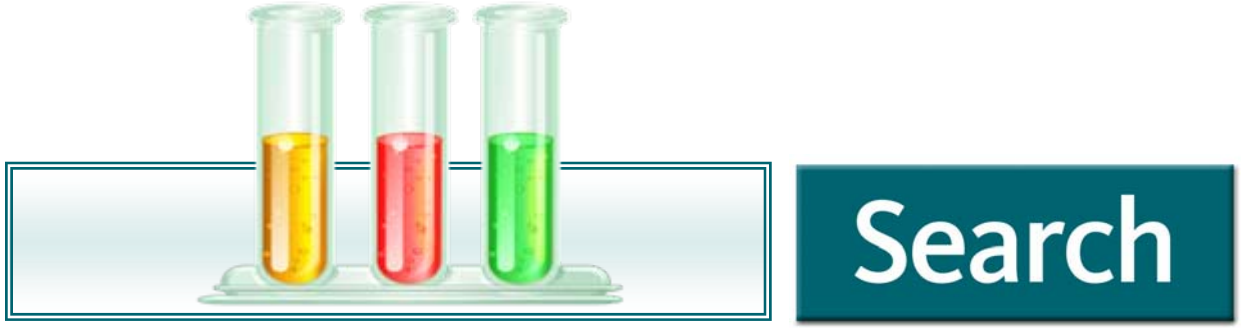
# Federated Search:
# An In-Depth Introduction




**Presented by:**

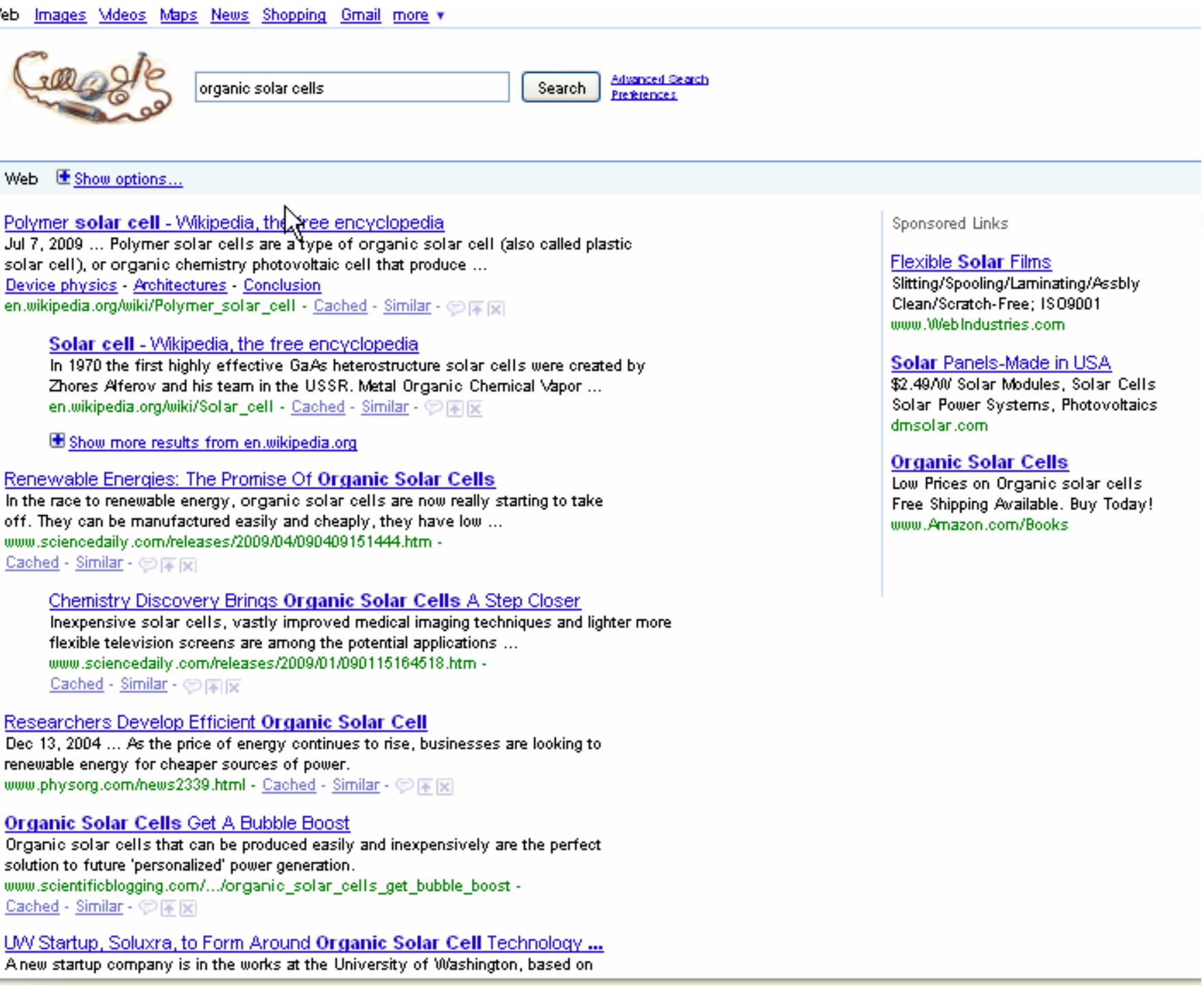
**Abe Lederman, President and Founder**

**Deep Web Technologies, Inc.**

**American Chemical Society Annual Conference – August 17, 2009**

# The “Google Myth”

If you can’t find it on Google, the information doesn’t exist.


Web Images Videos Maps News Shopping Gmail more ▾
organic solar cells
Search
Advanced Search
Preferences
Web
Show options...
Polymer solar cell - Wikipedia, the free encyclopedia
Jul 7, 2009 ... Polymer solar cells are a type of organic solar cell (also called plastic solar cell), or organic chemistry photovoltaic cell that produce ...
Device physics - Architectures - Conclusion
en.wikipedia.org/wiki/Polymer_solar_cell - Cached - Similar -
Solar cell - Wikipedia, the free encyclopedia
In 1970 the first highly effective GaAs heterostructure solar cells were created by Zhores Alferov and his team in the USSR. Metal Organic Chemical Vapor ...
en.wikipedia.org/wiki/Solar_cell - Cached - Similar -
Show more results from en.wikipedia.org
Renewable Energies: The Promise Of Organic Solar Cells
In the race to renewable energy, organic solar cells are now really starting to take off. They can be manufactured easily and cheaply, they have low ...
www.sciencedaily.com/releases/2009/04/090409151444.htm -
Cached - Similar -
Chemistry Discovery Brings Organic Solar Cells A Step Closer
Inexpensive solar cells, vastly improved medical imaging techniques and lighter more flexible television screens are among the potential applications ...
www.sciencedaily.com/releases/2009/01/090115164518.htm -
Cached - Similar -
Researchers Develop Efficient Organic Solar Cell
Dec 13, 2004 ... As the price of energy continues to rise, businesses are looking to renewable energy for cheaper sources of power.
www.physorg.com/news2339.html - Cached - Similar -
Organic Solar Cells Get A Bubble Boost
Organic solar cells that can be produced easily and inexpensively are the perfect solution to future 'personalized' power generation.
www.scientificblogging.com/.../organic_solar_cells_get_bubble_boost -
Cached - Similar -
UW Startup, Soluxra, to Form Around Organic Solar Cell Technology ...
A new startup company is in the works at the University of Washington, based on
Sponsored Links
Flexible Solar Films
Slitting/Spooling/Laminating/Assbly
Clean/Scratch-Free; ISO9001
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Solar Power Systems, Photovoltaics
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Low Prices on Organic solar cells
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www.Amazon.com/Books

# SULAIR Article Search



organic solar cells | New Search | | Refine Search | Advanced Search

by Deep Web Technologies

Your search: Keyword [illegible] 774 top results from at least 7,130 found.
(modify search)

22 of 22 sources complete

Collection Status

Results 1 – 10 of 774 Sort by: Rank Limit to: All Publishers 1 2 3 4 5

My Selections (0) Clear Clippings Alerts Search Builder Print Results Email Results Collection Status Bookmark Session Preferences

## Clusters

- All Results (774)
- Topics
  - Dye Sensitized Solar (89)
  - Open Circuit Voltage (56)
  - Bulk Heterojunction (53)
  - Power Conversion Efficiency (52)
  - Academic Search Premier (51)
  - More...
- Authors
  - Michael, Grtzel (7)
  - Leo, Karl (7)
  - Juan, Bisquert (5)
  - Petrich, Annette (5)
  - Meiss, Jan (5)
  - More...
- Publications
  - Journal Of The American Chemical Society (33)
  - Applied Physics Letters (29)
  - American Physical Society (28)
  - Nano Letters (23)
  - Chemical Communications (Cambridge, England) (21)

1 **Organic solar cells: An overview**
★★★★★ *Hoppe, Harald (Linz Inst. for **Organic Solar Cells**, Physical Chemistry, Johannes Kepler University, Linz 4040, Austria); Sariciftci, Niyazi S.*
Journal of Materials Research, v 19, n 7, p 1924-1945, July 2004
Engineering Village

2 **Organic solar cells: An overview**
★★★★★ *Hoppe H, Sariciftci N.*
JOURNAL OF MATERIALS RESEARCH Volume: 19 Issue: 7 Pages: 1924-1945 2004-07-01
Web of Science

3 **Solar energy-conversion processes in organic solar cells**
★★★★★ *Xu, Zhihua (Department of Materials Science and Engineering, University of Tennessee, Knoxville, TN 37919, United States); Zang, Huidong; Hu, Bin*
JOM, v 60, n 9, p 49-53, September 2008
Engineering Village

4 **Organic solar cells: Overcoming recombination**
★★★★★ *Mcgehee, Michael D.*
Nature Photonics 2009-05-01
The construction of a polymer **solar cell** that can successfully collect an electron and hole for almost every incident photon suggests that great improvements in the efficiency of **organic** photovoltaics should be possible.
ADS (Astrophysical Data System) Abstracts Service

5 **Organic solar cells: an overview focusing on active layer morphology.**
★★★★★ *L, Benanti T.; D, Venkataraman*
Photosynthesis research 2006-01-13
**Solar cells** constructed of **organic** materials are becoming increasingly efficient due to the discovery of the bulk heterojunction concept. This review provides an overview of **organic solar cells**. Topics covered include: a brief history of **organic solar cell** development; device construction, definitions, and characteristics; and heterojunction morphology and its relation to device efficiency in conjugated polymer/fullerene systems.
PubMed

6 **Organic solar cells: An overview focusing on active layer morphology**
★★★★★ *Benanti TI, Venkataraman D.*
PHOTOSYNTHESIS RESEARCH Volume: 87 Issue: 1 Pages: 73-81 2006-01-01
Web of Science

Your search: **Full Text: organic solar cells** yielded 3,991 top results from at least 107,906 found.

organic solar cells **New Search** Advanced Search

**382** of **382** collections complete

## TOPICS

- **All Results (3991)**
- Topics
  - Solar Energy (208)
  - Dye Sensitized Solar (164)
  - **More...**
- Authors
  - Shalav, Avi (18)
  - Grätzel, Michael (17)
  - **More...**
- Publications
  - Journal Of The American Chemical Society (53)
  - Nano Letters (49)
  - **More...**
- Publishers
  - Science.gov (United States) (200)
  - PubMed (200)
  - **More...**
- Dates
  - 2010 (7)
  - 2009 (629)
  - **More...**

Results **1 – 10** of 3,991 Sort by: Rank Limit to: All Collections 1 2 3 4 5

1 **Organic solar cell**
★★★★★ *Plexronics, Inc.*
2007-02-01
Close-up of Plextronics' **solar cell**.
NREL Photographic Information Exchange (Images)

2 **Organic solar cells- A review**
★★★★★ *Chamberlain..., Ga*
Mednar

3 **Organic solar cells: An overview**
★★★★★ *H Hoppe, Ns S.*
Mednar

4 **Organic solar cells: Silver lining**
★★★★★ *Sandhu, Adarsh*
Nature Nanotechnology 2008-07-04
Nature Publishing Group

5 **Organic solar cells: Overcoming recombination**
★★★★★ *Mcgehee, Michael D.*
Nature Photonics 3, 250-252 2009-05-01
Nature Publishing Group

6 **Organic Solar Cells: Electricity From A Thin Film**
★★★★★
2008-02-10
Teams of researchers all over the world are working on the development of **organic solar cells**. **Organic solar cells** have good prospects for the future: They can be laid onto thin films, which makes ...
Science Daily

7 **Merocynanine organic solar cells**
★★★★★ *Ak Ghosh, T. F.*
Mednar

8 **Organic Solar Cells Using Transparent SnO 2 –F Anodes The authors ...**
★★★★★ *F Yang*
2006-01-01
"**Organic Solar Cells** Using Transparent SnO 2 –F Anodes The authors thank the National Renewable Energy Laboratory, the Air Force Office of Scientific ...
OpenDOAR

9 **Organic solar cells with carbon nanotube network electrodes**
★★★★★ *MW Rowell, MA Topinka, MD McGehee, HJ Prall*
Mednar

# The Trouble with Google Scholar

- “Scholarly content” intermixed with “non-scholarly” content
- Don’t know what is included and what’s not
- Poor relevance (citation counts don’t seem to help)
- Unable to limit searching to specific sources
- Difficult to find the needles in the haystack

# An Alternative – Federated Search

**A.K.A.**

| | |
|---|---|
| Metasearch | 5,860,000 |
| “Meta search” | 3,300,000 |
| “Federated search” | 223,000 |
| “Distributed search” | 71,600 |
| “Broadcast search” | 46,700 |
| “Deep web search” | 21,800 |
| “Distributed information retrieval” | 20,400 |

* Number of occurrences on Google (August 7, 2009)

# Federated Search: A Definition

Federated Search is the process of performing a simultaneous real-time search of multiple diverse and distributed sources from a single search page, with the federated search engine acting as intermediary.

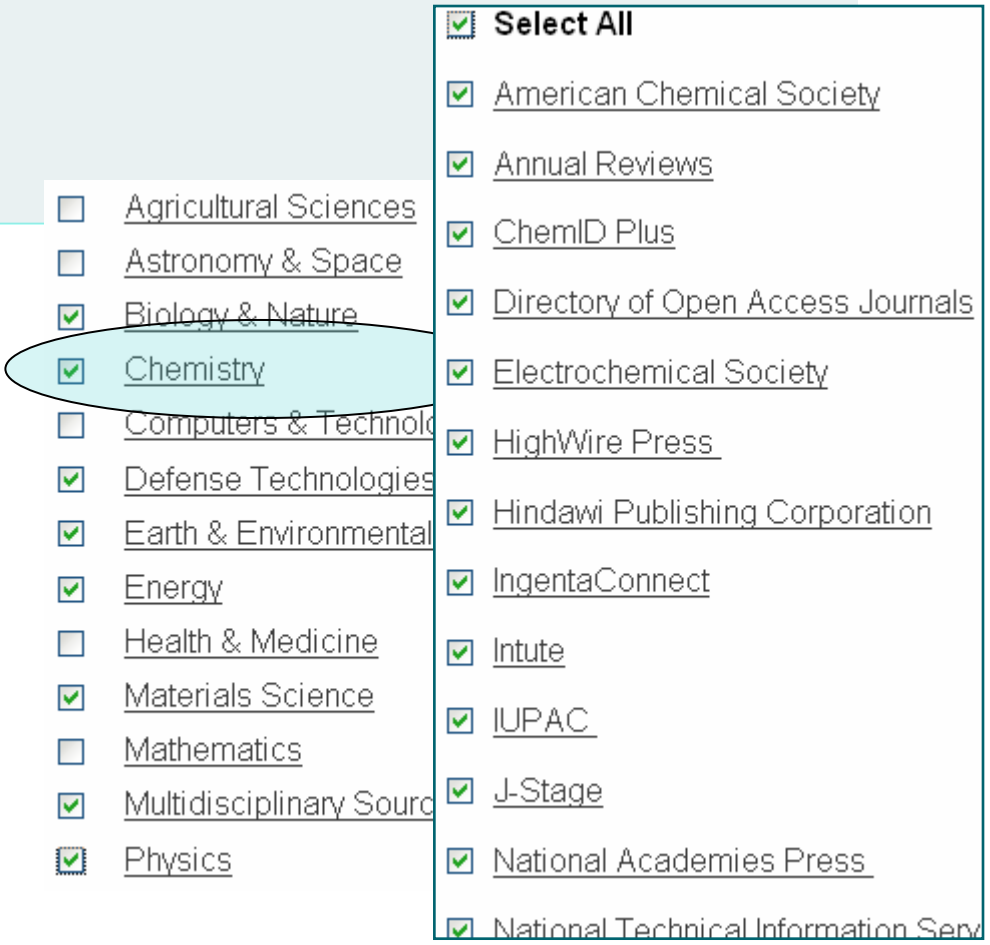
*-From "A Federated Search Primer" by Sol Lederman*

# Let’s Break it Down

# “Federated”

Federated

Content is combined from different sources saving the effort of searching sources one at a time.



# “Simultaneous”

Federated Search is the process of performing a simultaneous

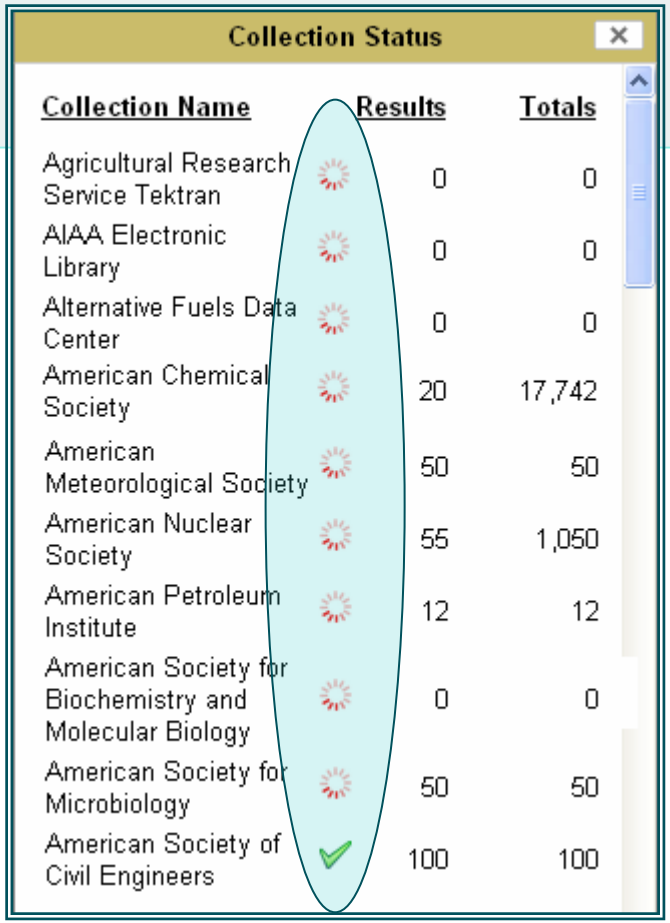
Queries all user’s selected collections at once, otherwise it would be unacceptably slow.

# “Real-Time”

Federated Search is the process of performing a simultaneous real-time

Federated search occurs live and results are current.

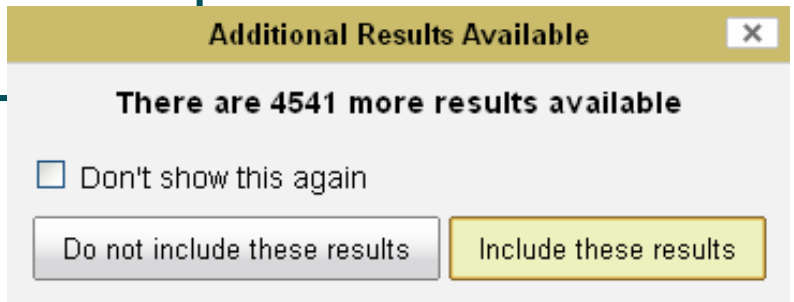
There’s no stale content.



# “Multiple”

Federated Search is the process of performing a simultaneous real-time search of multiple

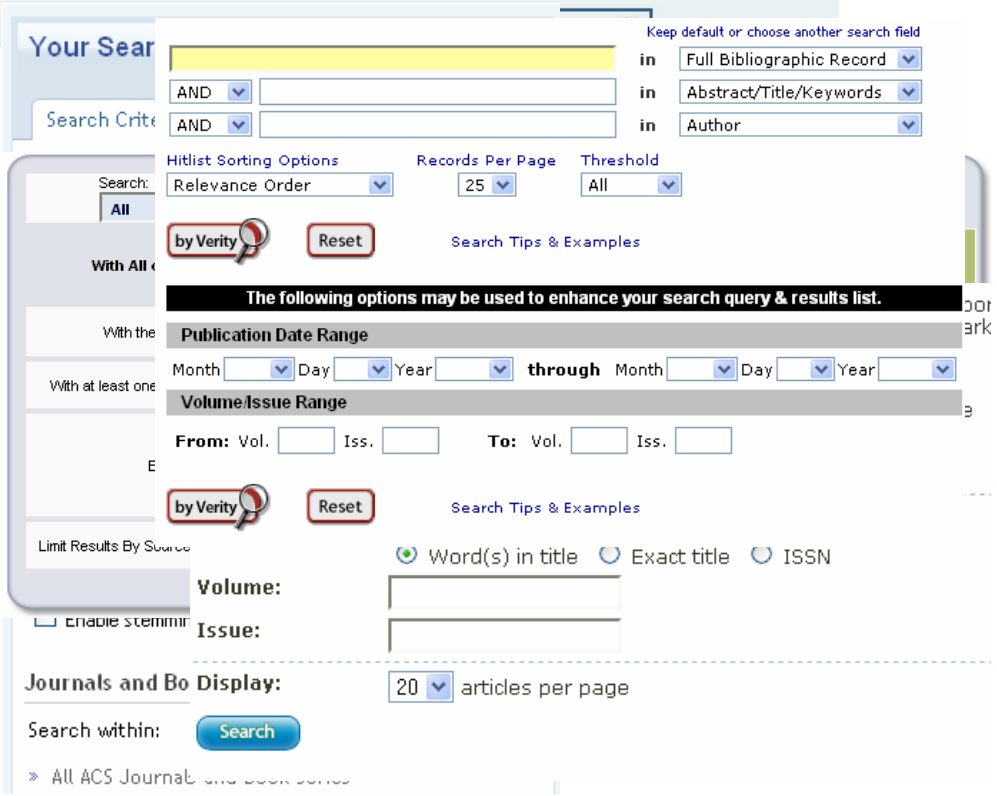
The value of federated search to the researcher increases as the number of sources increases.



# “Diverse and Distributed Sources”

Federated Search is the process of performing a simultaneous real-time search of multiple diverse and distributed sources

Typically, search collections contain different search interfaces, with different search fields and result formats.



# “Single Search Page”

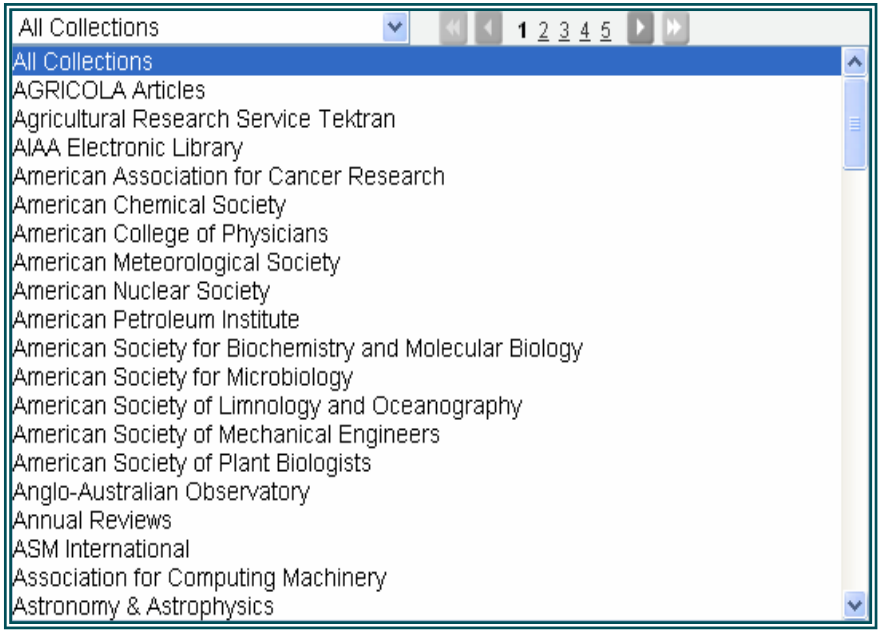
Federated Search is the process of performing a simultaneous real-time search of multiple diverse and distributed sources from a single search page

Federated search engines provide one stop access to information.

# “Federated Search as Intermediary”

Federated Search is the process of performing a simultaneous real-time search of multiple diverse and distributed sources from a single search page, with the federated search engine acting as intermediary.

The federated search submits the user’s query to a number of content sources, then combines the results that are returned into one ranked list.



# Not all Federated Search Engines are Created Equal

- Quality of search results
  - Connectors, fielded searches and relevance ranking
- User Interface
  - Feature sets, incremental results, web 2.0 interface
- Results Delivery
  - Aggregation, clustering, filtering and sorting, alerts

# Chemistry

***Featured Collections:*** ☐ ACS Publications

Full Text: Nucleophilic additions

Title:

Author:

Match: All Field(s)

Date Range: Pick Year to Pick Year

Search

Search | Clear All | Help

ScienceResearch.com would like to thank Grace Baysinger, for volunteering to be the editor for our Chemistry collection.

Grace Baysinger is the Head Librarian & Bibliographer, Swain Library of Chemistry and Chemical Engineering, Stanford University.

Please contact Grace Baysinger for questions or collection suggestions.

Select your collections or select "All"

- ☑ **Select All**
- ☑ American Chemical Society
- ☑ Annual Reviews
- ☑ ChemID Plus
- ☑ Directory of Open Access Journals
- ☑ Electrochemical Society
- ☑ HighWire Press
- ☑ Hindawi Publishing Corporation
- ☑ IngentaConnect
- ☑ Intute
- ☑ IUPAC
- ☑ J-Stage
- ☑ National Academies Press
- ☑ National Technical Information Service
- ☑ Nature Publishing Group
- ☑ NIST Chemistry Web Book
- ☑ Oxford University Press
- ☑ Proceedings of the National Academy of Sciences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My Selections (0) | Clear Selections | Print Results | Email Results | Preferences | Collection Status

Your search: **Full Text: Nucleophilic additions** yielded 684 top results from at least 69,397 found.

Nucleophilic additions | New Search | Advanced Search

26 of 26 collections complete

**TOPICS**

- **All Results (684)**
- Topics
  - Reactions (82)
    - Compounds (12)
      - Carbonyl Compounds (5)
      - Aromatic (4)
      - More...
    - Groups (10)
    - More...
  - Nucleophilic Attack (56)
  - More...
- Authors
  - Cornel, Veronica M. (7)
  - Yeston, Jake S. (2)
  - More...
- Publications
  - J. Biol. Chem. (13)
  - Synlett (10)

Results **1 – 10** of 684 Sort by: Rank | Limit to: All Collections

Rank
Date
Title
Author

All Collections
American Chemical Society
Annual Reviews
Directory of Open Access Journ
HighWire Press
IngentaConnect
Intute
IUPAC
J-Stage
National Technical Information
Oxford University Press
RCS Publishing
Springer
Thieme
Wiley InterScience

1 **Nucleophilic Addi ones**
★★★★★ *Lombardo, bini, Claud*
Synthesis 2000-01-0
Thieme

2 **Nucleophilic additions of the cyanide a 1,3-diene**
★★★★★ *Jacquot-Rousseau, Sandrine; Sch*
Journal of Chemical Research, Volume 2002, Ltd 2002-04-01
IngentaConnect

3 **Nucleophilic Additions of Niobium Eno and Aldimines**
★★★★★ *Andrade, Carlos K.; Kalil, Patricia*
Letters in Organic Chemistry, Volume 1, Number 2, April 2004 , pp. 109-111(3)
Publishers 2004-04-01
IngentaConnect

4 **Nucleophilic additions of lactam-derived enol triflates to aldehydes m nickel(II) and chromium(II) salts**
★★★★★ *L.p., Easton; Dake G.R.*
Canadian Journal of Chemistry, Volume 82, Number 2, 1 February 2004 , pp. 1
Press 2004-02-01
IngentaConnect

5 **Nucleophilic Additions to Fused Bicyclic Five-Membered Ring Oxocarl Evidence for Preferential Attack on the Inside Face**
★★★★★ *Deborah M. Smith, Michelle B. Tran, and K. A. Woerpel*
J. Am. Chem. Soc. 2003-10-24
**Nucleophilic Additions** to Fused Bicyclic Five-Membered Ring Oxocarbenium Preferential Attack on the Inside Face ... Evidence is provided that **nucleophilic** attack on five-membered ring oxocarbenium ions occurs from the inside face of the envelope ... the accented model used to understand

**Collection Status**

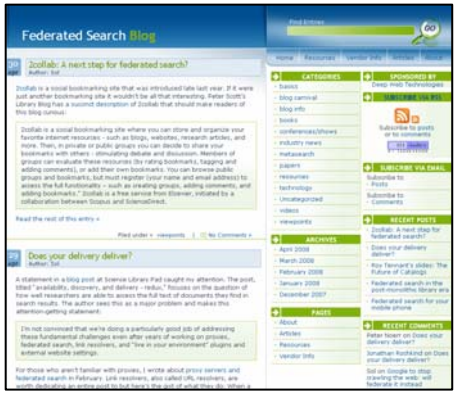
| Collection Name | Results | Totals |
|---|---|---|
| American Chemical Society | 19 | 3,449 |
| Annual Reviews | 20 | 534 |
| ChemID Plus | 0 | 0 |
| Directory of Open Access Journals | 10 | 10 |
| Electrochemical Society | 0 | 0 |
| HighWire Press | 40 | 9,707 |
| Hindawi Publishing Corporation | 0 | 0 |
| IngentaConnect | 50 | 103 |
| Intute | 4 | 4 |
| IUPAC | 1 | 1 |
| J-Stage | 90 | 90 |
| National Academies Press | 0 | 0 |
| National Technical Information Service | 10 | 10 |
| Nature Publishing Group | 93 | 93 |
| NIST Chemistry Web Book | 0 | 0 |
| Oxford University Press | 3 | 3 |
| Proceedings of the National Academy of Sciences | 99 | 99 |
| RCS Publishing | 80 | 1,280 |
| Scholarpedia | 0 | 0 |
| Science Direct (Elsevier) | 100 | 53,490 |
| Science Magazine | 10 | 10 |
| Springer | 10 | 10 |
| Taylor and Francis Group | 0 | 0 |
| Thieme | 20 | 479 |
| TOXNET Toxicology Bibliographic Info (TOXLINE) | 0 | 0 |
| Wiley InterScience | 25 | 25 |

# Benefits of Federated Search

- One-stop access to multiple information sources
  - Users don't need to know where/how to search
  - Saves researcher time and money
  - Improves utilization of information sources
- Consolidated, ranked and de-duplicated results
  - Important results are not missed

**Information Discovery**

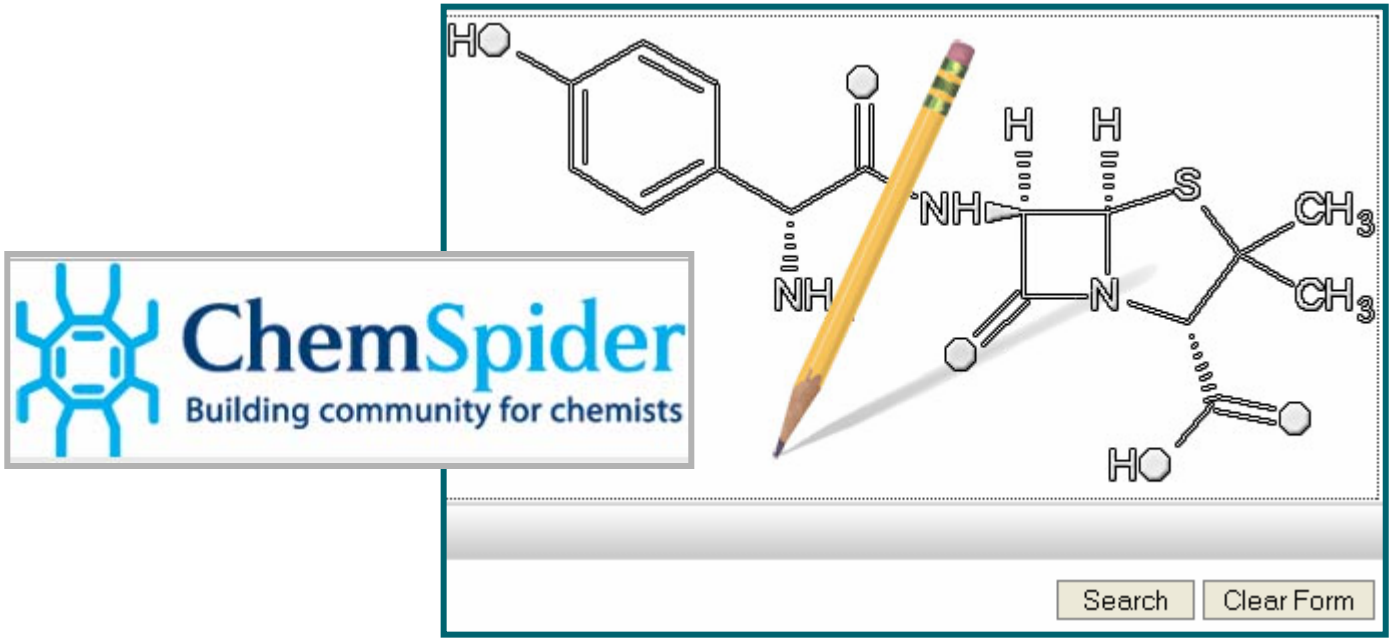
# Resources




- The Federated Search Blog (www.federatedsearchblog.com)
  - Quality not Quantity Whitepaper
  - Federated Search Primer
  - Sample Vendor Checklist
- Deep Web Technologies Blog (www.deepwebtechblog.com)
- Federated Search: Solution or Setback for Online Library Services
  Edited by Christopher Cox

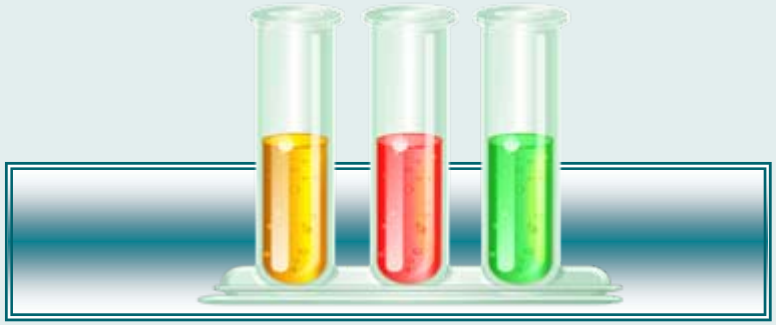
# Need Federated Search?

Deep Web Technologies is looking for beta partners for a chemistry-focused federated search engine.



# Thank You!

**Contact me via email:**
**abe@deepwebtech.com**



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