

# Information Products and Services in the E-environment

**(NACINPROSE 2013)**

**27<sup>th</sup> - 28<sup>th</sup> April, 2013  
Conference Proceedings**

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**Department of Library & Information Science  
Sri Venkateswara University  
TIRUPATI-517502**



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# Comparative Analysis of Search Features of Scopus and Web of Science

Gireesh Kumar T.K.

Technical Assistant, International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Balapur (Post), RR District, Hyderabad, AP. Email: gireesharci@gmail.com

## 1. INTRODUCTION

Exponential growth of publications engendered the information seekers difficult to make their search for relevant literature seamless and effortless without spending much time. As a general trend user do browsing and retrieves vast amount of search results and baffle by not sorting out the relevant information they require. Search in electronic database has become a common phenomenon in every research organization since it serves researchers to quickly identify what's relevant for their research, and offers insight into trends in their field of study. In general, libraries select online databases by assessing the fullness of content, coverage and its relevancy to their user communities. In the database selection process the two major decisions making factors are content and price, the functionality of the platform is often considered at a later phase. Potentiality in searching is one of such important tools to support the database decision making process in the functionality evaluation phase.

Scopus and Web of Science are the two comprehensiveness scientific and commercial citation databases available to the research community to provide search facilities on a particular subject. While both the databases have the same target audience and the same search strategies they are not comprehensive but complement each other. The beauty of both Scopus and Web of Science is that they allow you to look forward in time as well as backward. Most researchers often look for the references cited BY a paper, but many do not realize that they can look FORWARD in time to see more recent works where an important paper is cited, or to see where their own works are continuing to be referenced.

## 2. COMPARISON OF SEARCH FACILITIES

Both Scopus and WoS have a user friendly and well designed search interface for making the search easier on the search screen and offer numerous search facilities. The general search interface of both Scopus and WoS offers the searcher to perform their search under different tabs such as document, author, and advanced search. However Scopus has option for searching with affiliation where as WoS is an interface which allows searching of five multidisciplinary citation indexes which cover the sciences, social sciences, arts and humanities and conference proceedings and offers additional search options such as Cited Reference Search and Structure Search.

- Document Search/Basic Search: Basic search/document search is the main search option for locating relevant research on a particular topic. Basic search helps the searcher to restrict their search to a particular date range, document type or subject area. The Basic Search in Scopus is a well-designed template with pull-down menus to specify individual or combined indexes for searching; and date ranges, document types and main subject areas for limits. This is the default search option in both the databases and has a default search field "Article Title, Abstract, Keywords" in Scopus against the "Grant Number" in WoS. In basic search both the databases facilitate searches using Source Title, Article Title, Language, DOI, Conference, Document Type, Keywords (Topic), Authors and their Affiliations. However, Scopus has unique searching options like search specifically for ISSN, Chemical Name, Abstract, References, CODEN, CAS Number, and even specific options like Affiliation Name, City and Country along with All Fields. The presence of search field abstracts in Scopus may significantly increase the recall when searching by word, and also helps users in selecting the most pertinent items from the results list. WoS facilitates basic searches with Year Published, Accession Number, Editor, Researcher ID, Funding Agency, Grant Number, Group Author etc which are not been incorporated with the basic search options of Scopus. Though WoS has single option to search with document type Scopus particularly provides options to select the type of documents such as All, Article or Review, Article, Review, Article in Press, Article or Conference Paper, Conference Paper, Conference Review, Letter, Editorial, Note, Short Survey, Business, Article or Press and Erratum. However the advanced search option of WoS facilitates about 36 categories of documents including Poetry, Film Review, Software, Hardware, Database, Music Score and Radio Reviews, Note, TV Review, Radio Review etc. Both Scopus and WoS have option to add more search field manually in the search interface and the fields to restrict the searches by selecting date range in common and the specific options like document type, subject areas, citation or chemical databases, timespan etc. One can enter the search term and select the search field from the drop down menu provided near search box available in both the databases. The screenshots below describes the basic search interface of both Scopus and WoS.

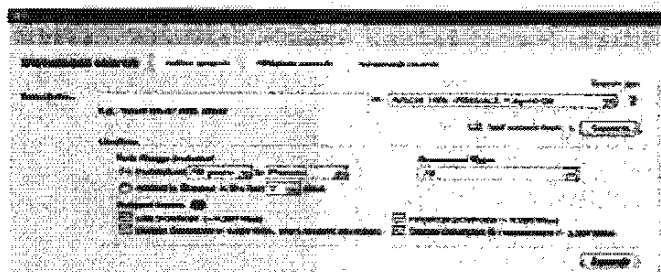


Fig.1. Basic Search Interface of Scopus



Fig. 2. Basic Search Interface of Web of Science

- **Author Search:** Author search option helps to quickly locate all of the documents published by a particular author. It facilitates to choose the author tab to search for a specific author by name and allows searches with a name and list out all the possible matches. From this list searcher can select one or more names and view the documents by the particular author. It also allows specifying a query that results in a list with all spelling variants that matches the query entered in Scopus database. WoS makes browsable the author index
- **Affiliation Search:** An affiliation search enables the searcher to track the list of research output from a specific institution. Scopus renders exclusive search box for searching documents by affiliation and also offers 'AFFILORG' in the advanced tab whereas WoS facilitates the advanced search in the advanced search with the search term 'OO' for retrieving the document with a particular organizational name in which the author is associated with.
- **Cited Reference Search:** WoS has provision to search in the cited work list, an index of all abbreviated journal titles, book titles, and other publication titles that appear in cited references and it allows you to search for articles that cite a particular article on the other hand Scopus search is carried out on author and then get the cited references attached to each article. Cited reference search is used to find articles that have cited a previously published work. It can be used to discover how a known idea or innovation has been confirmed, applied, improved, extended or corrected. Additionally, in the Arts & Humanities Citation Index, using the cited reference search allows you to search for articles that deal with an illustration of a work or art or a musical score. To search using cited reference search, first click on the cited reference search button. Next, check the

box for which database you wish to search. By default, all three citation databases are selected. Enter the cited author, cited work and cited years for the paper for which you are searching. All cited references are searchable via the cited reference search interface.

- **Structure Search:** Structure search allows for searching for chemical compounds and reactions and data associated with compounds and reactions. One must have a subscription to one or both chemical databases in order to create structures and to search for compounds and reactions. Availability of structure drawing link allows the searcher to view the structure that retrieved the reactions or compounds in the results set. The structure image cannot be modified; however, the searcher can copy the structure and paste the image in the structure drawing box on the search page in order to create a new chemical search query.
- **Advanced Search:** The advanced search option is the most flexible means of refining searches and it allows to create complex search queries. It is suitable for large or complex search strategies and allows using field codes, searching with Boolean operators, proximity searchers etc. The Advanced Search template is meant for searching by indexes or attributes that are not offered on the Basic Search template, such as language, DOI number or book (which does not appear on the pull-down menu on the Basic Search template). Advanced search option of WoS uses Field Tags, Boolean operators, parentheses, and set references to create queries.

#### a) Field Tags

Advanced search option of both databases uses different predefined codes named as field codes or tags to retrieve the results. A comparative analysis of field tags in both Scopus and WoS has given in the Appendix-1. If a searcher does not want to specify a field restriction then Scopus facilitates ALL option to search all the fields such as ABS, AFFIL, ARTNUM, AUTH, AUTHCOLLAB, CHEM, CODEN, CONF, DOI, EDITOR, ISBN, ISSN, ISSUE, KEY, LANGUAGE, MANUFACTURER, PUBLISHER, PUBYEAR, REF, SEQBANK, SEQNUMBER, SRCTITLE, VOLUME, and TITLE, however WoS provides individual searches. AFFIL is a combined field that searches the author address fields in Scopus such as AFFILCITY, AFFILCOUNTRY, and AFFILORG whereas WoS facilitates to narrow down the searches to organizational, sub-organizational, street address, province or state and even with zip or postal code. Availability of search for preferred organization names and/or their name variants from the Preferred Organization Index helps searching on a preferred organization name and that returns all records contain the preferred name and all records that contain its name variants. Article Number (ARTNUM) in Scopus is a persistent identifier for a document used by a few publishers instead of, or in addition to, page numbers can be assigned at the time of

electronic publication, so documents can be cited and searched for earlier in the publication process whereas WoS has a search option with Accession Number, an unique identifying number associated with each record in the product. Scopus facilitates to specify the search of author with his first name, last name and a single author name and AF-ID is a unique identification number assigned to organizations affiliated with Scopus authors which is not in WoS. Scopus database can be searched with CAS registry number, a numeric identifier assigned to a substance when it enters the CAS registry database it lacks in WoS. Availability of CODEN field, a unique, code that identifies serial and nonserial publications and INDEXTERMS for searching controlled vocabulary terms assigned to the document is making the Scopus unique from WoS. Keyword (KEY) is a combined field that searches the AUTHKEY, INDEXTERMS, TRADENAME, and CHEMNAME fields in Scopus. PUBDATETXT - Date of publication, A text date field indicating the date of publication. Scopus has combined field that searches abstracts, article titles, keywords, and author names together and also with Trade Name, a name used to identify a commercial product or service.

#### **b) Boolean Operators**

Boolean operators are used to broaden or narrow retrieval of the search result. Scopus facilitates Boolean searches using Boolean operators such as AND, OR, and AND NOT either by typing them, or by selecting from the drop-down list in the Document search form where as WoS searches for AND, OR, NOT, SAME, and NEAR operators. Scopus interprets the search according to the order of precedence i.e. OR, AND, AND NOT where as WoS represents SAME, NOT, AND and OR if the searcher uses more than one Boolean operator. 'AND NOT' of Scopus excludes documents that include the specified term from the search. Boolean operators need to be given in double quotation marks to retrieve the result in Scopus where as WoS uses both quotation and parenthesis. The SAME operator of WoS locates terms occurring in the same sentence or keyword phrase. The benefit of using SAME in this manner is that you will get articles that are more relevant than if you searched the terms as-is, but it is not as restrictive as phrase searching. The interface is not case sensitive and can enter terms in upper, lower or mixed case.

#### **c) Proximity Operators**

Scopus uses two proximity operators. PRE/n "precedes by" where the first term in the search must precede the second by a specified number of terms (n) and W/n "within" where the terms in the search must be within a specified number of terms (n). Either word may appear first and the value for 'n' can be a number from 0 to 255. (pre/n, w/n) can also be used to search with Boolean operators in Scopus and then the order of precedence would be OR, W/n, PRE/n, AND and AND NOT. It can be used with wildcards and more than one proximity operator in sequence to connect several terms.

WoS uses NEAR/x to find records where the terms joined by the operator are within a specified number of words of each other and 'x' is a number to specify the maximum number of words that separate the terms. The order of precedence would be NEAR/x, SAME, NOT, AND and OR.

#### **d) Truncation/Wild Cards**

An asterisk (\*) is a truncation symbol that can be used after the first few characters of a word to include all varying endings of that word in a search. Wildcard symbol such as question mark (?), dollar symbol (\$) or asterisk (\*) can be used within a word as a substitute for one or more characters to account for differences in spelling. Truncation or wild cards (? for individual letters or \* for zero or unlimited letter strings) can be used to provide greater scope and flexibility in searching in both Scopus and WoS. Scopus handles truncation automatically explicit truncation symbols for single and unlimited characters are also available whereas WoS uses left-hand truncation in the Topic, Title, Accession Number, and Identifying Codes search fields and restricts searches using wildcards after special characters, in a publication year, appears in a word and a name dollar sign (\$) in quoted searches. WoS uses '\*' for 0, 1, or many characters, '?' for one character and '\$' for zero or one character to find terms variants.

#### **e) Limiting Searches**

Limiting search option helps to find the most relevant research and reduce the number of irrelevant results. Searches by Date Range, Document Type or Subject Area using the options underneath the document search box. Additional search terms can be added by clicking on 'Add Another Field' in both the databases and it is up to a maximum of 23 boxes in WoS. Basic Search in Scopus permits limiting the search by year or year ranges, or by latest updates (resources added to Scopus in the last 7 or 14 or 30 days) and also by document type, with 11 choices such as "article", or "review" or "letter", etc. Scopus also helps the searcher to limit the search by subject areas, with a menu of 4 major subject areas such as Life Sciences, Health Sciences, Physical Sciences and Social Sciences and Humanities where as WoS search can be limited by citation databases and chemical databases. Additionally WoS has a category of options for adjusting the result settings by selecting the records per page, sorting by publication date, processing data, times cited, relevancy, author name, source title and conference title with show or hide refine panel both in the basic and advanced searches.

### **3. UNIQUE SEARCH FEATURE OF SCOPUS**

- Conference Name, Sponsors and the Location can be specifically mention for getting the exact result.
- Scopus has abstracts for a larger percentage of their records and provide specific search options for abstracts, Keywords and Author Keywords.

- Includes an open access title list and also indicates for which years it has partial or continuous coverage for a source.
- Searches in Scopus incorporate searches of scientific web pages through Scirus, and include author homepages, university sites and resources such as preprint servers and OAI compliant resources.
- Scopus permits search by affiliation; by zip code and institutional name(s).
- Scopus offers option for searching with the URL of a website cited in the reference.
- Availability of CODEN or VOLUME field, identifies serial and non-serial publications
- Searching with INDEXTERMS helps to retrieve the documents on controlled vocabulary terms assigned to the document
- Searching with TRADENAME alleviate the searcher to easily identify a commercial product or service.
- Searching for an author with a single letter initial retrieves publications of all authors with the same surname and the specific letter appearing as one of the initials.

#### 4. UNIQUE SEARCH FEATURE OF WOS

- Presence of indexes for author, cited author, group author, publication name and organization-enhanced in WoS allows the searcher to select one or more names to add to the search query and it helps to select the correct spelling or variant spellings of a name.
- Journal Title Abbreviations list and Reaction Conditions List/ Reaction Keyphrases List of WoS assists to find abbreviations of journal titles used as cited works and current chemical reactions records respectively.
- Availability of Biological Activity List in WoS, a search aid of controlled vocabulary of all biological activities assigned to compounds in the Index Chemicus database is useful to retrieve the biological activities intrinsically.
- WoS facilitates search with Accession Number Field, a unique identifying number associated with each record in the product. It consists of a product identification code, a product year, and an item number.
- Search the Address fields by entering the full or partial name of an institution and/or location from an author's address.
- Search for novel reactions (via Current Chemical Reactions) and new compound data (via Index Chemicus) using chemical structures
- KeyWords Plus are unique to WoS and consist of words

and phrases harvested from the titles of the cited articles and are searched in topic search

- Author Finder- retrieves records from an author of interest, helps to distinguish between authors publishing by the same name.
- Search with Researcher ID is useful for exploring the searches for author ResearcherID numbers within a record
- Availability of 'Web of Science Category' list facilitates selecting and searching with the subject area within a record.
- Facilitates searches for zip and postal codes in the addresses field within a record.
- Availability of Cited Work List helps the searcher to retrieve the exact item if he/she does not know the correct spelling of an item.
- 'NEAR/x' as proximity search use to link terms within a specified number of words from each other and 'x' represents the number of words.

#### CONCLUSION

An online database helps to obtain the relevant information easily and quickly with a fewer clicks they need. Both the databases give options to make a search more precise and accurate. Researchers can save their valuable time by making their search easier and using these databases to get the expert results and make their research more effective. Basic search options of both the databases are quite sufficient for most subject searches. Scopus has integrates web search with Scirus platform. A ideal database provide limited search options in the basic search interface and offer different refining options once the result is displayed. Scopus permits search by affiliation; by zip code and institutional name(s). WoS provides Author identification tools and more analysis capabilities than Scopus. WoS search interface is improving but not as user friendly as Scopus due to its limited search options and the capability of Scopus to deliver instant results for searchers. Searching with ResearcherID is the unique and relevant search options provided by WoS apart from the specific search option for Address of the author(s), Country, Province/State, City, Organization, Suborganization, Street Address, Zip/Postal Code etc and these browse options are badly needed for comprehensive searches. According to Cheryl LaGuardia, if you serve a primarily scientific, technical, and/or engineering clientele, you must get Scopus it's big and it's good. If your clientele are predominantly arts, humanities, and/or social science researchers, you need Web of Science it covers the scholarly material they need. But the reality is that many of us serve all these constituencies, and the hard truth is that we're going to need both files to satisfy them all.

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