



COMMUNICATING SCIENCE BROADLY

Jeff Nesbit, Director
Office of Legislative and Public Affairs



The Changing Media Landscape



Nearly 40 million Americans rely on the internet as their primary source of news about science.

- Television is first (41%) as a science news source.
- The internet is now second (20%)
- Newspapers and magazines are third (14%)
- In homes with broadband, 44% of young adults get their science news from the internet.



Science in the national media

- *Pure coverage of science has all but disappeared in the national media.*
- *National media such as the Wall Street Journal and USA Today no longer have science sections.*
- *The major broadcast networks now cover science under a space, health or technology umbrella.*



Science as *Technology*

Newsweek Technology & Science





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Science as *Health*

TIME
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Science & Health



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Funded by National Science Foundation

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MAIN: SCIENCE REPORTS BODY AND BRAIN EARTH AND ENVIRONMENT SPACE TECHNOLOGY VIDEO ARCHIVE FOR TEACHERS

IN THE NEWS

Competition Puts Solar Homes on Display

October 23, 2007
Report
The Department of Energy's Solar Decathlon brought teams from 20 universities to the National Mall to showcase their designs for solar-powered homes.

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Solar Homes on the National Mall

October 23, 2007
Slide Show
View all of the solar homes entered in the Department of Energy's 2007 Solar Decathlon.

IN-DEPTH COVERAGE

GLOBAL WARMING DEBATE POLAR RESEARCH SPACE STORMS



Broader Impacts



Broader Impacts Criterion

1) *How well does the activity advance discovery and understanding while promoting teaching, training and learning?*

2) *How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, etc.)?*

3) To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks and partnerships?

4) *Will the results be disseminated broadly to enhance scientific and technological understanding?*

5) What may be the benefits of the proposed activity to society?



Past “Broader Impact” Activities

- 1) *Partner with museums and science centers*
 - 2) *Collaborate on education activities*
 - 3) *Make data available to digital libraries*
 - 4) *Present research findings to policy audiences*
 - 5) *Participate in conferences and workshops*
-



2002 NSF Report on Broader Impacts:

“Experience shows that while most proposers have little difficulty responding to the criterion relating to intellectual merit...

...many proposers have difficulty understanding how to frame the broader impacts of the activities they propose to undertake.”



NSF's Response in 2002

- The agency said that it would not review any proposal that failed to address the Broader Impacts Criterion.
- Despite this mandate from NSF, there was still considerable confusion about what types of activities fulfill the Broader Impacts Criterion.



And now, 5 years later?

- A recent American Physical Society News article says that some in the scientific community view Broader Impacts as “confusing, burdensome, inappropriate, or counterproductive.”
- An MIT scientist describes it as “punitive.”



2007 Broader Impacts workshop suggestions:

- 1) Identify established education and outreach programs that scientists and NSF-funded programs could join.
- 2) Build a Broader Impacts percentage into large awards that could support extensive outreach projects.
- 3) Recognize ongoing, broad-based media and public affairs initiatives that fulfill Broader Impacts.



Congress has now weighed in

AMERICA COMPETES requires a report to Congress on
“broader impacts” in areas such as:

- * *outreach to the public*
- * *training scientists*
- * *disseminating research findings.*



A new, emerging mandate for communicating science to the public

- Renewed emphasis on making the scientific process, research and discoveries available to the public.
 - The public must understand the science it is being asked to support financially.
 - The Broader Impacts Criterion is important to this effort.
-



New NSF Public Affairs Initiatives



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- [NSF supports great television, inspiring museum exhibits, breathtaking IMAX films, and compelling radio.](#)
- [Expedition to Antarctica : Nov. 24-Dec. 23, 2007](#)
Adelie penguins will provide a team of scientists a window into the biology of the frigid Ross Sea during an end-of-the-year expedition to Antarctica.

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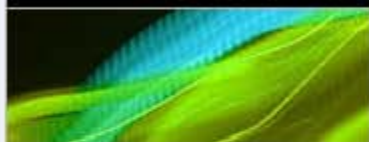
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Discovery
Getting to the Core of Climate Change

Graduate student tells how University at Buffalo geologists communicate their research on climatic change and its impact to local people



Inuit children from Clyde River, Baffin Island, show off 5000-year-old mud.
[Credit and Larger Version](#)

October 26, 2007

On May 29, 2007, the wind was howling in Clyde River, a small town located at 70 degrees north latitude on Baffin Island, Arctic Canada. Snow drifts piled around our cabin and packed ice grains into every crevice of the snowmobiles outside. As a master's student, I was one of a team of seven geologists working to collect samples that would help us understand past



Inuit children from Clyde River, Baffin Island, touch a lake sediment core.
[Credit and Larger Version](#)



Elizabeth Thomas and J.R. Noble collect sediment core from a lake on Baffin Island, Canada.
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Aaron Bini, J.R. Noble, and assistant professor Jason Briner show a lake sediment core.



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Press Release 07-130

National Science Foundation and ResearchChannel Form Programming Partnership



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CHANNEL

NSF and ResearchChannel will develop science programs for national and international broadcast.

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October 4, 2007



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Roberta L. Marinelli
National Science Foundation

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NSF field scientists learn penguin physiology secrets in Antarctica. Credit: National Science Foundation

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From Our Blogs

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Hunt for Noah's Ark Takes on New Dimension
The hunt for evidence that a 980-foot long feature on Mt. Ararat in Turkey might be the remains of Noah's Ark has taken on a new dimension, quite ...

08.29.07 | by Leonard David
Lunar Lander Challenge: And Then There Were Seven
The playing field has tightened up in the Northrop Grumman Lunar Lander Challenge to be held this October at the Wirefly X Prize Cup in New ...

08.27.07 | by Tariq Malik

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ELSEWHERE ON THE WEB

Lucia Gurioli
University of Hawaii at Manoa
LiveScience.com
Sat Oct 13, 1:10 PM ET

This Behind the Scenes article was provided to LiveScience in partnership with the National Science Foundation.

While majoring in geology at the University of Pisa in 1991, I traveled on a class fieldtrip to Vulcano —a small island volcano near Sicily's north shore. (The word "volcano" originated from Vulcano, which was named after the Roman God of Fire.)

During the fieldtrip, I climbed to the top of Vulcano and then descended into its summit crater. When I reached the crater floor, I marveled at the tranquility and silence that filled the air. But then, as I glanced up at the steep, steaming,

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storydetails

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South Pole Telescope May Reveal What the Universe is Made Of [Source: National Science Foundation]



[21-Mar-2007] Scientists say they are hoping a massive telescope will help them uncover the materials that comprise the universe and how these particles got here. The South Pole Telescope (SPT), which measures 75 feet tall, 33 feet wide and weighs 280 tons, is also expected to help scientists determine if dark energy is the force that dominates the universe. Scientists have varying ideas as to what dark energy may be and how it directly affects the universe. The \$19.2 million...

View full details

Useful Links/Documents

- Landmark Completion of South Pole Telescope to Help Scientists Learn What the Universe is Made of and How it got Here
- National Science Foundation

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Thanks to Silicon Valley's money and ideas, solar and other new technologies may finally pay off.

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300-foot "Power Tower" built by Abengoa outside Seville, Spain. (Abengoa)

SCIENCE BLOG: THINKING HARDER

Medical Trials Ignore the Placebo Effect

The randomized, placebo-controlled trial is considered the gold standard of medical experimentation. But could much of what glitters be fool's gold?

MORE FROM U.S. NEWS

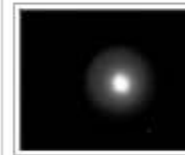
For Frogs, a Digital Detour

Software makes it possible for students to swap a scalpel for a computer

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WHERE DISCOVERIES BEGIN



Time Change Improves Comet Holmes Visibility

With Saturday's switch to standard time, Comet Holmes can now be seen easily with unaided eyes.



Electronic Nose Is Designed to Sniff Out Hazards

MIT professor Harry Tuller copies the physiology of natural noses to design an electronic nose.



Evidence Fingers Volcanoes as Suspect in Dino Demise

Violent volcanoes of the Deccan Traps in India are being blamed for wiping out the dinosaurs.



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Press Release 07-086 - Video

Call-in Program With Experts to Discuss Their New Approach to Cancer Detection



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Three of the pioneers behind novel light-scattering techniques to detect certain early stage cancers joined an outside expert on biophotonics in a call-in program to discuss new research results that were presented in the Aug. 1, 2007, edition of *Clinical Cancer Research*. Richard McCourt (right), of NSF's Directorate for Biological Sciences, was the moderator.

Credit: National Science Foundation



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Press Release 07-083 - Video

Interview with Mark Meier of the University of Colorado at Boulder, discussing his team's findings.



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An interview with Mark Meier of the University of Colorado at Boulder, discussing his team's findings.

Credit: National Science Foundation/National Center for Supercomputing Applications (University of Illinois at Urbana-Champaign)

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This video requires the free [Quicktime Player](#) plug-in

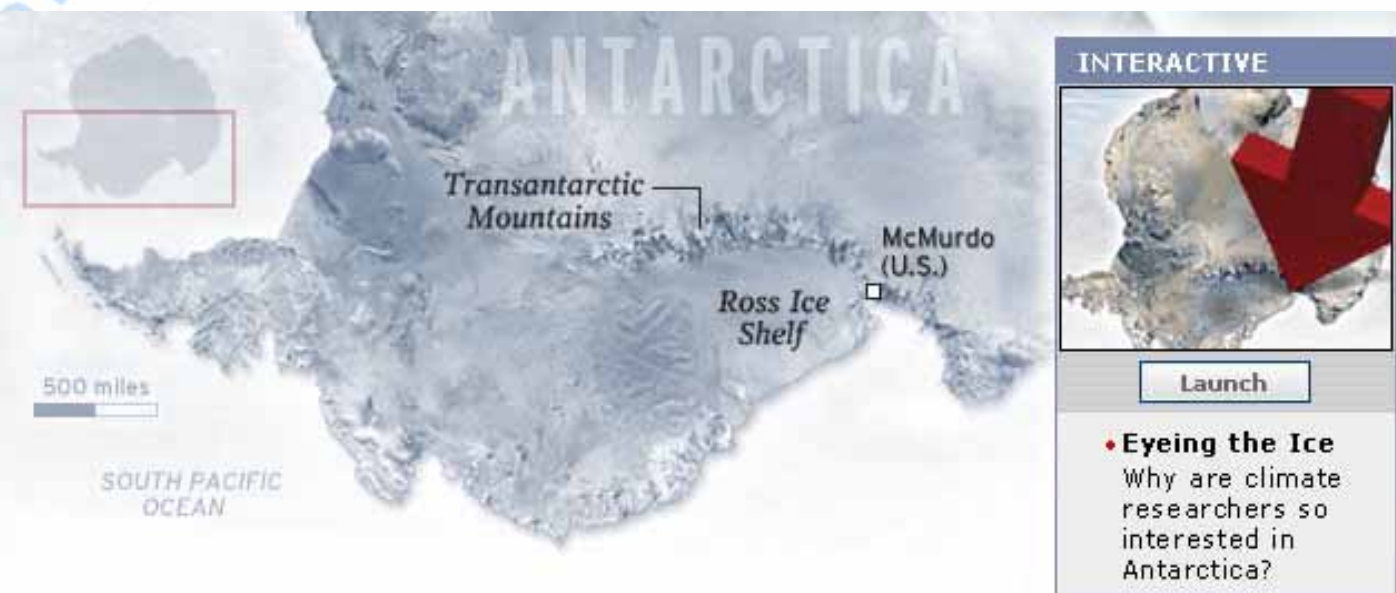


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Taking media to the science



By [Miguel Llanos](#)
Reporter
MSNBC

The ice mass stuck to Antarctica is more than a mile thick in places and covers an area larger than the continental United States. But in recent years, it has been melting at an alarming rate: An estimated 36 cubic miles of ice disappeared into the Southern Ocean sea last year — 36 times as much water as Los Angeles uses annually.



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Discovery Files on 300+ stations



Discovery Files on iTunes

The screenshot shows the iTunes application window. The top menu bar includes File, Edit, Controls, View, Store, Advanced, and Help. The main window title is 'iTunes'. The search bar contains 'nsf'. The left sidebar shows 'LIBRARY' with Music, Movies, TV Shows, Podcasts (2), and Radio. Below that is 'STORE' with 'iTunes Store' and 'PLAYLISTS' including Party Shuffle, 90's Music, Music Videos, My Top Rated, Recently Added, Recently Played, and Top 25 Most Played. The main content area displays 'The Discovery Files' podcast by National Science Foundation. It includes a cover image, category (Natural Sciences), language (English), total episodes (18), and a 'SUBSCRIBE' button. To the right are buttons for 'WEBSITE' and 'REPORT A CONCERN', and a section for 'LISTENERS ALSO SUBSCRIBED TO' with several recommendations. At the bottom, a table lists 14 episodes.

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2 "Face Time" -- The Discovery Files	1:15	National Science Fou...	10/03/2006	A split second chance to make a 1st impression	Free
3 "Garbage to Gas" -- The Discovery Files	1:15	National Science Fou...	09/28/2006	Wood-burning cars?	Free
4 "Tilt-O-World" -- The Discovery Files	1:15	National Science Fou...	09/28/2006	Alaska at the equator? A new spin on the E...	Free
5 "Paddle Bots" -- The Discovery Files	1:15	National Science Fou...	09/28/2006	Underwater robot shows "more" isn't always...	Free
6 "A Little Counter Intelligence" -- The ...	1:15	National Science Fou...	09/28/2006	Turns out baby's doin' the math.	Free
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11 "Tacky Bacteria" -- The Discovery Files	1:15	National Science Fou...	09/05/2006	Look out, "super" glues! These bacteria cre...	Free
12 "Sounds of Silence" -- The Discovery ...	1:15	National Science Fou...	08/30/2006	Chinese frogs: Is it something they said?	Free
13 "Captive Evidence" -- The Discovery ...	1:15	National Science Fou...	08/28/2006	Digging up evidence of earlier slave trade	Free
14 "Alternate Internet" -- The Discovery ...	1:15	National Science Fou...	08/24/2006	Viruses, worms and strikes. Oh, my!	Free

EXAMPLE: NSF's Discovery Files



iTunes

The screenshot shows the iTunes application window. The top menu bar includes File, Edit, Controls, View, Store, Advanced, and Help. The main window title is 'iTunes'. Below the menu bar is a control bar with playback buttons (play/pause, stop, previous, next) and a volume slider. The search bar contains 'nsf' and the text 'Search iTunes Store'. The left sidebar shows the 'LIBRARY' with categories for Music, Movies, and TV Shows. The main content area displays the 'The Discovery Files' podcast page, including the podcast cover art, the title 'The Discovery Files', the publisher 'National Science Foundation', and a 'SUBSCRIBE' button. Below the podcast page is a table of episodes.

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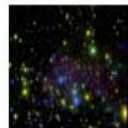
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News From the Field

One of the Most Curious Objects in the Sky Delights Astronomers Again

August 29, 2007



Edwin Hubble once called IC 10 "one of the most curious objects in the sky," and new observations of the extremely faint, lightweight dwarf galaxy are giving scientists new clues about how populations of stars are born. Though the properties of stars is one of the most well-studied topics in astronomy, scientists still don't fully understand the mechanisms involved in star formation and evolution.

[Full story](#)

Source

W. M. Keck Observatory

The National Science Foundation (NSF) is an independent federal agency that funds fundamental research and education across all fields of science and engineering. The NSF's annual budget of \$5.92 billion. NSF funds reach all 50 states through grants to universities and institutions. Each year, NSF receives about 42,000 proposals for funding, and makes over 10,000 new funding awards. The NSF also awards about \$600 million in professional and service contracts yearly.

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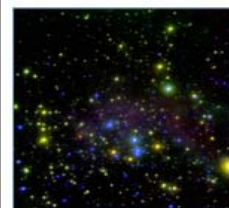


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FIGURES



Credit: UCB/NASA/Keck Observatory

The central starburst region of the IC 10 irregular dwarf galaxy.

ARTICLE

'ONE OF THE MOST CURIOUS OBJECTS IN THE SKY' DELIGHTS ASTRONOMERS AGAIN

Mauna Kea (August 29th, 2007) Edwin Hubble once called IC 10 "one of the most curious objects in the sky," and new observations of the extremely faint, lightweight dwarf galaxy are giving scientists new clues about how populations of stars are born.

Though the properties of stars is one of the most well-studied topics in astronomy, scientists still don't fully understand all the mechanisms involved in star formation and evolution, particularly in galaxies with low levels of oxygen, nitrogen and other heavy elements. But scientists studying the IC 10 galaxy may soon understand how stars might have looked like in the distant past, when the universe was in a younger, more pristine form.

"A few years ago these types of studies would have been impossible from the ground," said Dr. Taft Armandroff, director of the W. M. Keck Observatory, who's own research includes the study of dwarf galaxies. "We can now study individual stars of galaxies several million light years from Earth to understand how star formation events may have affected the evolution of the Milky Way galaxy. This galaxy can teach us what the most common types of galaxies in the universe might be like."

New images of IC 10 reveal a small region of space teeming with nearly a thousand stars. The image, obtained with NASA's Hubble Space Telescope and the W. M. Keck Observatory in Hawaii, shows evidence of a vigorous star formation event that took place within the last 10 million years.



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NSF PIO Workshop
October 2004
Socorro, New Mexico

Welcome to NSF's Web site for PIO collaboration, hosted by the Office of Legislative and Public Affairs. We hope you find it useful and informative as the site continues to evolve. Please tell other PIOs about it, but share the url with PIOs only.

UPLOAD YOUR STORIES AND MORE

If you are a PIO at an NSF-funded organization, please send us your best materials. We are particularly interested in newsworthy research results—preferably in press release format, before public release—but we welcome other categories and formats too. Our vision is larger than our resources, so we won't be able to use everything you send. We will build this partnership step by step. (If you are not at an NSF institution, feel free to browse our site and to register for access to the PIO list.)

Share your:

- Press Releases
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- Photographs
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Special Reports

Award-winning SRs on www.nsf.gov



National Association of Government Communicators
2007 Gold Screen Award
Award of Excellence

National Association of Government Communicators
2007 Gold Screen Award
First Place





Science Radio Network



NSFRADIO

SEARCH



Bill Nye

Podcast Series Description
Got 30 Seconds? Bill Nye the Science Guy talks about great moments in science and engineering as part of the National Science Foundation's 50th Anniversary Celebration.

[PODCAST HELP](#)

[SUBSCRIBE TO THIS SERIES](#)

NOW PLAYING 0:55 -0:22

Bill Nye Microbursts: Item description item description item description item description.

[TRANSCRIPT](#)

PODCAST	SERIES	TIME	DATE	DESCRIPTION
Microbursts	Bill Nye	1:03	10/24/2006	Bill Nye 50th Anniversary Radio Public..
Garbage to Gas	Discovery Files	1:03	10/24/2006	Could you fire up the family car on a gallon ...
All Seeing Robot	Imagine That!	1:03	10/24/2006	Apparently, humans aren't the only ones ...



Internet

NSF Kids: www.science360.gov



TELEVISION



MUSEUM EXHIBIT



QUIZ



NEWS



TELEVISION



MORE

EXAMPLE: Video clips for kids

NSF Content

Partner Content



Slide Not Available



Science and Engineering Visualization Challenge



Introduction

Photography

- First place
- Second place

Illustration

- First place
- Second place
- Hon. mention

Informational Graphics

- First place
- Second place
- Hon. mention

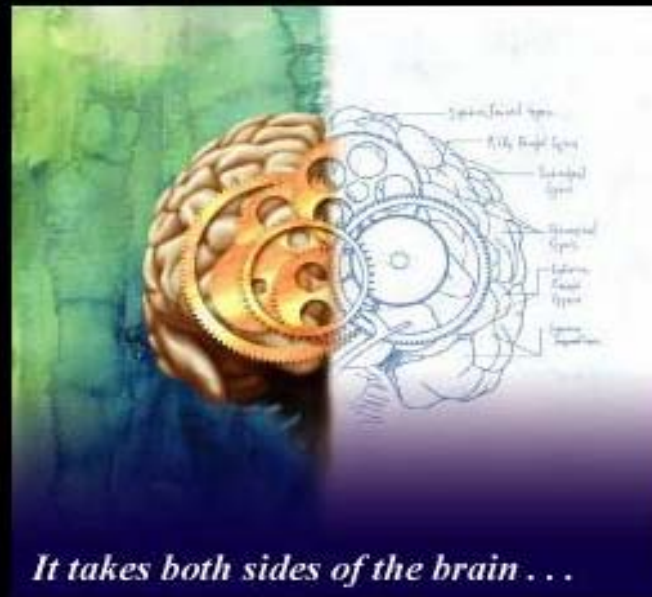
Multimedia (Noninteractive)

- First place (tie)
- First place (tie)
- Hon. mention

Multimedia (Interactive)

- First place
- Second place
- Hon. mention

The Judges



[See the slide show](#)

[Read the full article in Science](#)

On 22 September 2006, *Science Magazine* and the National Science Foundation honor the creators of dazzling scientific images and animated presentations, in the fourth annual Science and Engineering Visualization Challenge. This year's winners -- in categories including photography, illustration, informational graphics, and multimedia -- captured inner details of a child mummy, mathematical surfaces rendered as glass objects, the highest mountain on Earth, air traffic by night, cellular dynamics, and the vasculature of conjoined twins. We invite you to explore the contest's winning entries and honorable mentions in this special online slide show.



NSF AT WORK



Terrorists groups and their followers have created a vast presence on the Internet. A recent report estimates that there are more than 5,000 Web sites created and maintained by known international terrorist groups, including Al-Qaeda. Credit: Jupiter Images.

Analyzing the Web's "Dark Side"

Terrorists and extremists have set up shop on the Internet, using it to recruit new members, spread propaganda and plan attacks across the world. The size and scope of these dark corners of the Web are vast and disturbing.

In a non-descript building in Tucson, a team of computational scientists is using cutting-edge technology and novel new approaches to track extremists' moves on line, providing an invaluable tool in the global war on terror. Funded by the National Science Foundation (NSF) and other federal agencies, Hsinchun Chen and his Artificial Intelligence Lab at the University of Arizona have created the Dark Web project, that aims to systematically collect and analyze all terrorist-generated content on the Web.

Using advanced techniques such as Web spidering, link analysis, content analysis, authorship analysis, sentiment analysis and multimedia analysis, Chen and his team can find, catalogue and analyze extremist activities on line. For more information on what's hiding on line, see NSF's "[Scientists Use the 'Dark Web' to Snag Extremists and Terrorists Online.](#)"

Powerful Tool Crunches Commutes

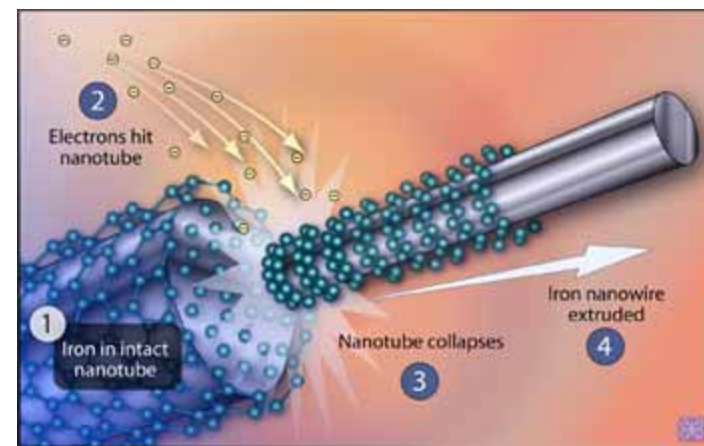
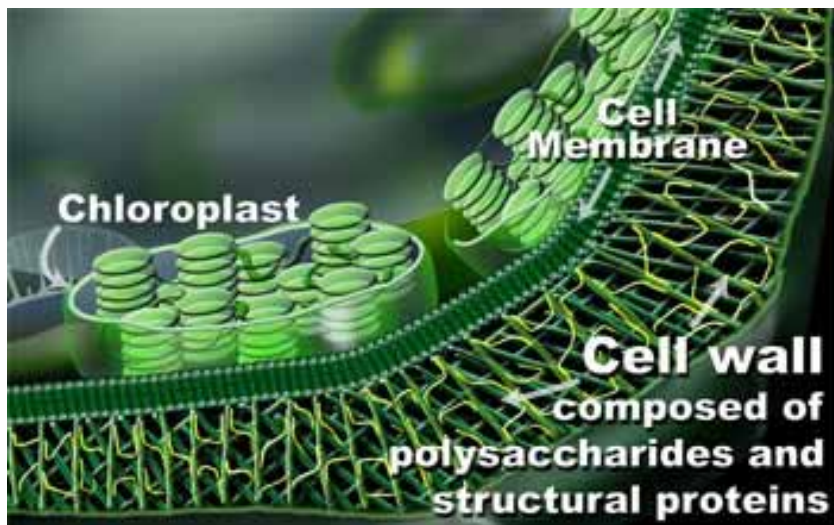
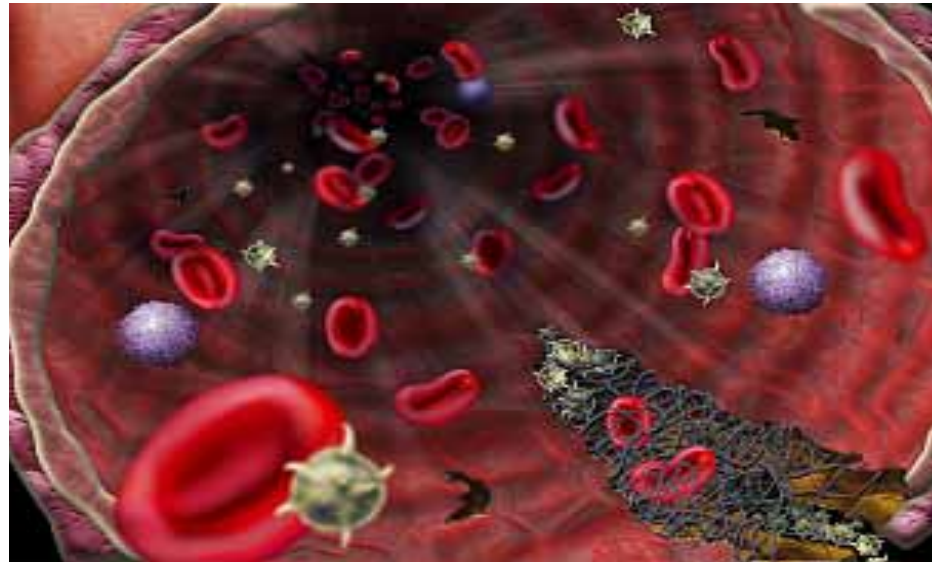
Web sites for travelers are nothing new, but researchers in Sunnyvale, Calif., have developed an advanced system with a twist. In addition to tracking traffic congestion, the program crunches data from 14,000 sensors, in some cases every 30 seconds, to decipher evolving rush-hour patterns. The end result is www.BeatTheTraffic.com, a tool that tells commuters how long they can expect to sit in their cars, which shortcuts will get them home faster that day, and even the best time to leave the home or office.

The tool is now available to commuters in 45 U.S. cities, with the heavily-



NSF's New Multimedia Gallery

Visualization Explaining Science





Scientists & the Mass Media



In What Sport...

- Do athletes work daily with engineers, mathematicians and scientists?
 - Are some athletes engineers?
 - Do teams employ people with Ph.D.s in math, science and engineering?
 - Do engineers have their own weekly TV show?
 - Does success depend on your understanding of math, science and engineering?
-



Slide Not Available

Built for Speed: NASCAR Physics



Photo: Robert Hilborn – Las Vegas 2006



Photo: Robert Hilborn – Penske

Dr. Diandra L. Leslie-Pelecky
NSF Press Breakfast at AAAS 2007



Workshops in LA and NY

CSI: THE EXPERIENCE

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CSI: The Experience was developed by the Fort Worth Museum of Science and History, CBS Consumer Products, CSI: Crime Scene Investigation, and the National Science Foundation.



The Fort Worth Museum of Science and History serves as a vital component of the educational infrastructure of Texas and an important family leisure destination for North Texas due to its creative, vibrant programs and exhibits. Established in 1941, the Museum today hosts roughly 800,000 visitors a year, including more than 150,000 school children. Because the Museum is constructing a new building beginning in the fall of 2007, it will host *CSI: The Experience* in the summer of 2008 off-site. Accredited by the American Association of Museums, the Fort Worth Museum is a founding member of the Science Museum Exhibit Collaborative (see below), for which it is developing *CSI: The Experience*.





Why?

