



# ***The Content Providers' Perspective: DOE/OSTI Collects and CONNECTS***

**CENDI/NFAIS Workshop  
Library of Congress  
December 8, 2008**

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**Director**  
**U.S. Department of Energy**  
**Office of Scientific and Technical Information**



**1 Science.gov Way**

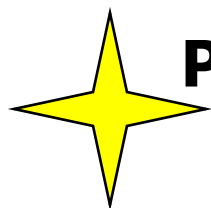


# OSTI Mission

To advance science and sustain technological creativity by making R&D findings available and useful to DOE researchers and the American people

**Science progresses as knowledge is shared**

**OSTI Corollary:  
Accelerating the sharing of knowledge accelerates  
the advancement of science**



**Profound implications for everyone  
in the information business**



# We can accelerate the sharing of science knowledge ...

**But first we must tame the frontier where most scientific research resides**

**{Actually, first we must dispel the misperception that popular search engines are already doing the job}**



**The bulk of the web is non-Googleable.  
Most science on the web is non-Googleable.**

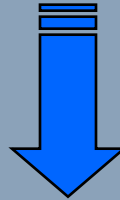
# Two Reasons Why Science Is Non-Googleable

- ❑ **Web crawlers used by Google, etc., cannot get past front page of database**
- ❑ **Search engines do not include a lot of web content that is crawlable (opaque web)**
- ❑ **Lack of “findability” for science**

So, although the web was invented by  
researchers for researchers,  
the web is not working well for science

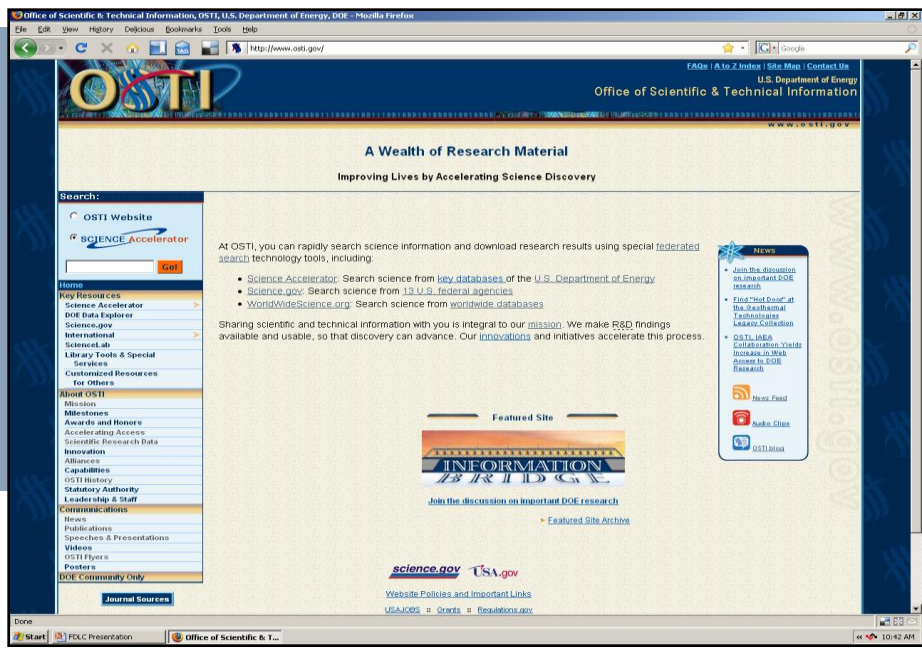


# Solution

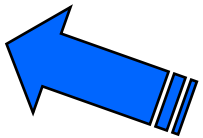


**Part of the solution is to capitalize  
on the wealth of government  
science information and R&D results  
published by federal R&D agencies**





[www.osti.gov](http://www.osti.gov)



**For example DOE/OSTI develops a number of databases and search tools, all accessible through the OSTI Home Page**



**Problem with agency-centric approach: There are many agencies and many databases**



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# We need fast & cheap integrations!

Today, OSTI integrates disparate and often difficult-to-find web resources to make them act as if they are integrated whole. As these islands of information are made searchable and more readily accessible, the faster and more broadly shared they become.

So many databases,  
so little time!

In addition to  
collecting, we gotta  
start connecting!

# Integrations Provide **Non-Googleable** Science Access



[DOE science](#), including databases of technical reports, e-prints, accomplishments, patents, project summaries, software, etc.



[U.S. science](#) 200 million pages of federal science information from 13 federal agencies



[Global science](#), 375 million pages of information from research gateways of more than 50 countries and every inhabited continent

**We do fast and cheap  
integrations by federated search**

**But what exactly is  
federated search?**

# Federated Search

- 1) Transforms a query and broadcasts it to a group of disparate databases
- 2) Merges the results collected from the databases
- 3) Presents results in a succinct and unified format with minimal duplication
- 4) Provides a means, performed either automatically or by the portal user, to sort the merged result set by relevance

Databases are generally not open to traditional search engines because of limitations in crawler technology.

Federated searching resolves this issue, making deep web documents in databases searchable without having to visit each database individually, and without burdening the database owner

**Wave of the Future?**

**What has OSTI  
been up to lately?**

# New at OSTI: Science.gov 5.0

Science.gov v5.0: Search Results - Windows Internet Explorer

http://www.science.gov/scigov/resultList.html?ssid=124d18a2%3A11c9bc7c39e%3A-7d2f&debugMode=false&searchUrl=search.html%3Fget%3Dtrue%26fullRecord%3Dalt&... auburn university library

File Edit View Favorites Tools Help

Home Site Map Index Alerts Help Contact Us About Communications Alliance Only

Refine Results New Search Advanced Search DeepWeb

Search: Full Record: alternative energy  
2,514 ranked results of 3,525,341 available  
Results 1 - 10 of 2,514 Sort by: Rank Limit to: All Sources

Your Selections (0) Clear Selections Email Results Session Preferences Print Page

Clusters

- All Results (2514)
- Topics
  - Alternative Fuels (189)
  - Method (134)
  - Activity (129)
  - Department of Energy (111)

Impact of alternative energy systems on the estimated feed requirements of pigs with varying lean and fat tissue growth rates when fed corn and soybean meal-based diets.  
Schinckel, A. P. 2008-01-01  
AGRICOLA Articles

Shale Oil: Alternative Energy or Environmental Degradation [electronic resource].  
Parks, N. 2008-01-01  
AGRICOLA Articles

Wikipedia

Alternative energy

Alternative energy is typically defined as coming from sources that do not deplete natural resources or harm the environment. Wind power is a typical example. The term alternative is used to contrast ...  
[more...](#) [exit federal site]  
[disclaimer](#)

EurekAlert!

Agricultural engineer suggests low-energy alternative to high-temperature grain drying  
2008-09-24  
An Ohio State University agricultural engineer, Robert Hansen, suggests the use of low-energy grain drying to offset ...  
[What is the energy consuming style in chronic severe hepatitis B patient normality?](#)

Trusted sites 100% 3:15 PM

## Science.gov Version 5.0

- Quadrupled the content – now searches 200 million pages of science information
- Offers clustering technology, Wikipedia results and EurekAlert! Science News
- Updated Alerts feature



# News: WWS Alliance formed, China Joins



**Officials from organizations representing 38 countries gathered in Seoul, Korea to formalize their commitment to sustain and build upon the online gateway to the world's science information.**

**The Alliance membership covers six continents and nearly half of the world's population. China just joined!**

# Making Web 2.0 work for science

- INVITATION TO
- ✓ POST!
  - ✓ SUBSCRIBE!
  - ✓ FAN!
  - ✓ SHARE!

**NEW!** See Document Discussion  
 How to Add a Discussion  
 Search Information Bridge for:  Search

**WORLDWIDE SCIENCE Alliance**  
 International Alliance formed for Global Science Online Gateway  
 WorldWideScience Alliance Established (June 2008)  
 Listen Now or play:  
 WorldWideScience Alliance Established (M4A File)  
 - 3334 KB  
 Transcript

Scientific and Technical Information, U.S. Department of Energy

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### Latest Articles

**People's Republic of China joins WorldWideScience Alliance**  
 Thursday, October 16, 2008 1:24:53 AM

The People's Republic of China has joined the WorldWideScience Alliance-- the multilateral governance structure for the global science community. WorldWideScience.org. WorldWideScience.org

**2008 Nobel Prize in Physics Supported by U.S. Department of Energy**  
 Wednesday, October 15, 2008 10:00:00 AM

A research team from the U.S. Department of Energy named co-winner of the Nobel Prize in Physics from the Academy of Sciences of the United States of America.

Join the discussion...  
 Monday, January 13, 2009 10:00:00 AM

Join the discussion...  
 Discussion, has been a...  
 forum for moderate...  
 commentary on important DOE rese...

Information

Website: <http://www.osti.gov>

Science.gov

Science.gov: Searches over 36 databases and 1,850 selected websites, offering 200 million pages of authoritative U.S. government science information, including research and development results.

Research Development

Project Summaries

Science and technology projects funded by the U.S. Department of Energy

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Science Conference Proceedings

Access this distributed portal to select science and technology conference papers and proceedings

Search

U.S. Department of Energy Scientific and Technical Information

Search

DOEpatents

U.S. Department of Energy's central collection of patent information

SEARCH

Energy Citations Database

United States Department of Energy Bibliography 1940s -

SEARCH

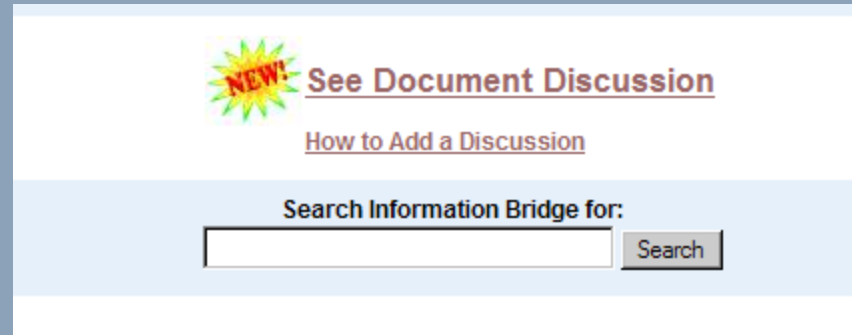
Research Development

Project Summaries

Science and technology projects funded by the U.S. Department of Energy

Search

# Document Discussion – OSTI opening communications



**NEW!** [See Document Discussion](#)  
[How to Add a Discussion](#)

Search Information Bridge for:

## Discuss important research at Information Bridge

System Entry Date 2008 May 12

Document Discussions

**Top Quark--Heavy Stuff:**

With the recent news on the Large Hadron Collider (LHC) at CERN searching for the Higgs boson, it was interesting to relive the discovery of its related particle the Top Quark. DOE's R&D Accomplishments (<http://www.osti.gov/accomplishments/topquark.html>) has a special feature on the Top Quark with some other articles and information that I found helpful. This article makes the case the top quark has been found. "This is heavy stuff Doc" (both literally-as the top quark is the heaviest known fermion--and figuratively--relating how impressively serious the discovery), as Marti McFly would say in "Back to the Future", and Doc Brown would wonder why everything was so massive in the future? All matter antics aside, this is quite an impressive find, and was interesting to go back and reacquaint through some thirteen years later. The diagrams, charts, and graphs positioned throughout the article were highly successful in describing the various aspects of the top quark research. Sinervo's Introduction to this paper was helpful and descriptive in laying the case for the existence of the top quark, as well as explaining what the standard model is about. It is amazing to see where we have come in particle physics, and thirteen years after the top quark discovery it will be exciting to see where this field will take us.

posted by er.dom - Sep 11, 2008 5:06 PM

User Name:  (for display)

Email Address:  (Email address will NOT be displayed.)

Discussion Subject:

(All fields required. Document Discussions not displayed until approved.)

# Widgets Work! Share the R&D



Available via the "Widget" link at [www.osti.gov](http://www.osti.gov)



**OSTI makes  
R&D portable  
– you can  
search  
databases  
from your  
own websites**

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## RSS and Podcast News Feeds

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-  [DOepatents News Feeds](http://www.osti.gov/includes/doepatents/patents.xml) URL shortcut <http://www.osti.gov/includes/doepatents/patents.xml>
-  [OSTI's Podcast News Feeds](http://www.osti.gov/newsfeeds/podcasts/ostipodcast.xml) <http://www.osti.gov/newsfeeds/podcasts/ostipodcast.xml>



## Office of Scientific and Technical Information, U.S. Department of Energy

### Latest Articles

#### Pushing the Limits is Key to OSTI's Success

Monday, January 01, 0001 12:00:00 AM

While federated search is a core technology that OSTI employs to tackle challenges of sharing knowledge, the technology isn't perfect. OSTI aggressively uses federated search because it does what

#### Join the discussion on important DOE research

Monday, January 01, 0001 12:00:00 AM

Our team is excited to announce that you can now join in or start discussions on important DOE research and development in the Information Bridge collection. Our new social networking feature, Docu

#### More Energy Department research goes online due to OSTI, IAEA collaboration

Monday, January 01, 0001 12:00:00 AM

Because we live in a digital world, many people mistakenly believe all research is easily available online. Not only is this a false assumption, it's not even an easy task to digitize the volume of re

#### The Amazingly Egalitarian Impact of OSTI's Work

Wednesday, September 24, 2008 12:07:25 AM

Compared to the pre-Web world of the early 1990s, OSTI now enables about a thousand-fold more information transactions. An information transaction occurs when the customer receives information he requ

#### OSTI is helping librarians make DOE R&D easier for library patrons to find

Friday, September 19, 2008 6:28:58 AM

OSTI now offers librarians and others, free of charge, the opportunity to download records of DOE research and development (R&D) information in MARC (MACHine-Readable Cataloging) format. Records a

Application by Wiliam 

agencies.

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2 of 7 albums



### ▼ Fans

6 of 11 fans

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#### People's Republic of China joins WorldWideScience Alliance

Thursday, October 16, 2008 1:24:53 AM

The People's Republic of China has joined the WorldWideScience Alliance--the multilateral governance structure for the global science gateway, WorldWideScience.org. WorldWideScience.org is intended

#### 2008 Nobel Prize in Physics is Awarded to Researcher Supported by U.S. Department of Energy


Wednesday, October 15, 2008 12:04:44 AM

A researcher supported by the U.S. Department of Energy has been named co-winner of the 2008 Nobel Prize in Physics. The Royal Swedish Academy of Sciences awarded Dr. Yoichiro Nambu of the United St

#### Join the discussion on important DOE research

Monday, January 01, 0001 12:00:00 AM

Join the discussion! A new social networking feature, Document Discussion, has been added to the DOE Information Bridge to provide a forum for moderated, substantive commentary on important DOE rese

Application by Wiliam 

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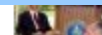
Mike



Lynn



Maria



Walt



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OSTI accelerates the pace of discovery by making R&D findings available to researchers and the American people

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## Accelerate Science. Live Better. OSTI

by Walt Warnick in [Personal Perspectives](#) | [Comments\[0\]](#)

Tags:



Two hundred years ago the gulf between the rich and the common people was huge, illustrated by these photos. On the left is Doughregan Manor at Ellicott City, Maryland, largely built in the 1700's, home of Charles Carroll of Carrollton, a signer of the Declaration of Independence. On the right is the cabin where Abraham Lincoln was born in 1809 located at Hodgenville, Kentucky. Today, the public view of these times is influenced by the fact that many of the fabulous mansions yet survive, while the cabins that housed common people have long since been replaced.

# Comments & posts welcome

# DOE Data Explorer



## Types of content included in the DOE Data Explorer:

- Computer Models/Simulations
- Figures/Plots
- Interactive data maps
- Multimedia
- Numeric Files/Datasets
- Scientific images
- Specialized Mix

# **Putting the pedal to the metal to share R&D worldwide**

- **Accelerating the spread of knowledge inspires everything we do at OSTI**
- **Specifically, OSTI aggressively pursues efficient access to expanded sources of R&D information**
- **Innovative tools, such as the DOE Science Accelerator, Science.gov and WorldWideScience.org, and the technology behind them, federated deep web searching, are key initiatives**

# ***Global Discovery***

**Today: Scientists know what is going on related to their research topic. New math & methods spread slowly from community to community.**

**Tomorrow: Scientists will know what is going on related to their math and methods. New math & methods will spread quickly.**

***Science accelerates; prosperity follows***

***Dr. Walter L. Warnick***  
**Office of Scientific and Technical Information**  
**Walter.Warnick@science.doe.gov**