicial Instability in Developing Democracies: A National and Subnational Analysis of Supreme Courts in Argentina.”

—By Richard Jonas

Salome Skvirsky-Aguilera

Pitt Alumni Sally Kalson

Recipient of 2010 Eduardo Lozano Memorial Dissertation Award

Skvirsky-Aguilera was nominated for her dissertation, titled “The Ethnic Turn: Studies in Political Cinema from Brazil and the U.S., 1960-2005.” Prior to her studies at Pitt, Skvirsky-Aguilera received her bachelor’s degree in English and with a concentration in film at the University of Pennsylvania. She is currently an assistant professor of film and media studies at the University of Massachusetts, Boston.

The Eduardo Lozano Memorial Dissertation Prize is awarded annually for the best doctoral dissertation at Pitt on a topic related to Latin America, the Caribbean, or Latin American communities in other countries. The prize, which includes a cash award of $1,250, is cofounded by contributions from Pitt’s Department of Hispanic Languages and Literatures in the School of Arts and Sciences and other donations.

For the first time since the prize’s inception in 2007, the committee of Pitt faculty members awarded an honorable mention. The recipient is Maria Andrea Castagnola, who recently earned a PhD in political science from Pitt. Her dissertation is titled “Rethinking Judicial Instability in Developing Democracies: A National and Subnational Analysis of Supreme Courts in Argentina.”

—By Richard Jonas

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**Concerts**


**Exhibitions**


Frick Art & Historical Center, For A Year In The Life of a Golf Course: An Album of Photographs by Julia Margaret Cameron, works by one of the Victorian Era’s best-known master photographers, Jan. 3-3, 3272 Reynolda St., Point Breeze, 412-371-0600, www.frickart.org.


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### Lectures/Seminars/Readings


The Berlin Group,” Nikolay Milkov, visiting fellow, Pitt Center for Philosophy of Science, 12:30 p.m. Nov. 16. 817 Cathedral of Learning. Pitt Center for Philosophy of Science, 412-624-1052, pittcenter@pitt.edu.

“Therapeutic Immunosuppression: Drug Cells, and the Quest for Tolerant Tolerance,” Angus W. Thomson, Distinguished Professor of Surgery and professor of immunology, Pitt School of Medicine, 4 p.m. Nov. 16. 2108 Dorrance Health Sciences Center, 412-624-4750. Informal Inaugural Lecture for TIES Researchers and Research Assistants, 412-624-1052.


### Performance

### Opera/Theater/Dance


Christopher G. Hughes, School of Arts and Sciences’ Department of Geology and Planetary Science, 10 a.m. Nov. 18. “Super-Resolution of Thermal Data With Contemporaneous Visible and Near Infrared Data,” 214 Space Research Coordination Center.

Sagor Jash, Swanson School of Engineering, 11 a.m. Nov. 18. “Experimental Control of Mitochondrial and Mitochondrial Tissue,” 7th-Floor Conference Room, Bridgeside Point II Building.

Michael S. Leibovich, School of Medicine’s Immunology Graduate Program, 1:30 p.m. Nov. 18. “Regulation of Anti-Microbial Peptide Expression in Head and Neck Cancer by Signal Transducers and Activators of Transcription Hox-2 Domain,” 212 Biomedical Science Tower South.

Laura Mizes, Swanson School of Engineering, 9 a.m. Nov. 19. “Effect of Host on Cellular Therapies for Bone Healing,” 2nd-Floor Conference Room, Bridgeside Point II Building.

Enrique Lopez-Hurtado, School of Arts and Sciences’ Department of Anthropology, 9 a.m. Nov. 19. “I Jad, Migrant, and Developmental Change at El Dronario, Southern Mexicans, Peru,” 301 Po'Vail Hall.

Eugenia Mylonakos, School of Arts and Sciences’ Department of Philosophy, 8:30 a.m. Nov. 19. “From Conflict to Unity: Motivation And Practical Reason,” 100IB Cathedral of Learning.

Patrick M. Fisher, School of Medicine’s Center for Neuroscience Graduate Program, 2:30 p.m. Nov. 20. “In Vivo Assessment of Serotoninergic Pathways Underlying the Corticotrophic Response to Threat in Humans,” 2nd-Floor Auditorium, Learning Research and Development Center.

Debra H. Hodes, School of Nursing, 10 a.m. Nov. 21. “An In-depth Level Study of Nurse Leaders, Safety Climate, and Work Outcomes,” 219 Victoria Building.

Joseph Cichock, School of Arts and Sciences’ Department of Anthropology, 11 a.m. Nov. 23. “Marriage Across the Taiwan Straits: Male Migrants, Marital Desire, and Social Mobility,” 3016 Po'Vail Hall.

Jilliant Tengood, Swanson School of Engineering, 12:30 p.m. Nov. 23. “Sequential Delivery of Angiogenic Growth Factors From Programmable Fiber Membranes,” 402 Bridgeside Point II Building.

Talley’s Folly by Lanford Wilson, O’Reilly Theater, through December 12.
Pitt Jazz 2010

Pitt’s renowned Jazz Seminar and Concert marked its 40th anniversary with a sold-out night of jazz Nov. 6 in Carnegie Music Hall. In keeping with tradition, eight international jazz greats gave mini-clinics at area schools, performed at a Ronald McDonald House and the Hill House Senior Service Center, and conducted free on-campus lectures and demonstrations. Jazz Week culminated with the concert, and among the performers were (1) Peter King, saxophone; (2) Winard Harper, drums; (3) Leon Lee Dorsey, bass; (4) Bobby Broom, guitar; and (5) Jon Faddis, trumpet.

Founded by Pitt Jazz Studies Director Nathan Davis in 1970, the event was the first academic jazz seminar of its kind in the country, featuring international artists connecting with aspiring students in a lecture format, then performing together as an ensemble.

PHOTOS BY JIM BURKE/CIDDE

PUBLICATION NOTICE: The next edition of Pitt Chronicle will be published Nov. 29. Items for publication in the newspaper’s Happenings calendar (see page 3) should be received six working days prior to the desired publication 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 412-624-1033 or e-mail robinet@pitt.edu.