“From Its Birthplace: A Symposium on the Future of Nuclear Power”—a two-day event that will include presentations on such topics as engineering technology, public health, emergency management, insurance, and financing—will take place March 27-28 in the University of Pittsburgh William Pitt Union Ballroom. The symposium is cosponsored by Pitt’s Dick Thornburgh Forum for Law and Public Policy and Swanson School of Engineering.

Dick Thornburgh (LAW ’57)—Pitt emeritus trustee, former governor of the Commonwealth of Pennsylvania, former attorney general of the United States, and former U.N. undersecretary general, and now counsel to the international law firm K&L Gates in its Washington, D.C., office—will open the symposium with welcoming remarks. Pitt Chancellor Mark A. Nordenberg and Gerald D. Holder, the Swanson School’s U.S. Steel Dean of Engineering, also will speak.

“This symposium is built on two of the many strengths of this University,” said Pitt Chancellor Mark A. Nordenberg. “The first is the Dick Thornburgh Forum for Law and Public Policy, which honors the legacy of achievement and impact of University of Pittsburgh trustee and alumnus Dick Thornburgh, who, through a lifetime of public service, has made extraordinary contributions to the public good. The other is Pitt’s Swanson School of Engineering, which is among this country’s finest by almost any standard of measure, among them its cutting-edge research, faculty stature, industry partnerships, and quality of its student body.”

“This symposium brings together highly regarded experts with a variety of vantage points to consider the future of nuclear power,” said Thornburgh. “And there could be no more appropriate venue for this event than Pittsburgh, where nuclear power was born.”

—Dick Thornburgh

Clue Uncovered for Origins of Type of Supernovae Explosion

An important clue has been uncovered about the origins of an important type of exploding star, Type Ia supernovae, thanks to a research team at the University of Pittsburgh. Studying supernovae of this type helps researchers measure galaxy distances and can lead to important astronomical discoveries. A paper detailing this research has been accepted for publication in Astrophysical Journal Letters.

Principal investigator Carlos Badenes, assistant professor of physics and astronomy in Pitt’s Kenneth P. Dietrich School of Arts and Sciences, detailed the ways in which his team used the Sloan Digital Sky Survey—a collection of multicolor images and more than a million spectra covering more than a quarter of the sky—to determine what kinds of stars produce Type Ia supernovae.

“We knew that two stars had to be involved in such an explosion, and that one of them had to be a white dwarf,” says Dan Maoz, professor of physics and astronomy at Tel-Aviv University in Israel and coauthor of the soon-to-be-published paper on the discovery. “But there were two possibilities for what the second star is, which is what we sought to discover.”

According to Badenes, there were two potential outcomes for the star’s type. It could be a “normal star,” like the sun, or it could be another white dwarf, which is a smaller, more dense faint star composed of electron-degenerate matter. The team suspected the latter, as two white dwarfs within the same star system would revolve around one another at half a million miles an hour, speeding up and getting closer and closer until one day they merge, most likely producing the fireworks of Type Ia supernovae.

“There were obvious reasons to suspect that Type Ia supernovae come from the merging of a double white dwarf,” says Maoz. “But our biggest question was whether there were enough double white dwarfs out there to produce the number of supernovae that we see.”

Because white dwarfs are extremely...
Pitt Schools, Programs Advance in U.S. News’ Best Graduate Schools Rankings

In the latest edition of U.S. News & World Report’s Best Graduate Schools, a number of University of Pittsburgh schools and programs have advanced in the guidebook rankings, according to the publication’s 2012 methodology. These rankings appear in highlights form in the Best Graduate Schools book, available for newsstand purchase on April 3, and for purchase online; visit www.usnews. com/usnews/stand/grad_school compass.htm for more information.

Within the Top Schools of Medicine—Primary Care category, Pitt’s School of Medicine advanced to No. 18, up from No. 28 last year. And in the Medical Specialties—Pediatrics category, Pitt moved up to No. 9 from No. 11 last year. In the Health Disciplines categories last ranked in 2008, Pitt jumped from No. 16 last year to No. 8 this year in Audiology, tied with Case Western Reserve University; from No. 9 to No. 6 in Occupational Therapy, tied with Colorado State, Thomas Jefferson, and Tufts universities; from No. 19 to No. 14 in Pharmacy, tied with the University of Florida and the University of Illinois-

Within the Top Schools of Engineering—Graduate Schools Pitt Schools, Programs Advance in U.S. News’ Best Graduate Schools Rankings

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Swanson School Names MIT’s Chakraborty to Receive Bayer Distinguished Lectureship

The University of Pittsburgh’s Swanson School of Engineering has chosen Arup K.

Chakraborty, the Robert T. Haslam Professor of Chemical Engineering, Chemistry and Bioengineering at the Massachusetts Institute of Technology, as the recipient of the Bayer Distinguished Lectureship 2012. Chakraborty is one of the nation’s leading researchers in experimental immunology through theoretical and computation methods, especially autoimmune deficiencies and HIV.

Chakraborty will present two lectures at Pitt:

“How to Hit HIV Where It Hurts” at 5 p.m. March 22 and “Understanding Adaptive Immunity: A Crossroad of the Physical, Life, and Engineering Sciences” at 9:30 a.m. March 23. Both lectures, which are free and open to the public, will be held in Room 102 Benedum Hall. For more information, call 412-624-9630.

The Bayer Distinguished Lectureship is presented annually by Pitt’s Department of Chemical and Petroleum Engineering and recognizes excellence in chemical education, outreach, and research.

—By B. Rose Huber

Pitt’s Honors College Sets March 22 Panel Titled “The Press and Campaign 2012”

Political reporters on the campaign trail will be making a stop at the University of Pittsburgh to share their insights in a University Honors College-sponsored panel discussion titled “The Press and Campaign 2012” at 7:30 p.m. March 22 in the O’Hara Student Center.

The five national journalists are David Espo, the Associated Press; Michael Kranish, the Washington Post; Karen Langley, the Pittsburgh Post-Gazette; Joe Rago, The Wall Street Journal; and Joe Yonkin, the Pittsburgh Post-Gazette. David Shribman, executive editor of the Post-Gazette, will moderate.

Seating is limited for this free public event; those interested in attending must RSVP at www.honorscollege.pitt.edu/presspanel2012 and click the link to reserve a seat. Additional information is available at http://tinyurl.com/presspanel.

—By Patricia Lamond White

Pitt Nurses Travel the World

"I want to see Pitt nursing students practice around the world, and I want nursing students from around the world to come here to Pitt," says Pitt School of Nursing professor Ann Mitchell. Mitchell’s vision is working; Pitt nurses travel to various countries and benefit from international, multidisciplinary networks. Mitchell herself received a Fulbright award to lecture and do research in Oman. Mitchell’s colleague Paula Sherwood received a Fulbright award to work in Finland. She works with family caregivers to develop ways to relieve stress that may accompany caring as patients recover—or fail to recover—from treatment.

For his work in distance and simulation education as well as international volunteering, Richard Henker earned both a Chancellor’s Distinguished Teaching Award and a Human Volunteers Overseas Golden Apple Award. Henker is professor and interim chair of Pitt nursing school’s Department of Acute and Tertiary Care.

For more stories about Pitt’s legacy of achievement or to share your own stories about the University, visit www.225.pitt.edu.

Pitt Baccalaureate Day—Harrisburg, 2012

As many as 500 Pitt students, parents, faculty, staff, alumni, and other supporters participated in the annual Pitt Day in Harrisburg on March 13. Six buses departed from the William Pitt Union at 7 a.m. for the three-hour journey to the state’s Capitol, where they joined supporters from the University’s four regional campuses. At the top of participants’ to-do lists was to discuss with legislators the state’s proposed 30 percent cut in Commonwealth appropriations to three of the four state-related universities: Pitt, Penn State, and Temple. 1. Students gathered in the Capitol Rotunda before forming out to visit their respective legislators to discuss how the proposed cuts would affect Pitt. 2. Jeff Glenn (left), Pitt Alumni Association executive director, talks with State Rep. Dan Frankel (D-23), minority caucus chair. 3. Michael Pinsky (left), Pitt Faculty Senate president, and Jack Smith, Pitt Alumni Association president. The event was organized by Pitt Advocates, a network of alumni, faculty, staff, students, and friends who share a commitment to higher education and to Pitt, the Pitt Alumni Association, and Pitt’s Office of Governmental Relations.

225 Stories to Celebrate

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For more stories about Pitt’s legacy of achievement or to share your own stories about the University, visit www.225.pitt.edu.
As Army Surgeon General, Horoho Pioneers Leadership for Nurses, Women

By Niki Kapsembellis

This article is reprinted with permission from Pitt Nurse, which published it in its Spring 2012 issue.

Patricia D. Horoho, lieutenant general (three stars), in the U.S. Army, has enjoyed a career marked by significant firsts. She was the first woman and the first nurse to command the Walter Reed Health Care System, and she mounted the first medical response to the attacked side of the Pentagon when it was struck by terrorists on Sept. 11, 2001.

Ten years after that fateful morning in the Pentagon, Horoho (NURS ’92G) was again honored as a pioneer, becoming the first nurse and first woman in the 236-year history of Army Medicine and of the U.S. Department of Defense to serve as a surgeon general.

“I would submit that I am just the next person who is passing through the crack that has been opened by pioneers and leaders who came before me, regardless of gender, culture, race, or creed,” she says. “And I will take that role (Army Surgeon General) seriously. It’s a tremendous honor to be able to serve in that position.”

On Horoho’s most recent deployment to Afghanistan, officers and enlisted men and women approached her to say that her nomination to the surgeon general’s post inspired them and gave them hope that their daughters could one day serve in such a role.

Considering that nurses could not command when Horoho first joined the service in 1983, her rise to the highest rank in the medical corps becomes virtually meteoric.

Horoho credits, among her many mentors, her grandfather, an Italian immigrant named Eddie Tarone, with instilling the values that she considers the bedrock of what it means to be an American: faith, family, honesty, and being a team player. A coal miner with a sixth-grade education, Tarone never bought anything on credit. He later opened a small bar and owned apartments, making his way in his new homeland and teaching his descendants the value of a kind word.

“I never heard my mom or him say a bad word about anybody,” recalls Horoho, whose mother, Jo Dallas, has been one of her most ardent supporters.

Today, her parents live with Horoho, her husband, Ray, and their three children. She credits their support for allowing her to spend 28 years on active duty while serving as a mother, wife, daughter, officer, warrior, and nurse.

As the senior officer of the U.S. Army Medical Department, the surgeon general provides advice and assistance to the secretary of the Army and chief of staff of the Army on health care matters. In her new role, Horoho serves as medical commander for an organization that provides health care to 3.9 million beneficiaries—including both active and retired personnel and their dependents—and oversees 616 fixed medical facilities as well as 345 field units. The budget alone, which she also manages, is $13 billion.

“It’s a very comprehensive system,” says Horoho, who served as deputy surgeon general prior to her 2011 confirmation.

Horoho also urges young nurses to develop a strong clinical background that will better inform them as they eventually move on to leadership roles: By learning how to balance direct patient care with administrative experience, they will have added insights about the impact policies have on care.

“You need to be able to be open to new experiences and make sure that life is a continual lifelong learning process.”

—Patricia D. Horoho

Looking Ahead

During the next four years of her tenure as Army Surgeon General, Horoho plans to focus on collaborative partnerships and the collective health of military service members, their families, and all those entrusted to their care. She believes that the Army Medical Department can work not only with colleagues within the Department of Defense, but also with civilian counterparts in an effort to improve health care.

She has traveled to Haiti, Egypt, Kuwait, Iraq, Afghanistan, Australia, Switzerland, and virtually all of Europe. Everywhere she goes, she helps to ensure that the best possible care is available for American service members.

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Women’s History Month

Continued from page 3

“None of this would have been possible if [my mother and grandfather] had not been instrumental in guiding me to pursue a profession in nursing.”

American service members’ health and well-being and partner to improve the health of the nation.

Horoho also urges young nurses to develop a strong clinical background that will better inform them as they eventually move on to leadership roles. By learning how to balance direct patient care with administrative experience, they will have added insights about the impact policies have on care.

“You need to be able to be open to new experiences and make sure that life is a continual lifelong learning process,” she says.

And while Horoho cites many role models—as varied as President Ronald Reagan; Anna Mae Hays, the first woman to earn the rank of brigadier general; and Elizabeth L. Noroisan Graham (NURS ’68, ’70G, EDUC ’80G), her trauma attendee general; and Elizabeth L. Noroisan Graham (NURS ’68, ’70G, EDUC ’80G), her trauma instructor at the University of Pittsburgh School of Nursing—she says none is as influential as her mother and grandfather.

“None of this would have been possible if the two of them had not been instrumental in guiding me to pursue a profession in nursing,” she says.

Universities Prepare Leaders in Nation’s Academia, Industry, and Military

The University of Pittsburgh Press and Pitt’s Office of Public Affairs celebrated the launch of the new book Teenie Harris, Photographer: Image, Memory, History (University of Pittsburgh Press, 2011) at a special Black History Month program on Feb. 28 at the Twentieth Century Club. The book, which was coauthored by Pitt history professor Laurence Glasco, reveals the essence of African American life in Pittsburgh from the end of the Great Depression through the civil rights movement.

As a photographer for The Pittsburgh Courier, Harris captured on film historic events and celebrities coming through town, as well as everyday scenes at Hill District locations. Pictured, from left, Robert Hill, Pitt vice chancellor for public affairs; Joe Trotter, book coauthor and Giant Eagle President of Rotary and Social Justice; Cynthia Miller, University of Pittsburgh Press director.

Launch of Teenie Harris, Photographer
the number of Type Ia supernovae seen in the local neighborhood and then used computer simulations to calculate the rate at which double white dwarfs would merge, says Badenes. “We then compared the subspectra. Although the reprocessing of the data was challenging, said Badenes, the team was able to compile a list of more than 4,000 white dwarfs within a year, each of which had two or more high-quality subspectra. “We found 15 double white dwarfs in the local neighborhood and then used computer simulations to calculate the rate at which double white dwarfs would merge,” says Badenes. “We then compared the number of merging white dwarfs here to the number of Type Ia supernovae seen in distant galaxies that resemble the Milky Way.”

The result was that, on average, one double white dwarf merger event occurs in the Milky Way about once a century. “That number is remarkably close to the rate of Type Ia supernovae we observe in galaxies like our own,” says Badenes. “This suggests that the merger of a double white dwarf system is a plausible explanation for Type Ia supernovae.”

In addition to providing a key clue about the nature of these important events, the team’s discovery shows the potential of giant astronomical surveys like the SDSS. “Twenty years ago we decided to take three subspectra for each spectrum. We did that for entirely practical reasons,” says Robert Lupton, senior research astronomer in Princeton University’s Department of Astrophysical Sciences and a colleague of Badenes. “We had no idea that it would someday give us an important clue to the mystery of the Type Ia supernovae."

For more information on the SDSS, visit http://www.sdss.org/.
Pitt Researchers Develop New Science of National Preparedness

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analysis, and public health monitoring. But that’s only the beginning. By taking the issue of national preparedness to a new level, these collaborative experts have created a whole new academic discipline at Pitt. “National preparedness is about having leaders who expect or anticipate things that previously were unimaginable,” says Carey Balaban, a professor in the School of Medicine’s Departments of Otolaryngology and Neurobiology and a seemingly unlikely codirector of the Center for National Preparedness. “These leaders know the possibilities, try to mitigate them beforehand, respond quickly when they occur, and build to prevent them from recurring. It’s a cycle.”

And now it’s a science, too, according to Balaban and Kenneth Sochats, an information systems engineer who also is a founding codirector of the center. “We’re making a science of national preparedness,” Balaban declares. “We have taken an evidence-based, systems-of-systems analytic approach to issues of national preparedness. We are bringing the full rigor of the academic endeavors to practical problems that improve outcomes for the good of society.”

A brief history

While Pitt researchers had been studying national preparedness issues substantively prior to Sept. 11, 2001, the fall of the World Trade Center towers quickly prompted the University’s Office of the Provost to evaluate its own potential for creating a national preparedness-focused research program, which included an inventory of any current, related research. A consulting firm’s conclusion at the time, according to George Klinzing, vice provost for research at Pitt: “You already have one. The Scharenburg Report [as the consulting firm’s report came to be known] confirmed that we have great strength in the areas of health and information science. The knowledge is here. Now we’re pulling it together.”

And they did. But as Klinzing noted at the time of the launch of the Center for National Preparedness, “This is not just about homeland security. We’re finding that the different aspects of national preparedness add up to a much larger picture.”

Disease outbreak surveillance and the national agenda

As the consultant pointed out, Pitt found strength—and much favorable national media attention—largely in its collaborative mix of public health and information sciences research. In early 2002, for instance, Pitt became a poster child for the national agenda on preparedness and security when then-President George W. Bush and his Department of Homeland Security director, former Pennsylvania governor Tom Ridge, visited Pitt. Their focus, which at the time became an integral talking point within the president’s national agenda: a Pitt research initiative called RODS, Real-time Outbreak and Disease Surveillance. RODS is an information system that was designed by Michael M. Wagner of the School of Medicine’s Department of Bio-medical Informatics to immediately identify sudden jumps regionally in emergency room visits related to specific complaints. The system, which captures and monitors such activities, was designed to detect disease outbreaks, with the idea that such spikes could serve as a first warning of a possible bioterrorism event. The RODS research team also had worked on the development of a National Retail Data Monitor, which would collect and analyze data on the sale of over-the-counter drugs—also designed to detect disease outbreaks.

At the same time, a Pitt research team was developing a decision-making process for first responders that included recognition, protection, decontamination, triage, and treatment. That same team embarked on developing what it called the Pittsburgh Matrix, which measured survivorship and cost over a timeline beginning with the detection of a bioccontaminant as well as the scale of medical resources required to respond. At the same time, Margaret Potter, a Pitt professor of health policy and management and director of Pitt’s Center for Public Health Practice, was advocating with the Pennsylvania legislature for a statewide public health preparedness program in public health preparedness and disease outbreak surveillance. The Center for Public Health Preparedness, one of 22 such centers nationwide that were funded by the Centers for Disease Control and Prevention, continues to thrive, educating and training public health workers and school personnel in preparedness issues such as emerging infectious diseases, disasters, preparedness law and policy, and crisis leadership. The center also oversees a graduate certificate program in public health preparedness and disaster response.

On the ethics front, the Matthew B. Ridgway Center for International Security Studies within Pitt’s Graduate School of Public and International Affairs began to study the ethical dilemmas presented by effectively gathering security intelligence on potential terror threats while still respecting the constitutional privacy rights of U.S. citizens.

Another initiative that brought Pitt to the forefront of national preparedness shortly after the 9/11 tragedy included the following. The National Institute of Allergy and Infectious Diseases awarded Pitt a $17.5 million grant in 2003 to establish this laboratory—one of nine in the country. The lab is housed in the University’s state-of-the-art Biomedical Science Tower 3.

Preparedness today: an evolution or revolution?

Today’s Center for National Preparedness continues to pave new paths in helping to drive the nation’s preparedness agenda. “It has morphed in a lot of ways,” Klinzing says of the center. “I think that, after a broader focus earlier in its evolution, we’ve found some solid niches on which to build. I’m happy with them; we have the right talent.”

Sochats, who has spent more than 30 years working in both academia and the telecommunications industry, says the center has matured in its focus since “the early days, when everybody was scurrying around exploring a number of competing theoretical approaches to managing disasters.”

He adds: “It’s still a new field, but now we’re actually developing tools and producing educational curricula.”

And the center’s doing so in partnership with, among others, the Potomac Institute, Harris Corp., Lockheed, the military, federal agencies such as NORAD, FEMA, NIST and NORCOM, and numerous other universities, state agencies, and regional preparedness consortia.

“With the new funding picture nationally,” Sochats says, “we need to partner very closely with the commercial sector, where they actually make things.”

What follows are descriptions of some of the center’s research endeavors, which build largely on the same academic strengths that had been identified in 2002.

An unlikely partnership in disaster management

One could fairly describe Balaban and Sochats as the most unlikely of research partnerships. Balaban is a prolific and frenetic thinker and idea man with a background in medical science and a passion for neuroscience. Sochats is an electrical engineer with a penchant for visual information systems, electronic record keeping, and practical, buildable solutions. The pair originally was brought together by Klinzing as part of the brainstorming team to explore the establishment of the center.

As Klinzing is quick to acknowledge, “They’re just two of the most creative people I know. They really work great together.”

Once together, though, this emerging team not only agreed to lead the new center, but they also began to explore—over lots of Starbucks coffee—the need for new decision-making tools in managing disasters that account for the many “actors” responding to or affected by a disaster and the fast-changing dynamics of the disaster scenario. Eventually, their collaboration led to the development of what they call their Dynamic Discrete Decision Simulation System, or D-3S.

The patent-pending system, which continues to evolve, integrates a geographic information systems data model, an agent simulation, a custom-built decision-modeling system, and a control interface that resem-bles an emergency operations center. It allows users to overlay all actors in a given disaster and informs each group continuously as situations change and decisions are made.

“It’s all about situational awareness,” Balaban says.
Pitt Researchers Develop New Science of National Preparedness

MIKE DRAZDZINSKI/CIDDE

Louise Comfort (seated), a professor in Pitt’s Graduate School of Public and International Affairs (GSPIA), travels the globe in her quest for understanding how governments and residents handle natural disasters. “I’m very interested in the decision making” that’s done at the time of disasters, says Comfort, an organizational design theorist and policy analyst. She has developed a computer-based decision support tool that can be used by emergency managers in a rapidly changing, urgent environment. Above, Comfort talks with Pitt’s Center for Disaster Management staffers Aye Okuda, a GSPIA doctoral candidate who traveled with Comfort to Japan following the 2011 tsunami there, and Clayton Wukich, a postdoctoral fellow.

Balaban says, as he compares the system to the human body’s neural system. “It’s all about prediction and dealing with complex interactive networks and how they operate together. I think it’s actually a very powerful platform for other applications... We expect this to become a premier tool in emergency response.”

Balaban and Sochats are working with the University’s Office of Technology Management to commercialize their innovation.

Avoiding the “cascade of failure”

When Louise Comfort, a professor in GSPIA since 1984, looks at a disaster, she sees multiple actors and situations and a sequence of decision points that can, in cases like the Hurricane Katrina disaster, lead to a “cascade of failure.”

“I’m very interested in the decision making,” says Comfort, an organizational design theorist and policy analyst. “I believe that the decisions made in the initial response to a disaster will set the trajectory of the rest of the situation and determine whether it will escalate or not.”

Take Hurricane Katrina, for example, which Comfort has studied extensively over the years. “It’s incredible that all four levels of government failed” in handling many aspects of the disaster response. “One of the critical issues was a lack of understanding of the scientific information available and how this affected their decisions. There was no capacity to imagine what would happen to the aging infrastructure of the city under the impact of the interconnected dynamics of a storm surge from a Category 3 hurricane flowing through the Mississippi River Gulf Outlet into the low-lying districts of New Orleans.”

Her biggest complaint: “The information was there, but it was very complex, and nobody put the pieces together. Nobody saw the whole. That’s exactly what we’re trying to facilitate with computational decision support for human managers.”

Comfort, who also spent time recently in Japan studying the response to the March 2011 earthquake, tsunami, and subsequent nuclear disaster there, has turned her analysis into what she calls an Interactive Intelligent Spatial Information System (iISIS). She describes her innovation as a computer-based decision support tool that tracks and monitors the interactions between critical conditions, actors, and agencies in real time, providing decision support for emergency managers in a rapidly changing, urgent environment.

“I study ways that computers can extend human capacity for decision making in urgent situations, when human decision-making cognitive capacity drops under stress,” Comfort says of her innovation and research. “The one constraint is that human minds are much faster than machines, but human beings also make more mistakes.”

Comfort says she continues to update her computer system, recently adding modules for an engineering dashboard for hospitals and collaborative decision support for airport fire-rescue teams. Meanwhile, she also is studying the concept of regional risk assessment and is working on helping others “to look at the whole set of hazards that could happen in a region” and helping them develop “complexity profiles,” among other tools, she says.

“Is she obsessed with studying disaster response? Maybe a little bit. ‘I am thinking about disasters all the time,’” Comfort deadpans. “But given my teaching schedule, I can probably manage [researching] one disaster a year.”

Making opinions matter

While some researchers work on ways to prevent or manage disasters and possible security threats, one Pitt professor and her research team are trying to harness the potential intelligence that could be extracted and interpreted from vast amounts of printed text.

Janyce Wiebe, a professor in the Dietrich School’s Department of Computer Science and codirector of a multi-university Intelligent System Program initiative, is collaborating with Rebecca Hwa, a professor of computer science at Pitt. They, along with researchers from several other universities, are working to develop what Wiebe describes as machine learning-based statistical models that can rapidly process large volumes of unstructured text in search of opinions, general sentiments, motivations, and tensions.

The computational models are being designed to automatically merge facts and entity relationships across sets of documents and populate large databases with information from many text sources as they relate to such events as terrorist incidents or disease outbreaks. The design challenges, Wiebe says, are complicated, particularly when considering the researchers’ goal of developing retrievable, robust components for those models.

“To make decisions, policy makers have to be aware of what people are writing and saying. What are all of the opinions being expressed, and how do they travel over time and forums? There are vast amounts of texts, and humans can’t possibly read it all, so we want to develop systems that can bring the relevant data to analysts’ attention.”

—Janyce Wiebe

Multiple-robot search and rescue simulation

Also building on Pitt’s strength in information sciences is Michael Lewis, a professor of intelligent systems programs in the University’s School of Information Sciences. He started working on human-robot interaction research in the area of search and rescue beginning in 2002, supported by a National Science Foundation Information Technology Research grant.

Lewis, in collaboration with Carnegie Mellon University researchers, began to develop robots, design interfaces, and equipment, all aimed at search and rescue with multiple robots in extreme environments. Ultimately, the researchers developed an urban search-and-rescue simulation that eventually was used in a national Virtual Robots RoboCup Rescue Competition. The simulator also has been used by many researchers across the country to support and test their own robotic development efforts in search and rescue.

Among the challenges that Lewis and his collaborators tackled with the simulation platform: organization and command and control using multiple platforms, Lewis says.

“When you have four or five robots in one area, you get lots and lots of redundancy, and it gets very confusing,” Lewis says. “They may be good for search and rescue of static targets, but it’s more difficult with dynamic targets.”

More recently, Lewis and researchers from Carnegie Mellon, Lockheed Martin, and the Eglin and Wright Patterson Air Force bases have been developing prototype interfaces and intelligent-agent coordination algorithms for interacting with small teams of Wildfire, Urban Search and Rescue, and WASMs. WASMs are a cross between unmanned aerial vehicles and munitions. One of the

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major challenges, Lewis says, is trying to control multiple independent WASMs in close proximity to one another as they search for targets to destroy. Among the solutions: more elaborate communications systems capable of managing large WASM teams.

“We have to find ways to command them cooperatively,” Lewis says of WASMs.

**The academics of nonstate violence**

One doesn’t need to look much beyond the so-called Arab Spring uprisings throughout North Africa and the Middle East, or the chaos of Somalia, or the insurgent Taliban, or Mexico’s drug culture to realize that national preparedness and security in the future will depend largely on a new and better understanding of the world’s fast-emerging threats. That is what GSPIA Professor Phil Williams calls such violent nonstate actors as terrorists, criminals, insurgents, pirates, warlords, and drug traffickers, among other armed groups.

Williams, the Wesley W. Posvar Chair in International Security Studies and director of GSPIA’s Matthew B. Ridgway Center for International Security Studies, has redirected the center’s research focus to target this threat category—and develop an academic program around it, in collaboration with the likes of the Carlisle, Pa.-based U.S. Army War College’s Strategic Studies Institute. He has found plenty to observe.

“If you look around the world, there has been a phenomenal rise of violent, nonstate actors,” says Williams, who singles out Mexico and the Middle East to make his point. “Around the world, something is going on with states, where we have more weak states, unstable states, and even failed states. And because of globalization, the instability is spilling over to developed countries. So we have a much less stable world where things are much less predictable.”

Williams says the Ridgway Center has been developing an academic effort “to get a handle on the new threat.” The new endeavor has led to the addition of several new security studies faculty members in GSPIA, which has increased the Ridgway Center’s depth. “We’re building a niche within that subject,” he adds.

Among Williams’ own academic interests, which focus largely on the “pernicious” interconnectedness of these armed groups, are the following: the relationship between terrorists, criminals, and drug-trafficking organizations; the question of whether drug organizations in Central and South America are willing to help fund terrorists; links between these drug-trafficking organizations and terrorist groups in West Africa; and, more academically, the question of whether these threats represent disparate threats that seem to be converging to create fewer but bigger threats—or threats that are diverging, creating more threats about which to worry.

Williams also notes that, in cyberspace, the tools developed by criminals for cybercrime also are being employed by states as part of their own cyberwar strategies—yet another focus of Williams’ national security-related research.

As Williams, in defining the future academic challenges of the Ridgway Center, told an audience during his inaugural lecture, “The rise of violent, nonstate actors is one of many developments that have made the security agenda in the 21st century both more crowded and more complex.”

The academics of nonstate violence

One doesn’t need to look much beyond the so-called Arab Spring uprisings throughout North Africa and the Middle East, or the chaos of Somalia, or the insurgent Taliban, or Mexico’s drug culture to realize that national preparedness and security in the future will depend largely on a new and better understanding of the world’s fast-emerging threats. That is what GSPIA Professor Phil Williams calls such violent nonstate actors as terrorists, criminals, insurgents, pirates, warlords, and drug traffickers, among other armed groups—or one of the world’s fastest-emerging threats. Williams is the Wesley W. Posvar Chair in International Security Studies and director of the Matthew B. Ridgway Center for International Security Studies, both within Pitt’s Graduate School of Public and International Affairs. In defining the future academic challenges of the Ridgway Center, Williams told an audience during his inaugural lecture that “The rise of violent, nonstate actors is one of many developments that have made the security agenda in the 21st century both more crowded and more complex.”

Phil Williams contends that violent nonstate actors—terrorists, insurgents, pirates, warlords, and drug traffickers, among other armed groups—are one of the world’s fastest-emerging threats. Williams is the Wesley W. Posvar Chair in International Security Studies and director of the Matthew B. Ridgway Center for International Security Studies, both within Pitt’s Graduate School of Public and International Affairs. In defining the future academic challenges of the Ridgway Center, Williams told an audience during his inaugural lecture that “The rise of violent, nonstate actors is one of many developments that have made the security agenda in the 21st century both more crowded and more complex.”

The emergence of an academic discipline

Recognizing a need to turn all of this collective research into a big-picture academic discipline with substance, Balaban and Sochats have spearheaded a Center for National Preparedness-based initiative to develop an entire University curriculum around national preparedness. As such, the team, in partnership with Pitt’s College of General Studies, launched in Fall 2010 an 18-credit Certificate in National Preparedness and Homeland Security program.

The program focuses on the analytical and managerial aspects of preparedness at the international, national, state, and local levels. It describes itself as evidence-based, analytical, systems-of-systems-oriented, and visual.

“We’re trying to develop scholars in this area,” Balaban says of the certificate program. “We now have the vision of what a Pitt graduate in this area should look like: one who adopts an analytic, often innovative approach, to managing issues of national preparedness.”

As the courses largely reflect what the collective research at Pitt has shown over time, Balaban and Sochats do acknowledge that their own views and approaches to preparedness have evolved, extending to their academic pursuits. Initially, for instance, the two subscribed to an “all-hazards” approach to disaster prevention, response, management, and mitigation. That is, they focused more on the various actors responding to a disaster and the commonality of response elements that can be identified across a variety of disaster scenarios. Recently, and based on extensive research, the team has adopted an “all-needs” philosophy, which means focusing more on the immediate and longer-term needs for the future population that is affected by the disaster.

A problem with the all-hazards approach is that “the effectiveness of response cannot be measured exclusively in terms of logistical indicators, but rather by the recovery and resiliency of the region,” according to a paper by Balaban, Sochats, and Potomac Institute researchers Donald Donahue and Stephen Cunnion that was published in February 2012 in Homeland Security Affairs.

The article also states, “By basing planning on the needs of the impacted population—the ‘all needs’ approach—planners can better prioritize the full range of requirements and fully integrate both the government and nongovernment contributions.”

The Center for National Preparedness’ new certificate program builds on that philosophy, Balaban and Sochats note.

Says Balaban: “We’ve learned it well enough that we actually can distill it and teach it, and we’re focusing on developing the leaders of tomorrow.”
Pitt’s Dick Thornburgh Forum, Swanson School to Host March 27-28 Symposium on Future of Nuclear Power

Continued from page 1

The University’s Swanson School of Engineering is one of the oldest engineering programs in the United States. The Swanson School has excelled in basic and applied research during the past decade and is on the forefront of 21st-century technology, including sustainability, energy systems, bioengineering, microsystems and nanosystems, computational modeling, and advanced materials development.

Three Mile Island, Chernobyl, Fukushima Daiichi, 9 a.m.-noon

March 28

Harold Denton, former director of the Nuclear Regulatory Commission’s Office of Nuclear Reactor Regulation; Adolf Birkhofer, managing director of the Institute for Safety and Reliability, Germany; and Ilsik Kim, assistant professor of nuclear and radiochemistry at Tohoku EPCO, Japan.

Daniel Roderick, senior vice president of GE Hitachi Nuclear Energy; and William Magwood IV, commissioner of the Nuclear Regulatory Commission.

The forum engages in a variety of activities across the University that are designed to enhance the accountability and integrity of governmental institutions at the local, state, and national levels. Internationally, it seeks to advance those values as well as the commitment to the rule of law for all levels of government.

Established in 2007, the mission of the Dick Thornburgh Forum for Law and Public Policy is to foster public education and civic action on important public policy issues, building on Thornburgh’s legacy by creating a framework for advancing his vision of creating effective and principled governance.

The symposium comprises four panel sessions featuring national and international experts in nuclear, fossil fuel, and passive energy; federal, state, and local government leaders; and academic and scientific researchers.

The titles, dates, times, and speakers for each session follow.

**Nuclear Power and Energy Alternatives, 2:15-4:45 p.m. March 27**

- Patrick Moore, co-chair of the CASEnergy Coalition; Matthew Wald, environment and energy reporter at The New York Times;
- Peter B. Lyons, assistant secretary for nuclear energy in the U.S. Department of Energy;
- Anthony Cugini, director of the U.S. Department of Energy’s National Energy Technology Laboratory;
- Matthias Kurth, president of the Federal Network Agency, Germany; and
- Jim Feeland, president of Westinghouse, Americas, and, effective April 1, president and CEO of Westinghouse Electric Company.

David Shribman, executive editor of the Pittsburgh Post-Gazette, will moderate.

**Americas’ Nuclear Future, 7-9:30 p.m. March 27**

- Vicky A. Bailey, president of Anderson Stratton International, LLC, and a member of the President’s Blue Ribbon Commission on the Future of Nuclear Power;
- Adolf Birkhofer, managing director of the Institute for Safety and Reliability, Germany; and
- Jacques Besnainou, director of the Nuclear Power; and
- Vicky A. Bailey, president of Anderson Stratton International, LLC, and a member of the President’s Blue Ribbon Commission on the Future of Nuclear Power.

David Lochbaum, director of the Nuclear Safety Project for the Union of Concerned Scientists;

- Ann Bisconti, president of Bisconti Research, Inc.; and
- Peter P. Sena III, president of Bisconti International, president of Anderson Environmental, Vermont Institute for Energy and the Environment, Vermont Law School; and

Douglas Heuck, publisher and editor of Pittsburgh Quarterly, will moderate.

**Three Mile Island, Chernobyl, Fukushima Daiichi, 9 a.m.-noon March 28**

- Harold Denton, former director of the Nuclear Regulatory Commission’s Office of Nuclear Reactor Regulation;
- Adolf Birkhofer, managing director of the Institute for Safety and Reliability, Germany;
- Isao Kato, deputy general manager of the Power Group for Nuclear Processing at the Japan Nuclear Cycle Development Institute, Japan, and
- Daniel Roderick, senior vice president of the Nuclear Power and Energy Alternatives, 2:15-4:45 p.m. March 27.

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Hand Made: Contemporary Craft in Ceramics, Glass, and Wood:

Westmoreland Museum of American Art, The Art of Seating:
200 Years of American Design, includes The Jacobson American
Chair Collection, a comprehensive private collection of iconic and
historic chairs from the mid-1800s to pieces from today’s studio
movement, through April 8, 223 N. Main St., Greensburg, 724-337-1500, www.
wmmuseum.org.

The Warhol, about Face, a series of three-dimensional-large-format
portraits by photographer Annie
Svenson, Warhol and Cars: American
Jeans, examining Warhol’s enduring fascination with automobiles as
products of American consumer
society, both through May 13;
I Just Want to Watch: Warhol’s Film, Video, and Television, through June 29,

Millman Library, an exhibition of first editions and significant works
of famed novelist Charles Dickens
March 28-May 1
Hand Made: Contemporary Craft in Ceramics, Glass, and Wood:

Westmoreland Museum of American Art, The Art of Seating:
200 Years of American Design, includes The Jacobson American
Chair Collection, a comprehensive private collection of iconic and
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I Just Want to Watch: Warhol’s Film, Video, and Television, through June 29,
Miscellaneous

**TIES Informational Luncheon for Researchers and Research Assistants**, talk on Text Information Extraction System (TIES), Rebecca Crowely, director, Department of Biomedical Informatics Graduate Training Program, Pitt School of Medicine, 11 a.m. March 19, Magee-Womens Hospital Conference Room CR2121, open to Pitt and UPMC faculty, staff and students, registration required, http://ties.upmc.com/register/index.html. 412-623-4753.

Pitt Five Campus College Fair for University Faculty and Staff and family members interested in educating a dependent at Pitt, 11 a.m. 2 p.m. and 5-7 p.m. March 22, Alumni Hall's Connolly Ballroom, drep@pitt.edu.


**The Press and Campaign 2012**, panel discussing how the press has been covering Republican primary and the Obama campaign, featuring five political reporters and moderator Pittsburgh Post-Gazette Executive Editor David Shribman, 7:30 p.m. March 22, O'Hara Student Center, Pitt Honors College, limited seating, reserve seat by contacting www.honorscollege.pitt.edu/press-point-2012. (See page 2).

**Faces of Others**, Carnegie Mellon International Film Festival comprised of Pitt, screenings of films shining a cinematic light on the human faces that reflect the themes about an emerging social landscape, with a focus on the concept of the "Third Culture," in various locations around Pittsburgh, Carnegie Mellon University, www.cmuse.org/faces.

**Writing Research Articles**, workshop providing an introduction to writing and publishing research articles, 10 a.m.-3 p.m. March 24, Lecture Room Z, Scaife Hall, Pitt Survival Skills and Ethics Program, www.skillsethics.org, survival@pitt.edu.

**12th Annual Computer Science Day**, gathering of educators, students, alumni, and industry for a day of computing science, computing business, and computing fun, 11:30 a.m.-4:30 p.m. March 30, fifth and sixth floors, Scaife Hall, Pitt Department of Computer Science, 412-624-5755, www.cs.pitt.edu/saday.

**Opera/Theater/Dance**

**Jesus Christ Superstar**, rock opera by Andrew Lloyd Webber with lyrics by Tim Rice, March 20-24, Byham Theater, 114 Music Building.


**Every Tongue Confess**, a blend of the secular with the spiritual, including Bible stories with everyday occurrences of newsworthy events, set in rural Alabama in the 1990’s, March 23-24-1, August Wilson Center for African American Culture, 980 Liberty Ave., Downtown, August Wilson Center, Pittsburgh Cultural Trust, 412-456-6666, www.trustarts.org, PITT ARTS Cheap Seats, 412-624-4498, www.pittarts.pitt.edu.


**Pitt PhD Dissertation Defenses**

**Feisal Janmohamed**, School of Health and Rehabilitation Sciences’ Department of Psychology, “Spatial Differences Between Early-Developing and Late-Developing Phonemes in Phonological Processing,” 9 a.m. March 30, 414 Forbes Tower.


**The Press and Campaign 2012**, O’Hara Student Center, Pitt Honors College, March 22

**Faces of Others, Various Pittsburgh Locations, March 22-April 15**
Rare First-Edition Works of Charles Dickens Exhibited at University’s Hillman Library

By Sharon S. Blake

Pitt’s University Library System (ULS) joins the world in celebrating the 200th anniversary of Charles Dickens’ birth with a display of rare first editions of some of the author’s most significant works. The free display is open to the public through May 1 in Room 363, Hillman Library.

From 9 a.m. to 4 p.m. March 28— to mark the 170th anniversary of the day that Dickens visited Pittsburgh—an open house will be held in Room 363, featuring the Dickens books as well as those of some of his contemporaries, including Anthony Trollope and Wilkie Collins, among other British literary figures. The display also will showcase historical documents that relate to Dickens’ stay in Pittsburgh, which was part of his first North American reading tour, in 1842. Librarians will be on hand during the open house to answer questions.

Long considered to be one of the greatest novelists of the Victorian period, Dickens emerged on the scene with a serialized publication of comic sketches called The Posthumous Papers of the Pickwick Club (1836), written under the pen name Boz. The Pickwick Papers continued monthly through 1837, became an enormous popular success, and eventually were published as a novel. Oliver Twist (1838) and The Old Curiosity Shop (1840) followed, and Dickens went on to pen some of the most renowned works of all time that continue to be read today.

The next edition of Pitt Chronicle will be published April 2. Items for publication in the newspaper’s Happenings calendar (See pages 10-11) 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, or sent by campus mail to 422 Craig Hall. For more information, call 412-624-1033 or e-mail robinet@pitt.edu.