



# Science.gov

**2005 Fall Federal Depository Library Conference.  
Washington, DC  
October 18, 2005**

**Eleanor Frierson (National Agricultural Library)  
Thomas Lahr (US Geological Survey)  
Science.gov Alliance Co-Chairs**

# What is Science.gov?

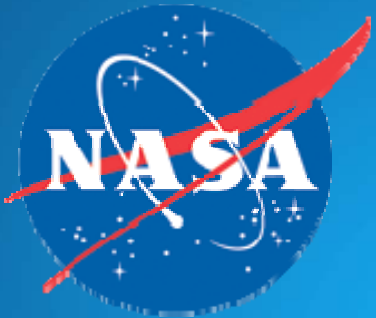
- FirstGov for Science cross-agency portal
- A large scale collaboration to make government science information available via one location
- A wealth of information the user can find without knowing the sponsoring agency
- Unique search tool that digs deeply to find otherwise hidden information



# science.gov

FIRSTGov for SCIENCE

## What is Science.gov?



### An extraordinary partnership of information operations

With National Archives and Records Administration Support





# Workshop I: The Vision

DOE convenes first workshop

May 2000 at National Academy of Sciences



Panelists from academia, government, and industry

- Adjust to changing modes of science communications
- Respond to call of National studies
- Enthusiastic endorsement to establish infrastructure





## Workshop II: Challenges

- **Broad scope of Federal research and development missions in science and technology**
- **Wide ranging interests of potential audiences**
- **Taxonomy issues given the broad scope and audience**
- **Blending resources from different agencies into cohesive functionality and page design**
- **Resources, funding and sustainability**



## Workshop II: The Alliance

- Web is the tool of choice for information dissemination
- Science is not bounded by organization or geography
- Each science agency has information & services to fulfill its mission— to bring to Internet table
- Interagency collaboration is necessary





# The Alliance Potluck Party

## 17 organizations from 12 agencies

- **Department of Agriculture**  
National Agricultural Library  
United States Forest Service
- **Department of Commerce**  
National Institute of Standards and Technology  
National Technical Information Service
- **Department of Defense**  
Defense Technical Information Center
- **Department of Education**  
National Library of Education
- **Department of Energy**  
Office of Scientific and Technical Information
- **Department of Health and Human Services**  
Food and Drug Administration  
National Institutes of Health  
National Library of Medicine
- **Department of Interior**  
United States Geological Survey  
National Biological Information Infrastructure
- **Environmental Protection Agency**  
Office of Environmental Information  
Office of Research and Development
- **National Aeronautics and Space Administration**  
Scientific and Technical Information Program
- **National Science Foundation**
- **United States Government Printing Office**
- With additional support from the  
**National Archives and Records Administration**



**science.gov**  
FIRSTGov for SCIENCE

## Science.gov Alliance Vision

- Provide cross-agency, gateway access to selected, authoritative U.S. government science and technology resources for the science-attentive citizen, including science professionals, students, teachers, business people, and members of the public interested in science





## Science.gov Measures Customer Satisfaction

Science.gov is a gateway to [authoritative selected science information](#) provided by U.S. Government agencies, including research and development results.

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Biotechnology, Electronics, Engineering, Transport ...

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Exploration, Planets, Space Technologies ...

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Animals & Plants, Ecology, Genetics, Pest Control ...

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Networks, Hardware, Software ...

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Land, Maps, Natural Disasters, Oceans, Weather ...

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Energy Use, Fossil Fuel, Solar, Wind ...

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Air/Water/Noise Quality, Cleanup, Climate Change ...

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Disease, Health Care, Nutrition, Mental Health ...

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Astrophysics, Chemicals, Mathematical Modeling ...

#### [Natural Resources & Conservation](#)

Ecosystems, Energy Resources, Forest Science, Mining ...

#### [Science Education](#)

Homework Help, Teaching Aids, Science Internships ...

### Special Collections

- ★ [Federal Regulations](#)
- ★ [Federal R&D Summaries](#)
- ★ [Internships & Fellowships](#)
- ★ [Grants.gov](#)

### Featured Web Sites

- ★ [Giant Pandas](#)
- ★ [New Rice is Nutritional Gold](#)
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Web sites by Topic maintained by [NTIS](#).



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Browse topic: ([Science.gov home](#))>**Energy & Energy Conservation**

Narrower topics:

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[Energy Policy, and Studies](#)

[Energy Use, Supply, and Demand](#)

[Fossil Energy](#)

[Nuclear power](#)

[Renewable Sources](#)

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [R](#) [S](#) [T](#) [U](#) [V](#)

A:

[Advanced Batteries Research, Engineering, and Evaluation Facility \(ABREE\)](#) - Expertise in the development, design, production, and evaluation battery and other energy storage technologies [Department of Energy (DOE), Sandia National Laboratories]

[Alternative Fuels Data Center Resources and Documents](#) - Provides links to resources and documents about alternative fuel and alternative fuel vehicle (AFV) technologies, programs, funding, regulations, contacts, and more [Department of Energy (DOE)]

[Argonne Library's Resources on the Internet](#) - Provides access to Argonne's subject specific resources [Department of Energy (DOE), Argonne National Laboratory (ANL)]

B:

[Bradbury Science Museum](#) - Provides links to information about high-tech interactive Museum exhibits that explain the Los Alamos National Laboratory's defense, technology, and basic research projects, as well as the history of the Manhattan Project [Department of Energy (DOE), Los Alamos National Laboratory (LANL)]

[Brookhaven National Laboratory Fact Sheets](#) - Provides links to scientific and technical information fact sheets [Department of Energy (DOE), Brookhaven National Laboratory (BNL)]

[Brookhaven National Laboratory Research Centers and Databases](#) - Provides access to research centers at Brookhaven National Laboratory with links to associated highlights and documents [Department of Energy (DOE), Brookhaven National Laboratory (BNL)]

[Building toolbox](#) - Locate software for sustainable design, improving energy efficiency, or incorporating renewable energy concepts in buildings [Department of Energy (DOE); Energy Efficiency and Renewable Energy Network (EREN)]



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## Ranked results for: Hurricane Katrina

- [★★★★ Hurricane Katrina Impact Studies](#)  
... Hurricane Katrina Impact Studies ... Coastal & Marine Geology Program > Hurricane and Extreme Storm Impact Studies > Hurricane Katrina ...  
Document is from: Science.gov Web Sites
- [★★★★ Hurricane Katrina Disaster Response](#)  
... Hurricane Katrina Disaster Response ... Hurricane Katrina Disaster Response ...  
Document is from: Science.gov Web Sites
- [★★★★ Hurricane Katrina NOAA Images](#)  
... Hurricane Katrina NOAA Images ... The imagery posted on this site is of the Gulf coast of Louisiana, Mississippi and Alabama after Hurricane Katrina made landfall. ...  
Document is from: Science.gov Web Sites
- [★★★★ Hurricane Katrina, Pregnancy, NCBDDD, CDC](#)  
... Hurricane Katrina, Pregnancy, NCBDDD, CDC ... Hurricane Katrina - Special Populations ...  
Document is from: Science.gov Web Sites
- [★★★★ Hurricane Katrina Animal Relief Efforts](#)  
... Hurricane Katrina Animal Relief Efforts ... veterinary students) to assist in Hurricane Katrina recovery efforts and in future ...  
Document is from: Science.gov Web Sites
- [★★★★ Hurricane Katrina. Questioning the 'Dutch solution'.](#)  
Enserink M, Bohannon J.  
Science. 2005 Sep 16;309(5742):1809. No abstract available.  
Document is from: PubMed Database
- [★★★★ Hurricane Katrina Response; Environmental Protection Agency](#)  
... Hurricane Katrina Response; Environmental Protection Agency ... Hurricane Katrina Response ...  
Document is from: Science.gov Web Sites
- [★★★★ Hurricane Katrina Response; Environmental Protection Agency](#)  
... Hurricane Katrina Response; Environmental Protection Agency ... Hurricane Katrina Response ...  
Document is from: Science.gov Web Sites
- [★★★★ Hurricane Katrina. Riding out the storm.](#)  
Gramling C.  
Science. 2005 Sep 9;309(5741):1657. No abstract available.  
Document is from: PubMed Database
- [★★★★ Hurricane Katrina - U.S. Department of Defense](#)  
Products Press Resources Images Websites Contact Us Hurricane Katrina An air crew member from Helicopter Sea Combat Squadron 28 looks Hurricane Katrina su



# Searching Science.gov

- Science.gov Website search—  
an index of approximately 1800 sites
- Deep Web Search—  
30 large government databases
- Metasearch—  
search sources in parallel and return  
integrated results



# Science.gov Website Search

- The Websites in the Browse by Topic section are also indexed and made searchable.
- USGS maintains this search using a traditional search engine.
- The search engine follows the submitted link, capturing additional information.





## Deep Web Search: A Unique Capability

- The Deep Web search capability searches down deeply into the large databases and websites.
- Each agency submits two or three large databases that are then searched in real time.
- If the full text is searched at the site, the full text is searched on Science.gov.
- This function combines searches of PubMed, Medline, Agricola, FDA databases, Energy databases, and other large databases into one search.





## Surface Web

- Size: Estimated to be 8+ billion (*Google*) to 45 billion (*About.com*) Web pages
- Static, crawlable Web pages
- Large amounts of unfiltered information
- Limited to what is easily found by search engines

## Deep Web

- Size: Estimated to be 5 to 500 times larger (*BrightPlanet*)
- Dynamically generated content that lives inside databases
- High-quality, managed, subject-specific content
- Growing faster than surface Web (*BrightPlanet*)





## Science.gov 2.1 Sources

Science.gov 2.1 is a gateway to 47 million pages of government science information.

Science.gov Web Sites - searches an index of 1700+ agency-selected sites

Agriculture & Food - Food Safety, Gardening, Pesticides, Veterinary Science ...

AGRICOLA

Agriculture Technology Transfer Automated Retrieval System

FDA Food Safety and Applied Nutrition

Applied Science & Technologies - Biotechnology, Electronics, Engineering, Transport ...

DefenseLINK

NIST Data Gateway

NIST Publications

STINET Report Collection

U.S. Patent Server

Astronomy & Space - Exploration, Planets, Space Technologies ...

NASA Astrophysics Data System

NTRS: NASA Technical Reports Server

NASA Spacelink

Biology & Nature - Animals & Plants, Ecology, Genetics, Pest Control ...

National Biological Information Infrastructure (NBII)

Earth & Ocean Sciences - Land, Maps, Natural Disasters, Oceans, Weather ...

National Oceanic and Atmospheric Administration (NOAA)

USGS Water Resource Reports

Energy & Energy Conservation - Energy Use, Fossil Fuel, Solar, Wind ...

DOE Alternative Fuels Data Center

DOE Information Bridge

Energy Citations Database

Environment & Environmental Quality - Air/Water/Noise Quality, Cleanup, Climate Change ...

EPA Environmental Information Management System

EPA Office of Pesticide Programs

General Science - Multidisciplinary resources ...

National Technical Information Service (NTIS)

Health & Medicine - Disease, Health Care, Nutrition, Mental Health ...

Biologics Evaluation and Research

ClinicalTrials.gov

Drug Evaluation and Research

MedlinePlus Health Information

PubMed

Natural Resources & Conservation - Ecosystems, Energy Resources, Forest Science, Mining ...

USDA Forest Service Research Publications

Science Education - Homework Help, Teaching Aids, Science Internships ...

ERIC Database

NSF Publications

# Metasearch

- Also known as Federated Search, Distributed Search, Broadcast Search, Data Fusion
- The databases and Websites are searched in parallel through Basic Search with integrated results presented.
- Ability to narrow by subject category or even by specific database through the Advanced Search function
- Results show varied aspects of a subject as reflected by the agencies.





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### Ranked results for: nanotubes

- [★★★★](#) [Nanotube news.](#) ; 2005-07-01  
Smaller, faster computers, bullet-proof t-shirts, and itty-bitty robots—such are the promises of nanotechnology and the cylinder-shaped collection of carbon molecules known as nanotubes. But for these exciting ideas to become realities, scientists must understand how these miracle molecules perform under all sorts of conditions. For, without nanoscience, there would be no nanotechnology. In a rec...  
Document is from: ERIC
- [★★★★](#) **Nanotube Sensors**  
Under this project, we explored the feasibility of utilizing carbon nanotubes in sensing applications. The grant primarily supported a graduate student, who worked on a number of aspects of the electrical properties of carbon nanotubes in collaboration with other researchers in my group. The two major research accomplishments are described below.  
Document is from: NASA Technical Reports Server
- [★★★★](#) [Nanotubes: controlling conductance.](#)  
Nordlund K, Hakonen P.  
Nat Mater. 2005 Jul;4(7):514-5. No abstract available.  
Document is from: PubMed Database
- [★★★★](#) [Nanotube films and articles](#)  
Document is from: US Patent & Trademark Office Database
- [★★★★](#) [Nanotubes, nanoscience, and nanotechnology](#)  
Cohen, Marvin L. ; 2001 Feb 20  
Document is from: Energy Citations Database
- [★★★★](#) **Nanotube Reinforcement of Adhesively Bonded Joints**  
Over the past five years there has been much excitement about the development of nanotubes and nanofibers and the potential that these materials may offer in enhancing electrical and mechanical properties of systems. The purpose of this paper is to present research into improving the mechanical performance of polymers by using nanofibers as a reinforcement to make high performance composite materials.  
Document is from: NASA Technical Reports Server
- [★★★★](#) **Nanotubes May Break Through 'Chip Wall'**  
In 1965, just four years after the first planar integrated circuit (IC) was discovered, Gordon Moore observed that the number of transistors per integrated circuit had grown exponentially. He predicted that this would continue, and the media soon began to call his prophecy 'Moore's Law' For nearly forty years, Moore's Law has been validated by the technological progress achieved in the semiconductor industry.  
Document is from: NASA Technical Reports Server
- [★★★★](#) **Nanotube/Quantum Dot-Polymer Solar Cells**  
Single wall carbon nanotubes used or this study were synthesized using the pulse laser vaporization technique. The as-produced SWNTs were collected from the condensed region on the quartz tube outside the furnace and purified by modification of the previously reported procedure.  
Document is from: NASA Technical Reports Server





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Results grouped by source for: nanotubes

### Documents from Science.gov Web Sites (73):

[More](#)

1.  ['Metal-Decorated' Nanotubes Hold Promise for Fuel Cells](#)  
... 'Metal-Decorated' **Nanotubes** Hold Promise for Fuel Cells ... Metal-Decorated' **Nanotubes** Hold Promise for Fuel Cells ...
2.   [2nd Joint Workshop on Measurement Issues in Single Wall Carbon Nanotubes:](#)  
... 2nd Joint Workshop on Measurement Issues in Single Wall Carbon **Nanotubes**: ... **Nanotubes**: ... 2 nd Joint Workshop on Measurement Issues in Single Wall Carbon **Nanotubes**: Purity and Dispersion Part II NIST Gaithersburg, Maryland January 26-28, 2005 ...
3.  [Nanotech News - Moving DNA into Nanotubes](#)  
... Nanotech News - Moving DNA into **Nanotubes** ...
4.  [A New Class of Carbon Structures](#)  
... as fullerenes. Formed when vaporized carbon condenses in an atmosphere of inert gas, fullerenes include a wide range of shapes and sizes, including **nanotubes** of interest in electronics and hydrogen storage. The initial discovery was recognized by the 1996 Nobel Prize in Chemistry, awarded to Richard E ...
5.  [Nanotechnology Gallery](#)  
... Carbon **Nanotubes** ... Growing Carbon **Nanotubes** ...
6.  [Workshop on Reliability Issues in Nanomaterials](#)  
... Measurement Issues in Single Wall Carbon **Nanotubes** ... This invitation-only workshop on Measurement Issues in Single Wall Carbon **Nanotubes** brought together leaders in the carbon nanotube community to jointly discuss key measurement ...
7.  [Nanotechnology Research News](#)  
... Carbon **nanotubes** boost hydrogen storage – Nanotech Web ... One millions **nanotubes** could fit into this period. – Boston Globe ...
8.  [Taner Yildirim Nanotube Home Page](#)  
Taner Yildirim Nanotube Home Page
9.  [MSD Research Highlight](#)  
... of carbon and boron-nitride **nanotubes** (including favorable elastic modulus and ... Indeed, multiwalled **nanotubes** (MWNTs) are an essential component ...
10.  [NCEM research](#)  
... Carbon **Nanotubes** as Nanoscale Mass Conveyors ... devices a bit closer, Lawrence Berkeley National Laboratory scientists have used carbon **nanotubes** to ferry atoms over microscopic distances. In their demonstration experiment, which was ...

### Documents from EPA - Environmental Information Management System (21 out of 21):

[More](#)

1.  [ELECTROCHEMICAL DETERMINATION OF HYDROGEN SULFIDE AT CARBON NANOTUBE MODIFIED ELECTRODES. \(R830900\)](#)  
Carbon nanotube (CNT) modified glassy carbon electrodes exhibiting a strong and stable electrocatalytic response towards sulfide are described. A substantial (400 mV) decrease in the overpotential of the sulfide oxidation reaction (compared to ordinary carbon electrodes) is

This Alert Service is provided by [Science.gov](#)

62 new results were found for the week ending on September 9, 2005 for your Science.gov Alert: **fuel cell**

**Most relevant new documents (3):**

1. [Fuel Cell Vehicles](#)

... **Fuel Cell** Vehicles ... The California **Fuel Cell** Partnership is a collaboration of auto companies, fuel providers, fuel cell technology companies, and government agencies demonstrating fuel cell electric ...

Document is from: Science.gov Website Search

2. [Solid-oxide fuel cell assembly having a thermal enclosure within a structural enclosure](#)

Document is from: US Patent & Trademark Office Database

3. [Misc EC95-42937-1: Fuel Cell Powered Bus](#)

**Fuel Cell** Powered Bus Photo Number: EC95-42937-1 Photo Date: January 31, 1995 Formats: 539x480 JPEG Image (99 KBytes) 1150x1024 JPEG Image (504 KBytes) 3000x2670 JPEG Image (4,812 KBytes) Keywords: Miscellaneous Photos

Document is from: NASA Web Site

**Documents from DefenseLink WebSite (1):**

4. [DoD News: Special Defense Department Operational Update Briefing on Operations in Northwest Iraq](#)

... When we happened to capture him, several other foreign fighters and the cell leader that was orchestrating them, he was very happy to talk to us about ... went seven different locations, captured 15 out of 20 terrorist cell members, captured mortar systems, sniper rifles, a very large cache of weapons ...

**New documents from the NASA Web Site (4 out of 4):**

5. [SEPT05Layout](#)

, Building 3 Auditorium Pacesetter Campaign September 21 through October 5 Agency Fair Thursday, September 22 and Friday, September 23, Building 15 Special Event Wednesday, October 5, Car Show/ Ice Cream Social/ Hot Dog Cookout...

6. [NASA - Return to Flight Launch Countdown Begins Again Saturd ...](#)

Return to Flight Launch Countdown Begins Again Saturday

7. [NASA - Beneficial Bacteria Up in ARMS](#)

After a hard day of work, nothing feels better than a long, hot shower. In space, though, water is far too important to spend on such luxuries.

8. [NASA - NASA's Space Shuttle Processing Status Report](#)

NASA's Space Shuttle Processing Status Report: S-071105

**Documents from PubMed Database (1):**

9. [Dissimilatory Fe\(III\) reduction by an electrochemically active lactic acid bacterium phylogenetically related to Enterococcus gallinarum isolated from submerged soil.](#)

Kim GT, Hyun MS, Chang IS, Kim HJ, Park HS, Kim BH, Kim SD, Wimpenny JW, Weightman AJ.

J Appl Microbiol. 2005;99(4):978-87.





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Choose Web sites and/or subject areas to search:  
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**ALL** science.gov websites and databases

Search capabilities provided by [DOE/OSTI](#) and [USGS](#)

# Science.gov 3.0 is coming soon!

- Increased precision is the goal of Science.gov 3.0.
- More sophisticated ranking system— MetaRank
- Forced Boolean searching when target sites do not offer it
- Input syntax to be more in line with user expectations
- Powerful fielded search option
- Improved navigation





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The U.S. National Institutes of Health (NIH), through its National Library of Medicine (NLM), provides information on clinical trials primarily in the U.S. and Canada, with some from locations in over 70 countries. Launched in February 2000 it currently contains approximately 5,700 clinical studies.
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- **Enhanced relevancy ranking (DeepRank)**
- **Full-text relevancy ranking for precision search**
- **Grid computing-allowing distributed computers to communicate simultaneously and collaboratively**
- **Funded by DOE Small Business Innovation Research Grant**
- **Launch being planned for 2006**



## What's Next?

- **Development of versions 3.0 and 4.0 is funded**
- **Evaluate customer satisfaction**
- **Refine and enhance design and search capabilities**
- **Continue adding content and databases**
- **Continue reviewing the taxonomy**
- **Continue linking to other Firstgov portals such as kids.gov**
- **Continue to add members to the Alliance**
- **Continue to develop support and sustaining resources**
- **Continue what we do best – collaborate and innovate**



## OMB Report to Congress

The White House Office of Management and Budget (OMB) reported to Congress on March 1, 2005, that in the implementation of the E-Government Act of 2002, Science.gov was one of the two efforts, government-wide, that is satisfying the requirements of Section 207 “...so citizens can access the results of Federal research.”



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