

MetaSearch

*Present
&
Future*

Dr Peter Noerr,
MuseGlobal, Inc.

ASEE Conference 2004
Salt Lake City

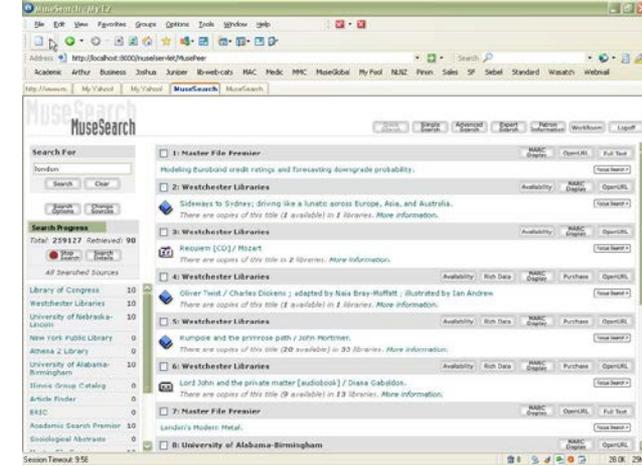
Overview

- Current
 - Technology
 - Benefits
 - Problems
 - User expectations
 - Vendor view
- Future
 - Near term
 - Medium term
 - Way out



Current Technology

- Early stages (oldest 6/7 years)
- Empirical, pragmatic systems
- 80/20 solutions
- ASP vs. Installed
- Portals/portlets/components/stand alone
- Service vs. Software



Current Technology, Benefits

- About half the time vs. without it
- User Single Signon (authentication)
- One search syntax
- Simple Source selection
- Consistent results display
- Consistent refinement tools (sort, dedupe ...)
- One click to get full text (or doc delivery)



Current Technology, Problems

- Connection protocols
 - Multiple standards
 - » Poor implementation
 - » Patchy implementation
 - » Local variations
 - Proprietary protocols
- Rapid Source (target) changes (http/html mostly)
- Source Semantics
- Record formats
- Inconsistent Source functionality
- Authentication
- Source selection



Current User Expectations

- Simple to use (what else?)
- Covers everything (why not?)
- “Only librarians want to search, users want to find” – Roy Tennant
- “I want answers not documents”
- “Information wants to be free”
- “I need it now”
- “I have to manage and administer it?” - librarian



Current Vendor view

- The Market

- » All libraries – academic, special, public, school
- » Content providers – primary, aggregators, delivery
- » Institutional units outside library – task groups, e-learning eventually all come down to individual users

- The Players

- » 5/6 major independent system developers in information
- » All ILS vendors – nearly all through OEM partnerships
- » 5/6 major developers in corporate world
- » 25-30 Web metasearch suppliers – much less sophisticated

- Location

- » Supply side or Consumer side or Both?



Future Short term

- Protocols

Standards – Z39.50/SRW/SRU, Xquery, CQL, XML, [MetaSearch access](#)

- Semantics of search matched to repository

- Functionality matched to search engines

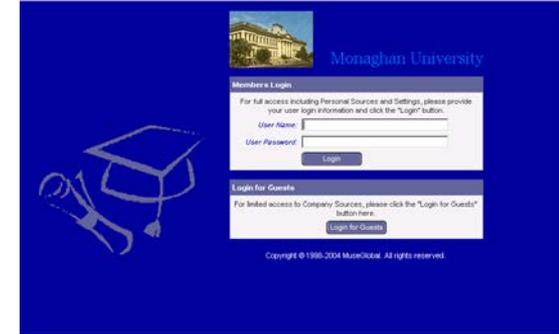
- Data

[Metadata standards \(semantics of data\)](#)

- Source Description

Standards – Explain, RDF, UDDI, WSDL
[Functionality, access, syntax, semantics, formats](#)

[These items](#) are being worked on by the NISO (www.niso.org) Metasearch Initiative working Groups. Participation is welcomed from all, from anywhere.



Future Medium term

- Source Description
- Improved search semantics
- Maintenance management
 - » Possibly 20,000 “public” Sources worldwide
 - » Proliferating protocols
- Integration with ...
- Improved relevance (clustering, etc.)
- “Security”
 - » Authentication, authorization, single sign on
 - » Encryption, firewalls, networking
 - » Rights management, commercial considerations
- Statistics
- New user demands

Monaghan University

University Home Databases Library Catalog Services Library Map
Library Home Advanced Search My WorkRoom My Account Logoff

Prospective Students
Academic Programs
Outreach Services
Campuses & Colleges
Visitor's Guide
Alumni & Friends

Select Resources to Search and type in Search term(s)

engineering

Keyword

And Or Not

Keyword

Search

Search Options

Search in these resources:

<input type="checkbox"/> Libraries	<input type="checkbox"/> Scientific
<input checked="" type="checkbox"/> Monaghan University	<input checked="" type="checkbox"/> SCIRUS
<input checked="" type="checkbox"/> Library of Congress	<input type="checkbox"/> Psyc Articles
<input type="checkbox"/> New York Public Library	<input checked="" type="checkbox"/> American Institute of Physics
<input type="checkbox"/> Eccles Health Sciences Library	<input type="checkbox"/> Astrophysics Data Service
<input checked="" type="checkbox"/> University of Utah Marriott & Guinney Libraries	<input type="checkbox"/> Springer Science Online
<input type="checkbox"/> Brigham Young University	<input type="checkbox"/> PubMed
<input type="checkbox"/> UALC Shared Electronic Resources Catalog	<input type="checkbox"/> Medical
<input type="checkbox"/> University of Judaism	<input type="checkbox"/> Medline
<input type="checkbox"/> Arts and Humanities	<input type="checkbox"/> Health Source: Consumer Edition
<input type="checkbox"/> Architectural Index	<input type="checkbox"/> Biomedical Reference Collection
<input type="checkbox"/> ArtCyclopedia	<input type="checkbox"/> Encyclopedias and Dictionaries
<input type="checkbox"/> CSA ARTbibliographies Modern	<input checked="" type="checkbox"/> Dictionary
<input type="checkbox"/> CSA Political Science & Government	<input type="checkbox"/> Canadian Encyclopedia
<input type="checkbox"/> Business	<input type="checkbox"/> XReferPlus
<input type="checkbox"/> Business Source Premier	<input type="checkbox"/> Search The Internet
<input type="checkbox"/> Econlit	<input type="checkbox"/> Google
<input type="checkbox"/> Reference	<input type="checkbox"/> HotBot
<input type="checkbox"/> Article Finder	<input type="checkbox"/> Yahoo
<input type="checkbox"/> ERIC	<input type="checkbox"/> AllTheWeb

Future Way out

- Automatic Source selection
- Automatic Source exploration
- User semantic context
- User interfaces
 - » Natural language
 - » Augmented reality
- Commodity functionality
 - » Supplier or consumer function
 - » Business models
- Pervasively available

The screenshot displays the Monaghan University search interface. On the left, there is a navigation menu with links for Prospective Students, Academic Programs, Outreach Services, Computers & Colleges, Visitor's Guide, and Alumni & Friends. Below this is a search box with the text 'engineering' entered. The search options are set to 'Keyword' and 'And'. The search results are displayed on the right, showing a list of sources and their details. The results include:

- 1: SCIBERS - Title: similar results; Author: Kobayashi, Yu / Bertoldi, Gaetano / Bolognesi, Stefano / Mabone, Marco / Mazzucato, Luca; Description: We study the instanton contributions of $U(1)^2$ supersymmetric gauge theory and propose that the instanton moduli space is mapped to the moduli space of punctured spheres. Remarkably, due to the recursive structure of the boundary in the...
- 2: Newspaper Source - Title: The Florida Times-Union, Jacksonville, In the Pipeline Column; Description: By: Karen Bruce Mathis, Florida Times-Union, The (Jacksonville, FL), 06/17/2004, (AN 24601621156874TML, Full Text
- 3: Newspaper Source - Title: Grader taps into windfarm - Small Business Solutions : Business Surveys Series; Description: By: James Dunn, Australian, The, 06/18/2004, (AN 2004061011005709214HTML, Full Text
- 4: Academic Search Premier - Title: #1457 printing of viable mammalian cells; Description: By: Xu, Tao, Wu, Joyce, Gregory, Casse, Hickman, James J., Boland, Thomas, Bonaterres, Jan2005, Vol. 28 Issue 1, p50; To: DOI: 10.1016/j.biomaterials.2004.04.011, (AN 13207660)Check library holdings: Send request to LL
- 5: Academic Search Premier - Title: Tissue response of defined collagen-elastin scaffolds in young and adult rats with special attention to calcification; Description: By: Daamen, W.F., Nielsen, S.T.M., Hatmans, T., Veerkens, J.H., van Linn, M.J.A.; van

Questions, Comments?

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others search. we *find.*

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Put in your terms, click your categories, click GO.



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Reference



Search For

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Search Clear

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Search Progress

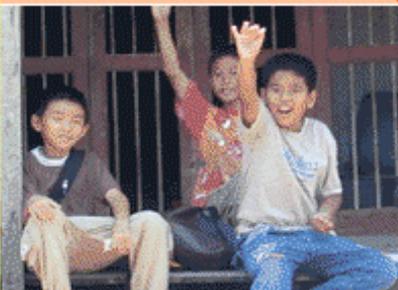
Total: 259127 Retrieved: 90

Stop Search Search Details

All Searched Sources

Library of Congress	10
Westchester Libraries	10
University of Nebraska-Lincoln	10
New York Public Library	0
Athena Z Library	0
University of Alabama-Birmingham	10
Illinois Group Catalog	0
Article Finder	0
ERIC	0
Academic Search Premier	10
Sociological Abstracts	0

- 1: Master File Premier** MARC Display OpenURL Full Text
 Modeling Eurobond credit ratings and forecasting downgrade probability. Focus Search >
- 2: Westchester Libraries** Availability MARC Display OpenURL
 Sideways to Sydney; driving like a lunatic across Europe, Asia, and Australia.
There are copies of this title (1 available) in 1 libraries. More information. Focus Search >
- 3: Westchester Libraries** Availability MARC Display OpenURL
 Requiem [CD] / Mozart
There are copies of this title in 2 libraries. More information. Focus Search >
- 4: Westchester Libraries** Availability Rich Data MARC Display Purchase OpenURL
 Oliver Twist / Charles Dickens ; adapted by Naia Bray-Moffatt ; illustrated by Ian Andrew
There are copies of this title (1 available) in 1 libraries. More information. Focus Search >
- 5: Westchester Libraries** Availability Rich Data MARC Display Purchase OpenURL
 Rumpole and the primrose path / John Mortimer.
There are copies of this title (20 available) in 33 libraries. More information. Focus Search >
- 6: Westchester Libraries** Availability Rich Data MARC Display Purchase OpenURL
 Lord John and the private matter [audiobook] / Diana Gabaldon.
There are copies of this title (9 available) in 13 libraries. More information. Focus Search >
- 7: Master File Premier** MARC Display OpenURL Full Text
 London's Modern Metal. Focus Search >
- 8: University of Alabama-Birmingham** MARC Display OpenURL

**What's new? Check it out:**

- This list can contain
- items of interest
- exciting upcoming events

The panel expands vertically as the text increases.

To search, type your search words in the box, check the boxes below where you want to search, and click Search.



To visit a website, click on its logo or name below.

**For parents and teachers:**

Click [here](#) to see a list of links we've collected specifically for parents and teachers. If you have a link you would like to add to our list, please contact us.

Events for Kids

Some upcoming events just for kids:



The Asian Children's Festival will (supply some brief descriptive text about the festival here.)

**For your family**

Here are some fun family links:



[Alfy](#)



Muse Toolbar - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Copy Paste Paste as HTML Paste as Text Paste as Text and Images Paste as Text and Images

Address <http://www.museglobal.com/muse/servlet/MusePeer> Go Links Customize Links



ASEE GO

Remove Duplicates by:
Title URL

Sort results by:
Date Title Relevance

Filter results for these words:

GO

- Web Engines
- Entertainment
- Booksellers
- Libraries

AllTheWeb
AltaVista
America OnLine
Education World
euroseek.com
Excite
Google

Business

Hits: 980666
Retrieved: 152

27
Searched

Combined Results List | AllTheWeb (10) | AltaVista (10) | America OnLine (10) | Education World (0) | euroseek.com (0) | Microsoft Network (10) | Open Directory (10) | SplatSearch.com (0) | Thunderstone (10) | Web Crawler (10) | Yahoo! Finance (2) | TheStreet (0) | Yahoo! Finance (2) | Forbes

- Expanding the mind, creativity is such an integral part of being an engineer, but how do you...
- 147 **Web Crawler**
ASEE Meetings and Conferences
ASEE Meetings and Conferences ... 2004 Conferences ... ASEE Conferences Staff ... 2004 A
http://clickit.go2net.com/search?pos=8&ppos=0&plnks=0&uplnks=20&cat=web&cid=239171
- 148 **World News**
Baltimore incubator program adds five to board
Five new members have been appointed to the board of directors overseeing Baltimore's Em
Industrial Part...
http://article.wn.com/link/WNATB1D17B3EA2A0F205151E9713CE864FEF?source=templa
- 149 **World News**
Bono, con la [Brigada period[stica] en Irak
DIWANIYA (IRAK). Jost Bono ha hecho honor de nuevo a su capacidad de seducci[on]n con lo
las condiciones del r...
http://article.wn.com/link/WNATFE2A353735A26A47365A98D31ECAD0A4?source=templa
- 150 **Web Crawler**
Dallas/Fort Worth Association for Software Engineering Excellence
... www.icspi.com. ASEE Feb, 2004 Workshop Proceedings Available for \$10.00 ... 27th) Pre
http://clickit.go2net.com/search?pos=10&ppos=0&plnks=0&uplnks=20&cat=web&cid=239171

ASEE Meetings and Conferences - Microsoft Internet Explorer

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Address <http://www.asee.org/conferences/> Go Links

American Society for Engineering Education

Conference

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ASEE Meetings and Conferences

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Shortcut to www.asee.org Internet



Monaghan University

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For full access including Personal Sources and Settings, please provide your user login information and click the "Login" button.

User Name:

User Password:

Login

Login for Guests

For limited access to Company Sources, please click the "Login for Guests" button here.

Login for Guests

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[Outreach Services](#)

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[Visitor's Guide](#)

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Select Resources to Search
and type in Search term(s)

Keyword

And Or Not

Keyword

[University Home](#) [Databases](#) [Library Catalog](#) [Services](#) [Library Map](#)
[Library Home](#) [Advanced Search](#) [My WorkRoom](#) [My Account](#) [Logoff](#)



Search in these resources:

Libraries

- Monaghan University
- Library of Congress
- New York Public Library
- Eccles Health Sciences Library
- University of Utah Marriott & Quinney Libraries

Brigham Young University

- UALC Shared Electronic Resources Catalog
- University of Judaism

Arts and Humanities

- Architectural Index
- ArtCyclopedia
- CSA ARTbibliographies Modern
- CSA Political Science & Government

Business

- Business Source Premier
- Econlit

Reference

- Article Finder
- ERIC

Scientific

- SCIRUS
- Psyc Articles
- American Institute of Physics
- Astrophysics Data Service
- Springer Science Online

Medical

- PubMed
- Medline
- Health Source: Consumer Edition
- Biomedical Reference Collection

Encyclopedias and Dictionaries

- Dictionary
- Canadian Encyclopedia
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Select Resources to Search
and type in Search term(s)

Keyword

And Or Not

Keyword

11 Started

Completed

Total

Retrieved



586095 66

All Searched Sources

[University of Utah Marriott & Quinney Libraries](#) | [Library of Congress](#) | [Monaghan University](#) | [Academic Search Premier](#) | [SCIRUS](#) | [American Institute of Physics](#) | [Dictionary](#) | [Newspaper Source](#) | [Master File Premier](#) | [CSA Conference Papers Index](#) |

1: SCIRUS

[MARC Display](#) [OpenURL](#) [Duplicates \(4\)](#)

Title: [similar results](#)

Author: Nakayama, Yu / Bertoldi, Gaetano / Bolognesi, Stefano / Matone, Marco / Mazzucato, Luca

Description: We study the instanton contributions of local N=2 supersymmetric gauge theory and propose that the instanton moduli space is mapped to the moduli space of punctured spheres. Remarkably, due to the recursive structure of the boundary in the...

2: Newspaper Source

[MARC Display](#) [OpenURL](#)

Title: [The Florida Times-Union, Jacksonville, In the Pipeline Column](#)

Description: By: Karen Brune Mathis. Florida Times-Union, The (Jacksonville, FL), 06/17/2004; (AN 2W60162115687)HTML Full Text

3: Newspaper Source

[MARC Display](#) [OpenURL](#)

Title: [Grazier taps into windfarm - Small Business Solutions : Busines Surveys Series](#)

Description: By: James Dunn. Australian, The, 06/18/2004; (AN 200406181T08578921)HTML Full Text

4: Academic Search Premier

[MARC Display](#) [OpenURL](#)

Title: [Inkjet printing of viable mammalian cells.](#)

Description: By: Xu, Tao; Jin, Joyce; Gregory, Cassie; Hickman, James J.; Boland, Thomas. Biomaterials, Jan2005, Vol. 26 Issue 1, p93, 7p; DOI: 10.1016/j.biomaterials.2004.04.011; (AN 13387660)Check library holdings [Send request to ILL](#)

5: Academic Search Premier

[MARC Display](#) [OpenURL](#)

Title: [Tissue response of defined collagen-elastin scaffolds in young and adult rats with special attention to calcification.](#)

Description: By: Daamen, W.F.; Nillesen, S.T.M.; Hafmans, T.; Veerkamp, J.H.; van Luyn, M.J.A.; van



Prospective Students

Academic Programs

Outreach Services

Campuses & Colleges

Visitor's Guide

Alumni & Friends

<input type="checkbox"/>	<i>Results Set Name</i>	<i>Records</i>	<i>Query Statement</i>	<i>Time Stamp</i>	<i>Description</i>
1 <input type="checkbox"/>	Engineering - 2004/06/18	19		Sat Jun 19 13:01:50 MDT 2004	

Monaghan University - Microsoft Internet Explorer

My Account

Search Options

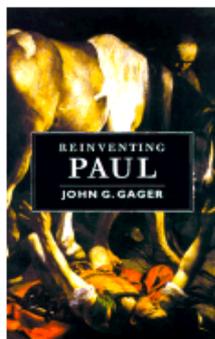
<p><i>Enrich Library Results:</i></p> <p><input type="radio"/> No <input checked="" type="radio"/> Yes</p> <p><i>Remove Duplicate Records By:</i></p> <p><input checked="" type="radio"/> None <input type="radio"/> Title <input type="radio"/> Title 3111 <input type="radio"/> URL <input type="radio"/> Host</p> <p><i>Results Per Source:</i></p> <p><input checked="" type="radio"/> 10 <input type="radio"/> 25 <input type="radio"/> 50 <input type="radio"/> 100</p> <p><i>Results Per Page:</i></p> <p><input checked="" type="radio"/> 10 <input type="radio"/> 25 <input type="radio"/> 50 <input type="radio"/> 100</p>	<p><i>Sorting By:</i></p> <p><input checked="" type="radio"/> None</p> <p><input type="radio"/> Relevance</p> <p><input type="radio"/> Title</p> <p><input type="radio"/> Author</p> <p><input type="radio"/> Author, Title</p> <p><input type="radio"/> Date</p> <p><input type="radio"/> Retrieved Order</p> <p><input type="radio"/> Source</p> <p><i>Sorting Type:</i></p> <p><input checked="" type="radio"/> Ascending <input type="radio"/> Descending</p>	<p><i>Limit Results To:</i></p> <p>Any Language <input type="button" value="v"/></p> <p>Any Material <input type="button" value="v"/></p> <p><i>Results Display Level:</i></p> <p><input type="radio"/> Full Record Detail</p> <p><input type="radio"/> Brief Record Detail</p> <p><input checked="" type="radio"/> One Line Record</p> <p><i>Show Search Progress:</i></p> <p><input type="radio"/> No <input checked="" type="radio"/> Yes</p>
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Summary

Excerpt

Book Review from
Library Journal

Book Review from
Publisher Weekly

[Focus Search >](#)

*Muse Enrichment
Service has brought
this to you from
Syndetic Solutions.*

Enter a City or US Zip:



Salt Lake City, UT

Reported by Salt Lake City, UT

Partly Cloudy

Sat Jun 19 12:55 PM MT

Temperature: 81°F/27°C

Humidity: 26%

Barometer: 30.07in/1019mb

Winds: VAR at 6mph/10kph

Click for
Forecast



News

- [Free Trial Issue: Stocks & Commodities Magazine... Ad - http://www.traders.com](#) Sat Jun 19 13:51:00 MDT 2004
- [Saudis: Hostage's corpse not found ...](#) CNN Sat Jun 19 12:52:00 MDT 2004
- [Newspaper: Enron's Lay to be indicted ...](#) CNN Sat Jun 19 11:37:00 MDT 2004
- [18 Iraqis killed in Fallujah airstrike ...](#) CNN Sat Jun 19 11:22:00 MDT 2004
- [A U.S. Airstrike Kills at Least 22 in Falluja ...](#) New York Times Sat Jun 19 11:08:00 MDT 2004
- [18 Iraqis killed in airstrike ...](#) CNN Sat Jun 19 10:38:00 MDT 2004
- [At Least 20 Iraqis Reported Killed in Airstrike in Falluja ...](#) New York Times Sat Jun 19 09:52:00 MDT 2004
- [At Least 20 Said Killed in Falluja Airstrike ...](#) New York Times Sat Jun 19 08:52:00 MDT 2004
- [Saudis: Militant behind hostage beheading killed ...](#) CNN Sat Jun 19 07:22:00 MDT 2004
- [Saudis show slain al-Qaeda chief ...](#) BBC Sat Jun 19 04:37:00 MDT 2004

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