AROUND THE SCHOOL ONLINE EDITION

a supplement to *Pitt Engineer*, the alumni magazine of the University of Pittsburgh Swanson School of Engineering

Gerald D. Holder, U.S. Steel Dean of Engineering, was honored with the 2008 William Metcalf Award from the Engineers' Society of Western Pennsylvania (ESWP) for lifetime achievement in engineering. Presented each year since 1963, the award takes its name from ESWP founding member William Metcalf, a pioneer in steel manufacturing, and goes to an outstanding engineer in a field normally associated with Western Pennsylvania, such as steel, aluminum, coal, glass, or electrical equipment. Some past recipients include the following Swanson School alumni:

Robert Luffy (BSCE '72), President and CEO, American Bridge

Allen Biehler (BSCE '67), Secretary, Pennsylvania Department of Transportation

John "Jack" Mascaro (BSCE '66, MSCE '80), Chairman, Mascaro Construction Co.

Alfred Ackenheil (BSCE '39, PhD '54), A.C. Ackenheil & Associates

Gerald McGinnis (MSME '60), Chairman and Founder, Respironics, Inc.

Thomas Usher (BSIE '64, MSIE '66, PhD '71), Chairman of the Board of Directors, U.S. Steel Corp.

More information about the Metcalf award, including a complete list of past recipients, is available on the ESWP Web site at www.eswp.com/eswp/annual_awards.htm.

Bioengineering

Sanjeev Shroff's paper, "HDAC4 and PCAF Bind to Cardiac Sarcomeres and Play a Role in Regulating Myofilament Contractile Activity," was selected as the cover article for the April 11, 2008, issue of the *Journal of Biological Chemistry*. Shroff is professor and Gerald McGinnis Chair in Bioengineering.

William Wagner, professor, has received the 2008 Carnegie Science Center Awards for Excellence Life Sciences Award. He also was invited to be a keynote speaker at the 23rd annual National MD/PhD Student Conference. He will speak on the topics of tissue engineering and cardiovascular device design. Additionally, Wagner has been elected to the American Institute for Medical and Biological Engineering (AIMBE) Board of Directors as a vice president at large.

Stephen Badylak, professor, and **Michael Sacks**, William Kepler Whiteford Professor, each have received the University of Pittsburgh Chancellor's Faculty Award as distinguished senior research scholars.

Badylak also received the 2008 Carnegie Science Center Awards for Excellence Advanced Materials Award.

Savio Woo, University Professor and director, Musculoskeletal Research Center, is the first recipient of the University of Washington College of Engineering Diamond Award for Distinguished Achievement in Academia. Since 2006, the UW College of Engineering has bestowed the Diamond Award on outstanding alumni in industry. This year, the Diamond Award has been extended to honor an outstanding alumnus for exceptional knowledge and significant contributions to the field of engineering in academia and acknowledges Woo's pioneering work in bioengineering research. His landmark research on the biomechanics of the knee and healing of ligament injuries prompted orthopedic surgeons to abandon weeks or months of cast immobilization. Woo showed that rehabilitation with controlled movement and exercise speeds healing from devastating injuries.

Woo also was elected a Life Fellow of the American Society of Mechanical Engineers (ASME).

Xinyan Tracy Cui, assistant professor, was awarded funding by the National Science Foundation (NSF) Division

of Materials Research for her NSF Faculty Early Career Development (CAREER) award proposal, "Manipulating Stem Cells via Electroactive Conducting Polymers."

Steven Abramowitch, assistant professor, has been selected as a Building Interdisciplinary Research Careers in Women's Health scholar, effective January 2008. The purpose of this program is to support the development of junior faculty members with research interests in the field of women's health as independent investigators. Abramowitch was selected for his innovative research in the biomechanics of pelvic disorders being conducted in collaboration with Pam Moalli at Magee-Womens Research Institute.

Lance Davidson, assistant professor, has been invited to give a plenary talk at a workshop called Morphogenesis, Limb Growth, Gastrulation, Somatogenesis, Neural Tube Formation, which will be held at the Mathematical Biosciences Institute at Ohio State University. Davidson's work recently was featured in *Nature Cell Biology*, in an article titled "Convergent Extension and the Hexahedral Cell."

Fernando Boada, associate professor and director of the Magnetic Resonance Research Center, has been elected as a member of the 2008 AIMBE Class of Fellows "for pioneering contributions to functional and metabolic magnetic resonance imaging and its applications to cancer and stroke diagnosis and treatment monitoring in humans."

At the annual Department of Bioengineering Board of Visitors dinner, **Mark Redfern**, professor, was honored with the 2007–08 Board of Visitors Faculty Award. In making the presentation, Provost James V. Maher noted Redfern's research contributions in the area of postural control; his funding portfolio, which approaches $20 million overall; scores of publications; outstanding leadership in bioengineering educational programs; commitment to mentorship; and perfect 5.0 teaching evaluations, which are among the highest in the entire University.

Partha Roy, assistant professor, has received a four-year Minority Graduate Research Supplement for his National Cancer Institute award proposal, "Profilin as a Target to Suppress Invasive Breast Cancer." Bioengineering graduate student Maria Jaramillo will be conducting supported research on this project in Roy's lab.

Mark Gartner, adjunct lecturer, and **George Stetten**, professor, received Pitt Innovator Awards as part of the second annual Celebration of Innovation. The awards are given to those whose innovations were licensed to industry or start-up companies in the previous year.

William Federspiel, Shroff, and Wagner have been elected to the Biomedical Engineering Society (BMES) Class of 2007 Fellows. Fellow status is awarded to society members who demonstrate exceptional achievement, bring experience to the field of biomedical engineering, and hold a record of membership and participation in the society.

Chemical and Petroleum Engineering

Di Gao, assistant professor, was awarded funding by the NSF Chemical and Biological Separations (CBS) Program in the Chemical, Environmental, Bioengineering, and Transport Systems (CBET) Division for his NSF CAREER award proposal, "DNA Separation and Mutation Screening Based on the Elasticity of DNA Molecules".

Joseph McCarthy, associate professor and William Kepler Whiteford Faculty Fellow; **Robert Parker**, associate professor; and **Mary Besterfield-Sacre**, associate professor of industrial engineering, received the 2008 Carnegie Science Center Awards for Excellence in the Excellence in Higher Education category.

McCarthy was featured in the Perspectives section of the February 14, 2008, issue of *Science*. His highlighted work outlines an elegant and robust method for eliminating segregation that is generic for a huge class of particle flows, specifically free-surface flows, and should have a dramatic impact on industrial particle processing.

Shiao-Hung Chiang, professor emeritus, received the American Filtration and Separations Society Lifetime Achievement Award.

James T. Cobb Jr., associate professor emeritus, was appointed acting director of the University of Pittsburgh at Bradford Energy Institute. Cobb also received the American Institute of Chemical Engineers (AIChE) Gary Leach Award for the second time in his career. This recent award was "in recognition of the Chem-E-Car Competition Safety Task Force for its thorough review and recommendations designed to ensure the safety of student participants in the competition. The Task Force's work strongly supports AIChE's mission to promote excellence in chemical engineering education, and is another demonstration of AIChE's strong commitment to chemical safety."

The work of **Anna Balazs**, Distinguished Professor of Chemical Engineering and Robert Von der Luft Professor, was noted by the American Chemical Society and featured in *COSMOS* magazine's March 28, 2008, issue, in the article "Chemical Signaling Drives Nanomachines."

Steven Little received the Beckman Foundation Young Investigator Award, for "the most promising young faculty members in the early stages of academic careers in the chemical and life sciences, broadly interpreted." Little is the first Pitt faculty member to receive this award.

The 24th annual **International Pittsburgh Coal Conference** (PCC), cohosted by the Department of Chemical and Petroleum Engineering and North West University, South Africa, was held at the Sandton Convention Centre in Johannesburg, South Africa, September 10–14, 2007. The conference's theme—Coal-Energy, Environment and Sustainable Development—covered a wide spectrum of important topics on coal and its by-products' use, clean energy production, and environmental technologies and issues. This year's main conference sponsors were Sasol Technology, Eskom, Exxaro Coal, and Anglo Coal from South Africa. About 400 participants from universities and corporations across 30 different countries attended the more than 300 oral and poster presentations. The winner of the 2007 Pitt Award was Ben Jager, for his illustrious career with Sasol Technology and his pioneering work on the development of Fischer-Tropsch technologies for indirect coal conversion. The Pitt Award for innovation in coal conversion was founded in 1983 by the Department of Chemical and Petroleum Engineering, and since 1992, it has been fully funded by CONSOL Energy Inc. This year's PCC will be held from September 29 through October 2, 2008, at the Westin Convention Center, Pittsburgh, Pa. For more information, please contact Heidi Aufdenkamp, conference organizer (ipcc@pitt.edu), or Badie Morsi, executive director (morsi@pitt.edu).

Civil and Environmental Engineering

Radisav Vidic, chair and professor, received the Professor of the Year Award from the American Society of Civil Engineers, Pittsburgh chapter. Vidic was invited to give a seminar on "Phytoremediation of Arsenic-Contaminated Groundwaters: The Role of Rhizosphere Microbiota" in the Department of Civil and Environmental Engineering at Temple University and was a symposium co-organizer for "Mercury and Other Trace Elements in Fuel: Emissions and Control" for the American Chemical Society (ACS) Division of Fuel Chemistry at the 235th ACS National Meeting.

Vidic and **Janet E. Stout**, research associate professor, received an 18-month grant from American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., to study the potential of nonchemical water treatment devices to control biological growth in cooling water systems. This project will evaluate the potential of several commercial nonchemical water treatment devices (e.g., magnetic devices, induced electric field devices, electrostatic devices, and mechanical energy devices) to control planktonic and sessile growth in pilot-scale cooling towers.

Xu Liang, associate professor, gave the keynote speech on "Land Surface Modeling and Data Assimilation" at the first international Centre for Australian Water and Climate Research Modeling Workshop on Physical Processes and Modeling of the Water and Carbon Cycle, held in Melbourne, Australia, in November.

The Pennsylvania Department of Transportation (PennDOT) has awarded $751,148 to **Ronald D. Neufeld**, professor, for a study on Jonathan Run Acid Rock Discharge Mitigation Strategies and Implementation Activities. This 30-month study will evaluate the groundwater chemistry and remediation strategies for controlling aluminum-containing acid rock discharge from Jonathan Run, a tributary along I-80 that allegedly destroyed a former trout fishery. GAI Consultants is a subcontractor to the University with responsibility to conduct periodic drilling and surface water sampling and to develop water discharge permit applications for PennDOT, the responsible party for this site. Additionally, Neufeld has been appointed as an associate editor of the *ASCE Journal of Energy Engineering*. He also was reappointed by the Pennsylvania Department of Environmental Protection to the Cleanup Standards Science Advisory Board (CSSAB) for the purposes of developing criteria and regulations dealing with the remediation of brownfield sites in Pennsylvania. He was elected vice chair of CSSAB for two years. Recently, he presented the paper "Best Management Practices for Sedimentation Basins at Construction Sites Impacted by Acid Rock Discharge," which was published in the proceedings of the First Conference on Environmental Management, Engineering, Planning, and Economics.

Jeen-Shang Lin received a shawl from Sri D. Changa Reddy, the minister for higher education of the Andhra Pradesh province in Hyderabad, India, at the International Conference on Natural Hazards and Disaster Management, where Lin delivered a feature lecture titled "A Computational Perspective on Fragility, Hazard Mitigation and Emergency Management."

Harper

Luis Vallejo, professor, and Lin received a grant from PennDOT for "A Rational Procedure for Rock Slope Designs for Western Pennsylvania," which was funded for $157,828. Lin's project, Exploration of Environmental Influences on Obesity Using Cellular Automata, conducted in collaboration with Ravi K. Sharma, assistant professor in Pitt's Graduate School of Public Health (GSPH), was selected as one of the Computational and Systems Models in Public Health Pilot Grants initiated and funded by GSPH.

Willie F. Harper Jr., associate professor, recently had a paper accepted for publication in *Water Research*. The paper, "17α Ethinyl Estradiol Sorption to Activated Sludge Biomass: Thermodynamic Properties and Reaction Mechanisms," shows how 17α ethinyl estradiol is a synthetic steroidal PPCP that must be removed from wastewater because it disrupts the endocrine system in aquatic life and possibly humans.

Electrical and Computer Engineering

Tom Cain (BSEE '65, MSEE '67, PhD '70), professor, has received the Richard M. Emberson Award from the Institute of Electrical and Electronics Engineers (IEEE) "for valuable contributions to the Institute's publications and for the advancement of Electrical and Computer Engineering in engineering curricula." Cain has extensive experience as a volunteer in a variety of professional organizations. Within IEEE, Cain has served in more than four dozen positions, including serving as president in 1995. He also has served in key positions in the Computing Sciences Accreditation Board (CSAB); Accreditation Board for Applied Sciences, Computing, Engineering, and Technology (ABET); and Instituto de Calidad en Acreditación de las Carreras de Ingeniería y Tecnología (ICACIT). Cain is a fellow of IEEE and CSAB. His honors include the following:

- IEEE Educational Activities Board Meritorious Achievement Award in Accreditation Activities for "outstanding contributions to computer engineering accreditation"
- IEEE Millennium Medal for "continuous and outstanding service to the profession"
- Computer Society Award for the "development of the model curricula in computer science and engineering"
- Computer Society Taylor L. Booth Award for "contributions to computer science and engineering education"
- Computer Society Richard E. Merwin Award for "outstanding sustained contributions and leadership in education and the computer profession"
- Computing Sciences Accreditation Board Citation for "distinguished contributions toward ensuring quality education in the computing sciences and dedicated service to the Computing Sciences Accreditation Board"

Jun Yang, assistant professor, was awarded funding by NSF for her CAREER award proposal, "Thermal-aware Scheduling for Embedded Planar and 3-D Chip Multiprocessors." She also won the Best Paper Award for her paper, "Improving the Reliability of On-chip Caches under Process Variations," at the 2007 International Conference on Computer Design.

Yang

The school's second annual **Power & Energy Industry Night** was held on November 19, 2007, in association with the Power System Analysis I course. The event provides students with an opportunity to learn more about the power and energy industry and its growing career opportunities. More than 50 students attended to hear presentations from participating organizations about electric utility industry operations, needs, and career opportunities, after which they were able to network with the presenters. All five of last year's industry organizations participated again, along with five additional companies: Allegheny Energy, American Electric Power, Consolidated Edison Co. of New York, Duquesne Light, Eaton Electrical, Emerson Process Management, EnerNOC, FirstEnergy, Northeast Utilities, and PJM Interconnection.

Industrial Engineering

Construction has begun on the Holzman Learning Center for Industrial Engineering. Located on the 10th floor of Benedum Hall, this learning center is expected to be the first to use wireless laptop computers and movable furniture rather than fixed workstations. **Albert G. Holzman** (BSIE '49, MSIE '54, PhD '58) joined the faculty shortly after completing his doctorate and served two decades as department chair until his death in 1985. More than 200 industrial engineering alumni and friends contributed $400,000 in 2005, which qualified for a special facilities matching grant of $150,000 from the University.

The Department of Industrial Engineering now is requiring students to complete an international education component as part of their degree. Students may either take a course that has an international component or complete an international co-op rotation or internship. The department added this requirement to provide its graduates with the skills they need to compete on an international basis, as engineering is an increasingly global profession. Such skills will enable Pitt industrial engineering graduates not only to have a distinct employment advantage but also a cross-cultural awareness that will enhance their leadership abilities.

Mechanical Engineering and Materials Science

Jörg Wiezorek, associate professor and William Kepler Whiteford Faculty Fellow, has been named director of materials science, effective January 1, 2008. Wiezorek is an accomplished researcher and educator, with a focus in the area of structural characterization of advanced materials. He holds a PhD in materials science and metallurgy from the University of Cambridge in the United Kingdom and has been published in *Acta Materialia, Scripta Materialia, Science*, and the *Journal of Alloys and Compounds*, among others. Wiezorek succeeds John Barnard, James T. MacLeod Professor of Engineering, who decided to focus on research and teaching.

Peyman Givi, William Kepler Whiteford Professor, was elected a fellow of the American Physical Society and named 2007 Engineer of the Year by the American Society of Mechanical Engineers, Pittsburgh chapter. He also was named associate editor of the *International Journal of Reacting Systems*, associate editor of the *Journal of Applied Fluid Mechanics*, and member of the editorial board of *Open Aerospace Engineering Journal*. Additionally, Givi is a member of the International Advisory Committee for the Third International Symposium on Nonequilibrium Processes, Plasma, Combustion, and Atmospheric Phenomena and an invited panelist at the NSF Cyber Fluid Dynamics Workshop. Recently, he delivered keynote lectures at the 20th Office of Naval Research Propulsion Meeting and the Third International Symposium on Nonequilibrium Processes, Plasma, Combustion, and Atmospheric Phenomena. He established an American Institute of Aeronautics and Astronautics (AIAA) chapter at Pitt and is the current and inaugural faculty advisor. He also established a joint graduate education program with the Kazakh National University Department of Mathematics and Mechanics. Givi has attracted more than half a million dollars in research funds for modeling and simulation of turbulent reacting flow systems from NSF, the U.S. Department of Defense, U.S. Department of Energy, and NASA.

Laura Schaefer, associate professor and deputy director of the Mascaro Center for Sustainable Innovation, and **Jeffrey Vipperman**, associate professor, have received a three-year grant from NSF to research Miniaturization of Thermoacoustic Engines and Refrigerators.

Pradeep Fulay, professor, has been appointed program director for the NSF Electronic, Photonic and Device

Fulay

Illustration: Mark A. Klingler/
Carnegie Museum of Natural History

Technologies (EPDT) Program. This appointment is in the Electrical, Communications and Cyber Systems (ECCS) division at NSF. As a program director, Fulay's primary responsibility areas are micro/nanoelectronics, molecular electronics, spin electronics, organic electronics, power electronics, and micromagnetics. These areas of research are growing at a fast pace. In many of these areas, there is considerable research and development activity at Pitt and in industry based in Southwestern Pennsylvania and the tristate area.

Lisa M. Weiland, assistant professor, was awarded funding for her NSF CAREER award proposal, "High Performance, Mechanically Robust Ionomeric Sensors."

Researchers from Pitt are collaborating with researchers at the Carnegie Museum of Natural History to study North America's earliest primate. **Patrick Smolinski**, associate professor; **Andy Holmes** in the John A. Swanson Institute for Technical Excellence; Sheila Ingham and Freddie Fu of the Department of Orthopaedic Surgery; and Chris Beard, Carnegie Museum of Natural History, are studying the fossil remains of the Notharctus. The Notharctus is similar to the modern-day lemur. Engineers, orthopaedic surgeons, and paleontologists are studying the morphology of the bones to determine if their form is related to the primate's function. The shape of the bones may give insight into whether the animal was a climber or a leaper and whether it mainly lived on the ground or in trees. The 60 million-year-old bones were imaged in the Swanson School. The first fossil remains of the Notharctus were found by Ferdinand V. Hayden during a geological survey of southwestern Wyoming in 1870. During a period of global warming known as Paleocene-Eocene Thermal Maximum, this area was covered with rainforests. Fossils of this primate also have been found in Europe, and one theory has it that the primates traveled to North America over a land bridge between the two continents at the current location of the Bering Sea. During this time in the Arctic, temperatures reached as high as 75 degrees.

Centers

The **Mascaro Center for Sustainable Innovation** at the University of Pittsburgh and the Steinbrenner Institute for Environmental Education and Research at Carnegie Mellon University are joining forces to host Engineering Sustainability 2009: Innovations that Span Boundaries, to be held April 19–21, 2009, in Pittsburgh, Pa. As with the 2005 and 2007 events, this focused conference will bring together engineers and scientists from academia, government, industry, and nonprofits to share results of cutting-edge research and practice directed at the development of environmentally sustainable buildings and infrastructure.