

Large grant to study small stuff

The Department of Physics and Astronomy received a five-year, \$2.7 million grant from the National Science Foundation to study nanomaterials and their biomedical applications.

More than 80 percent of the funds from the \$2.7 million Partnership for Research and Education in Materials grant will stay with UTSA, which will conduct the research in collaboration with the University of Texas Health Science Center at San Antonio and with Northwestern University's Materials Research Science and Engineering Center, one of the top 14 nanomaterials centers in the U.S.

About \$900,000 of the grant's total budget goes toward hiring six graduate and six undergraduate students each year to assist with the nanomaterials research.

The grant, titled "Oxide and Metal Nanoparticles: The Interface between Life Sciences and Physical Sciences," will focus on six areas of research, including use of lasers and terahertz radiation to discover medical applications of nanomaterials.

\$690K keeps plant biology research growing

Jurgen Engelberth, assistant professor of plant biochemistry, and Valerie Sponsel, associate professor of biology, both from the Department of Biology, were collectively awarded \$690,000 in funding from the National Science Foundation (NSF) to further their research in plant biology.



Engelberth has received \$540,000 for the next three years to research the effects of plant chemicals called green leafy volatiles. Plants release these volatiles when they are cut or wounded by harmful agents such as herbivores or pathogens. Neighboring plants sense the volatiles from the damaged plant as odor, which allows those neighboring plants to subtly prepare themselves for future damage.

Sponsel will receive \$150,000 over the next year to research the genes responsible for the biosynthesis of plant hormones called gibberellins. Sponsel's research will contribute to a better understanding of how scientists can modify a plant's genetics to manipulate the plant to produce a larger harvest. The interdisciplinary research project will be conducted with Garry Sunter, associate professor of biology, and Jianhua Ruan, assistant professor of computer science, using biochemical, molecular and computational approaches. This award brings Sponsel's NSF support into its 20th year.

Stargazing

The Department of Physics and Astronomy hosted monthly free public events titled "Friday Nights, Celestial Lights" in 2009. The events celebrated the International Year of Astronomy, which marked the 400th anniversary of Galileo Galilei using a telescope to observe the night sky.

At the first event in February, more than 100 students, faculty and local stargazers listened as Eric Schlegel, Vaughan Family Endowed Professor in Physics, spoke about the progress scientists have made with optics.

On clear nights, participants used both Newtonian telescopes, which use a concave mirror and a flat mirror, and Cassegrain telescopes, which use concave and convex mirrors, to view celestial objects. In addition to viewing the night sky, each event featured a science fiction film screening.



\$2.4 MM stimulates college research

Of the \$9.2 million in stimulus funding received by the university during 2009, \$2.4 million went to the College of Sciences for 11 projects. The majority of the funding came from the National Institutes of Health and the National Science Foundation, and funded projects ranged from high performance computing to the recruitment of a stem cell biologist.

"UTSA is in a race with six other schools to reach Tier One research status, so the opportunity to compete for stimulus funding couldn't come at a better time for us," says Robert Gracy, UTSA vice president for research.

The American Recovery and Reinvestment Act of 2009, better known as the stimulus bill, is an economic recovery package adopted to help states stabilize budgets and stimulate economic growth. The bill allocates approximately \$21.5 billion through the National Institutes of Health and other federal agencies for scientific research and development projects.

ONLINE HYGIENE HELPS KEEP YOU SAFE

By Ravi Sandhu

There is no escape from going online—our jobs require it, but even more so, our personal lives have become increasingly dependent on the Internet. Rarely has a technology caught on so quickly and ubiquitously.

But is it safe? Even supposedly well-protected organizations such as the Pentagon, Citibank and Google have been attacked by those with miniscule resources. Who will keep us safe in cyberspace? What can the ordinary citizen do?

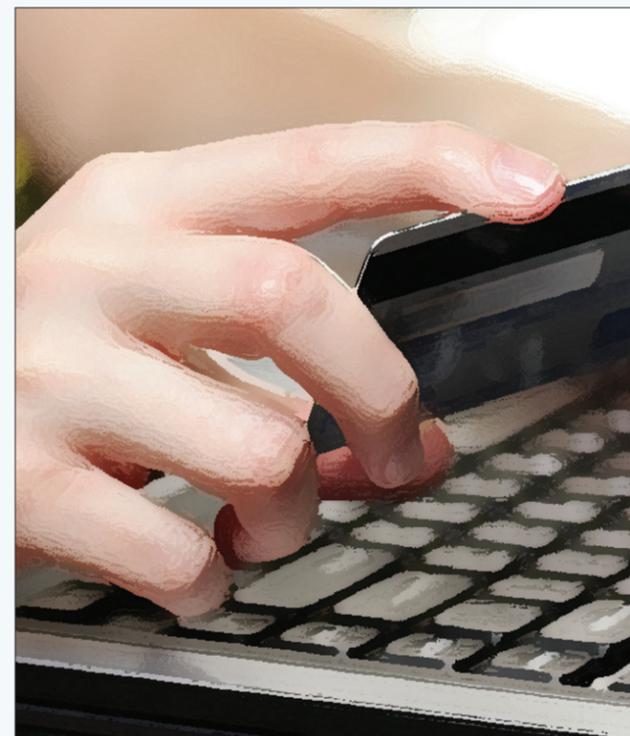
The vast majority of attacks in cyberspace are thwarted by basic online hygiene and some good luck. Just like the personal hygiene of washing hands, getting immunizations and regular checkups that we practice in our physical lives, simple techniques go a long way in keeping us safe online.

Such ways include installing an updated anti-virus program, using a personal firewall, using your Web browser's site adviser to avoid known malicious Web sites, and maintaining personal discipline in not clicking links and opening attachments in strange or useless e-mails.

Admittedly, we also need some luck. Physical hygiene does not guarantee freedom from disease. Some of us will still get infected and become sick. Likewise in cyberspace we can be unlucky, but the probabilities are in our favor. There is also safety in numbers. Ultimately, only a small fraction of people will fall victim to cybercrime.

The safety of an individual citizen can be maintained by basic hygiene, but safety of our society does require deeper care. Much of our infrastructure is dependent on cyberspace. As we seek to improve our air-traffic control, our energy grid, our healthcare system and our emergency response systems, we need cyberspace to gain the necessary productivity and efficiency.

With projects like the \$250,000 four-year National Science Foundation grant "Securing Dynamic Online Social Networks" and others, UTSA's Institute for Cyber Security puts Texas in a prominent position in the effort to research new ways to keep cyberspace safe for everyone in our nation.



Even supposedly well-protected organizations such as the Pentagon, Citibank and Google have been attacked by those with miniscule resources.

Ravi Sandhu is the executive director of UTSA's Institute for Cyber Security and a world-renowned cyber security expert.

