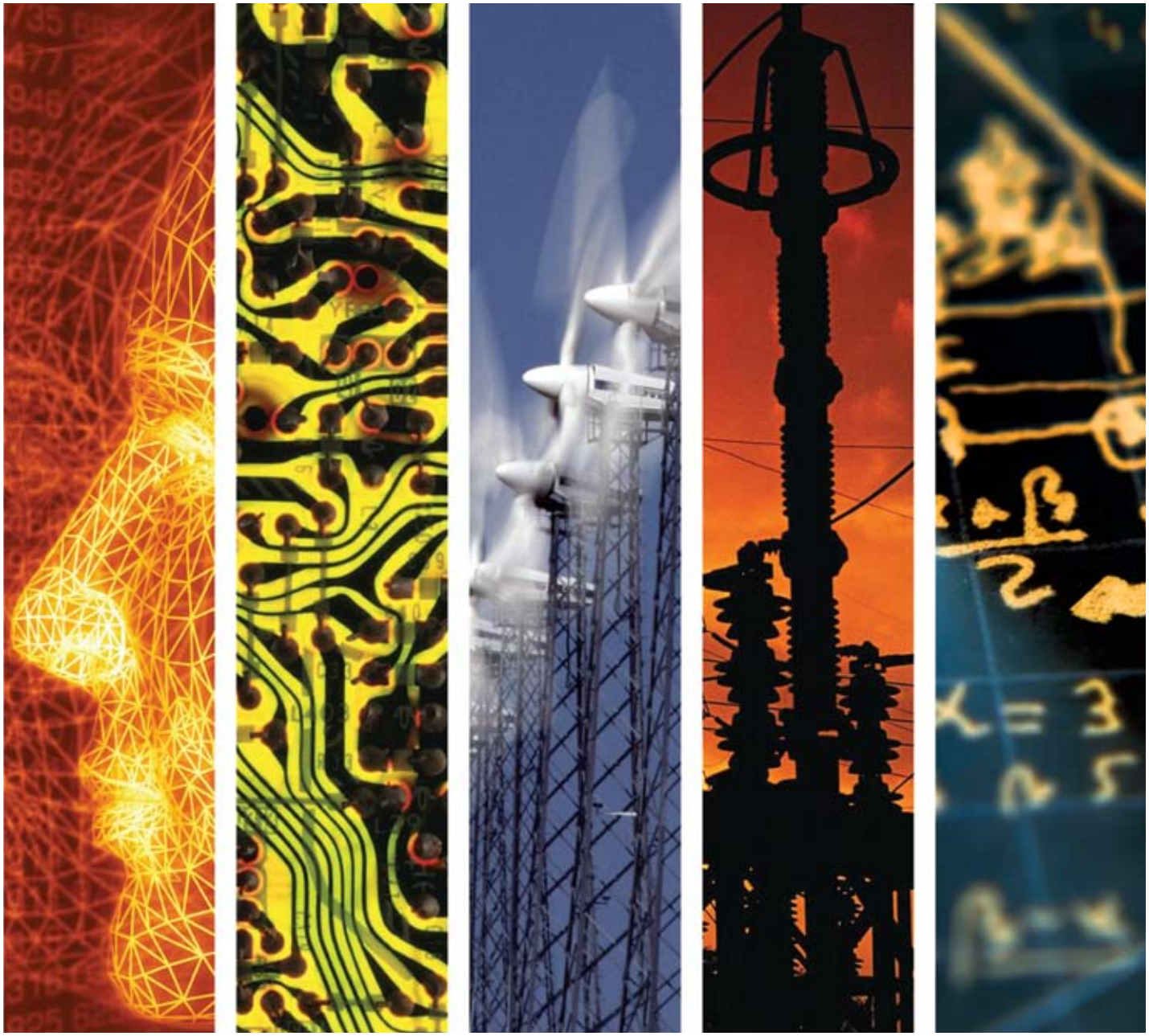
IET Inspec

OvidSP

User Guide
OvidSP



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N.B. Descriptions in this user guide are related to the Inspec Database on OvidSP. As a result some OvidSP functionality which is not applicable to Inspec may not be represented.

Inspec and Inspec Archive Database Overviews

Inspec

Inspec is the world's leading English language information service providing access to the world's scientific and technical papers in physics, electrical engineering, electronics, communications, control engineering, computing and information technology, and is a continuation of Science Abstracts which was first published by the Institution of Electrical Engineers in 1898.

The Inspec Database dates back to 1969. Each year thousands of journals and conference publications are scanned for relevant information to be included. In 2009 over 4500 scientific and technical journals and some 2000 conference publications were scanned. Inspec now contains over 11 million bibliographic records (2010 figures) and grows at a rate of approx. 700,000 records each year (2010 figures).

Although Inspec provides a comprehensive index to literature in physics, electrical and electronic engineering, computer science and information technology, it also has significant coverage in interdisciplinary areas such as materials science, oceanography, nuclear engineering, geophysics, biomedical engineering and biophysics.

Each record in the Inspec database contains an English-language title and descriptive abstract, together with full bibliographic details which include the journal or other publication title, the author's name and affiliation and the language of the original document. All of these may be searched, as well as Inspec's extensive range of subject classification and indexing systems.

In addition to searching Inspec for information for your research projects, it can also be used for:

- current awareness
- finding new product information
- technological forecasting
- competitive intelligence
- patent-related searching

The data in the Inspec Database belongs to the Institution of Electrical Engineers and is protected by international copyright laws.

Inspec Archive

The Inspec Archive Database contains the historical scientific records produced for the Science Abstracts series of journals during the period 1898 - 1968. The Science Abstracts were the precursor to Inspec. Initially they were available only in print. The entire collection has been digitized and is available on OvidSP

Subject coverage for the Inspec Archive Database is:

- All aspects of physics (originally published as Physics Abstracts),
- Electrical and electronic engineering (introduced as a separate journal in 1903, and originally published as Electrical and Electronic Abstracts),
- Computing and control engineering (introduced as a separate journal in 1966, and published initially as Control Abstracts, later renamed to Computer and Control Abstracts).

The Inspec Archive contains:

- Over 873,700 records,
- Tables, graphs and figures from the original source document in many cases,
- The original value-added indexing and classifications,
- Enhancements in the form of the nearest equivalent current Inspec Thesaurus Terms and Inspec Classification Codes,
- Conference proceedings, books, journals, reports and dissertations,
- Longer abstracts than today varying in length from half a page to several pages including diagrams and complex mathematical proof because hard copy originals were less accessible.

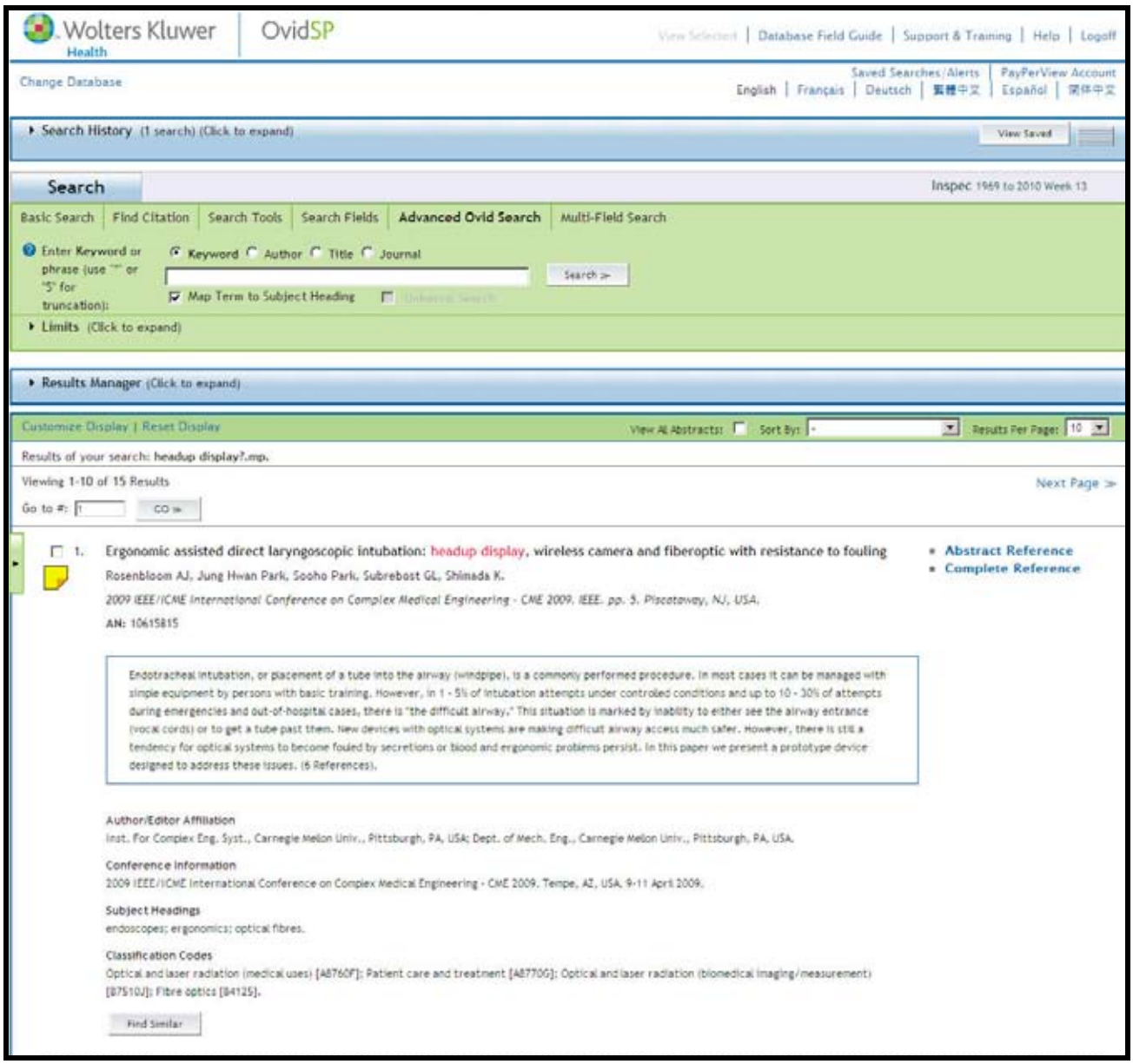
The fully searchable electronic Inspec Archive Database is far more usable, flexible, durable and more readily available than the 176 volumes (and over 140,000 pages) of the printed Science Abstracts series of journals. It has never been easier to locate references to historic research or engineering breakthroughs from hundreds of scientists and engineers such as Albert Einstein, Guglielmo Marconi, Max Planck, Ernest Rutherford, and Marie Curie. Not only does the Inspec Archive Database give access to the work of famous scientists, it also gives access to the often forgotten works (sometimes known as "Sleeping Beauties") that may be of use in assessing the validity of current patents. An idea suggested decades ago that did not develop then, may be of relevance today.

OvidSP Implementation Overview

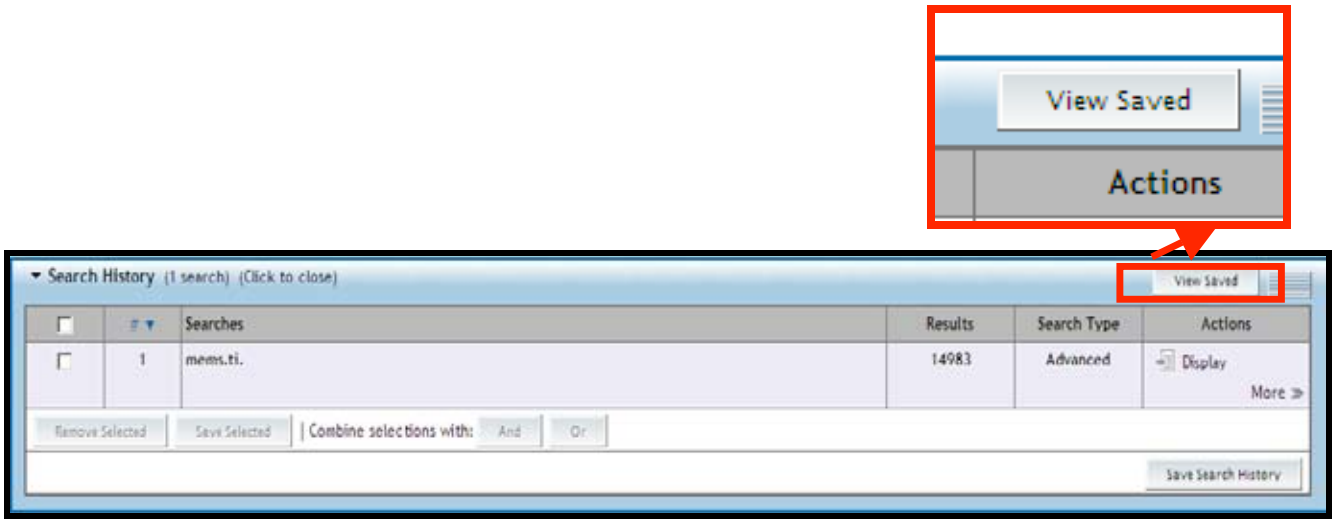
A description of the Main features of OvidSP which are related to Inspec follows.

OvidSP Main Screen

The OvidSP Main Screen is divided into 3 distinct functional areas. These are Search History, Search, and Results Manager. Each area is described below.

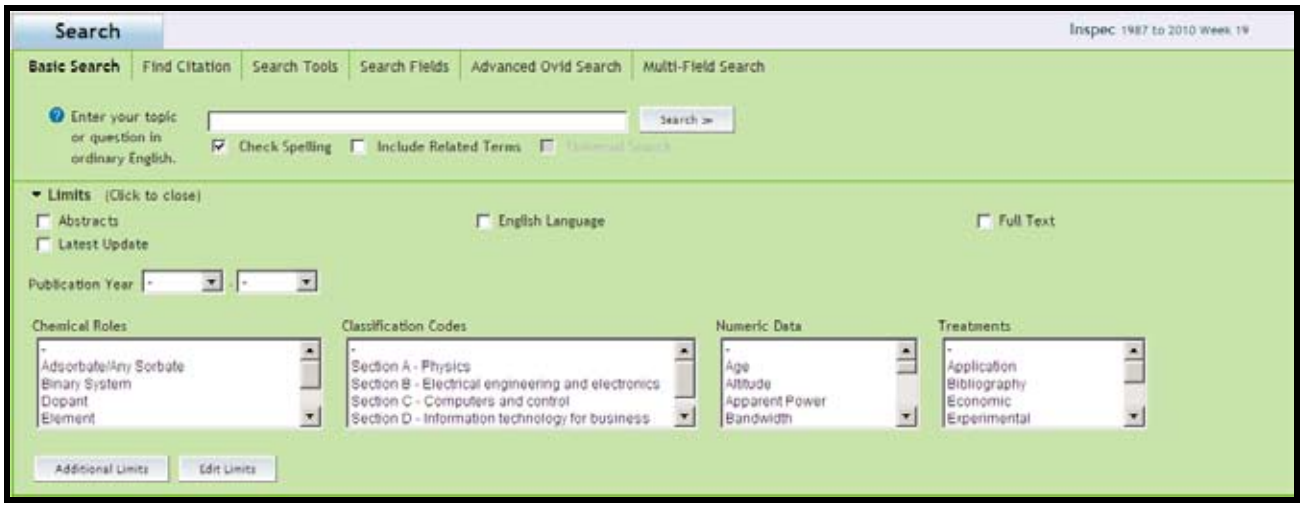


Search History - The details of any queries carried out during a session are displayed in the expandable blue Search History box at the top of the screen. From Here it is possible to rerun, save, combine and delete searches constructed during the current session from here. Searches saved from previous sessions can be accessed by clicking on the View Saved button in the top right hand corner of the Search History box.

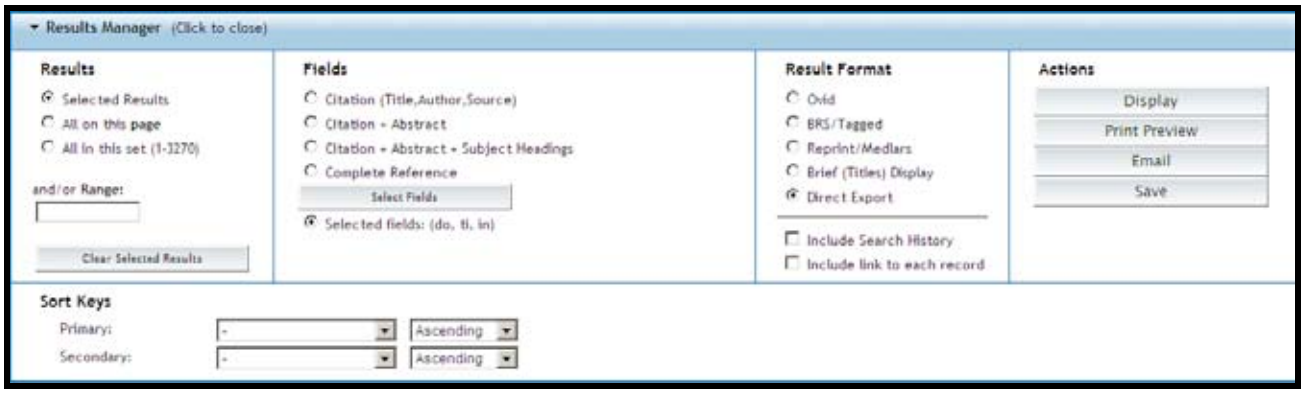


N.B. The Search History box will be empty until at least one search has been executed during a session.

Search – The green Search box lies below Search History. It provides a variety of search options, and search tools (see page 10).

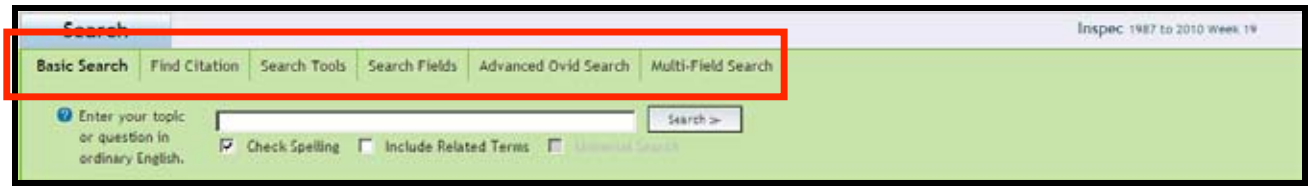


Results Manager – The controls for sorting results; and for selecting, displaying, printing, emailing and saving records for the most recent search are sited here. Results appear below the Results Manager and appear initially in the 'Titles Display' format in groups of 10 at a time. Each reference has links to the Inspec Abstract and Complete Reference (see pg. 20).

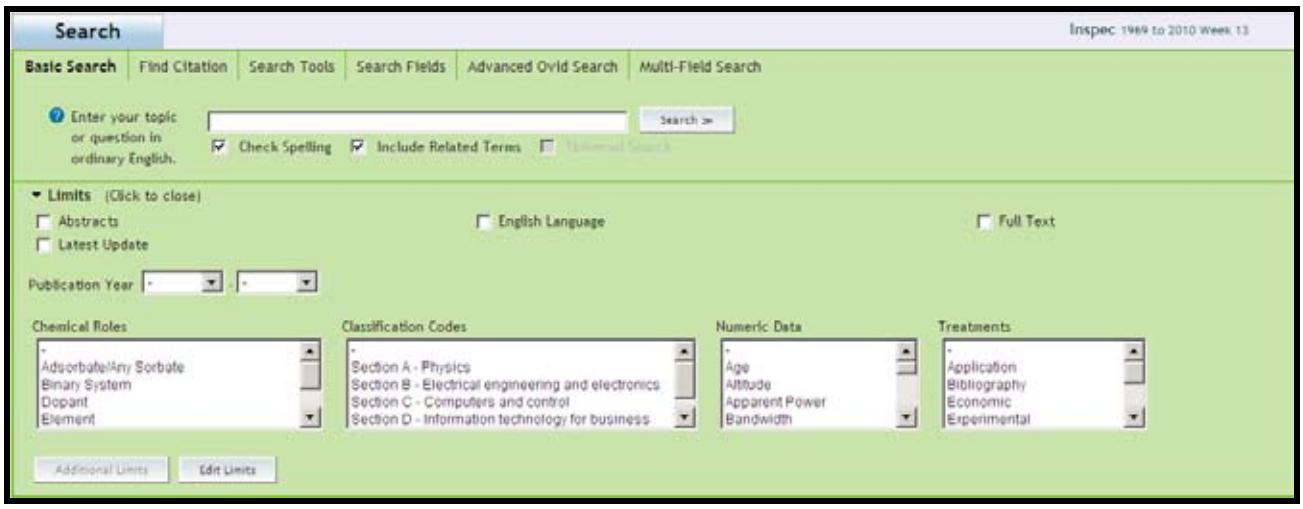


OvidSP Search Options

OvidSP provides a number of search options, as well as tools for facilitating focused searches of Inspec. These can be selected by clicking on the appropriate links along the top of the Search box.



Basic Search – For novice users and for quick searches Basic Search comprises a search box and a variety of refining options. An optional spell checker can be used to for detecting possible spelling errors in the keywords entered.



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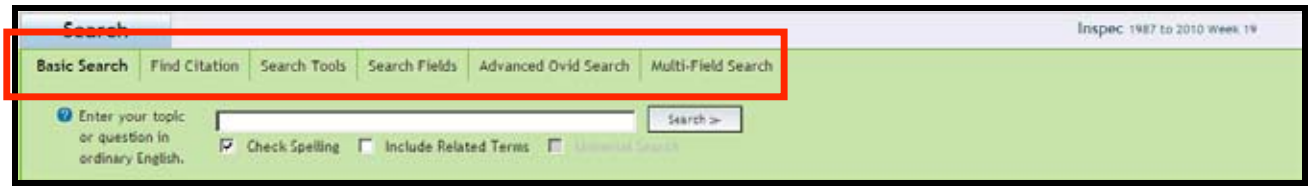

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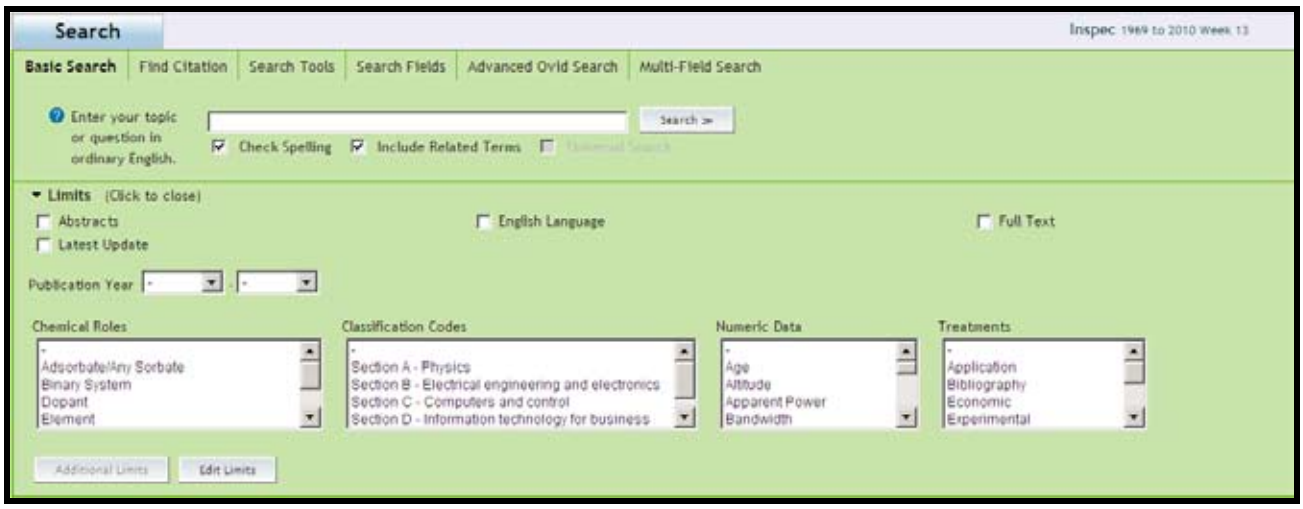
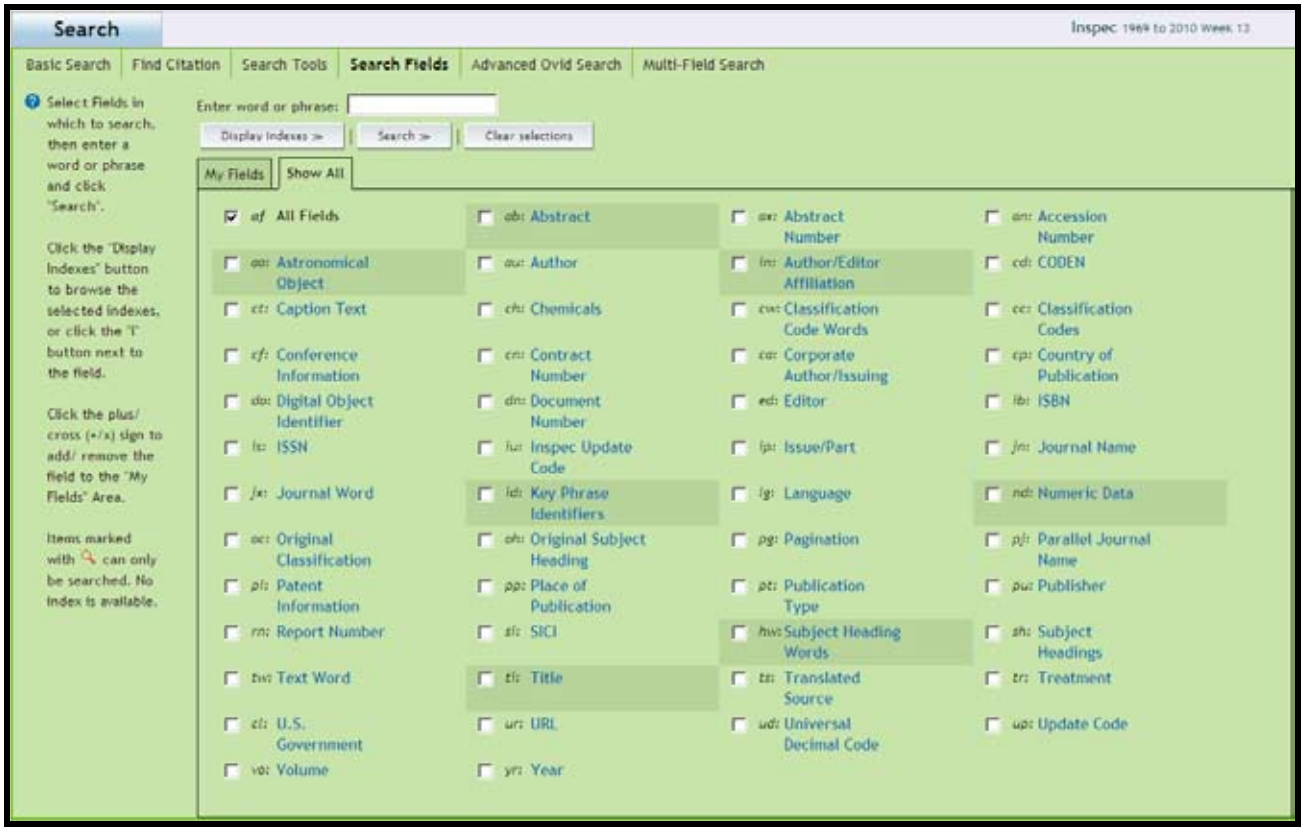
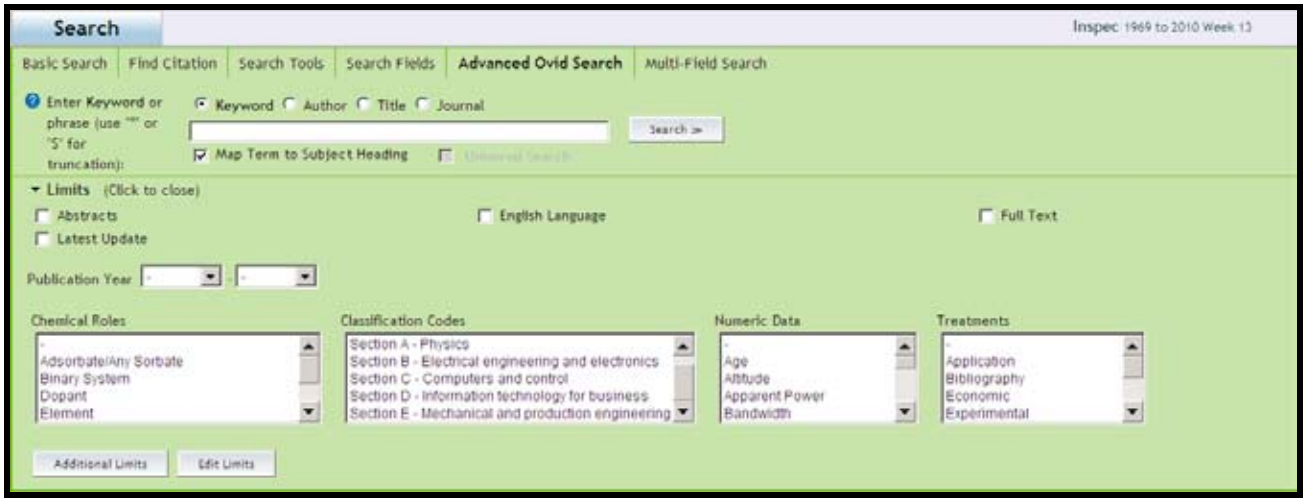


Find Citation – For Searching bibliographic information (e.g. journal titles, publishers, documents etc.)

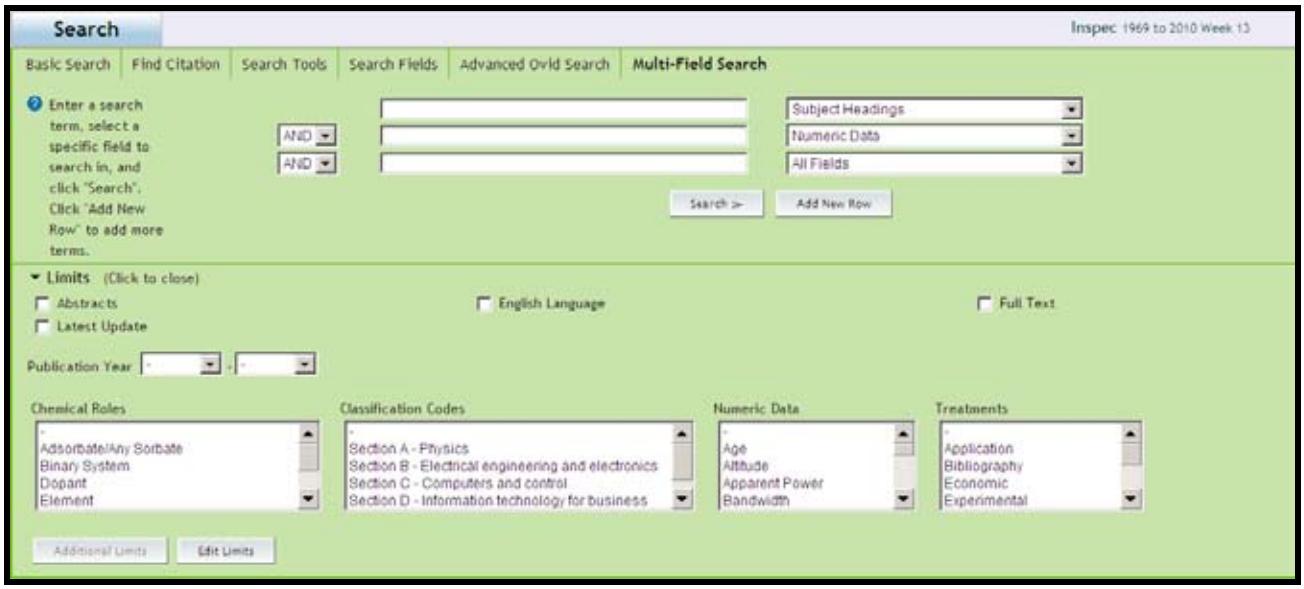
Search Fields – For searching the same information contained in one or more fields. Indexes are available to check for spelling variations etc. Commonly searched fields can be saved into the My Fields tabbed page for easy access in future sessions. Fields selected for inclusion in My Fields are highlighted in grey.



Advanced Ovid Search – Similar in look to Basic search this screen comprises a Search box, and a variety of refining options. A Map Term feature suggests suitable subject headings for enhancing the search results (See pg. 13).



Multi-Field Search – A form based option comprising multiple search boxes. Information in different fields can be searched in a single query and combined using Boolean logic operators.



OvidSP Search Tools

The Inspec Thesaurus containing over 9000 standardised terms (Subject Headings), and the Inspec Classification can be searched for suitable terms here.

The following options are included.

Mapping – Statistically analyses keywords in the search box to identify relevant Subject Headings for a search.

Thesaurus – Search the Inspec thesaurus directly

Permuted Index – Displays the Subject Headings in alphabetical order.

Scope Note – Search within the scope notes for each Subject Headings (i.e. notes describing the technologies that would be recovered, when a term was introduced, when it, and if, it was discontinued) etc.

Explode -This tool enables a Thesaurus Term, plus all of its narrow terms to be selected in a single step. This has the advantage of broadening the scope of a search in a straightforward manner. It is available in the Thesaurus screen (see pg. 25), Permuted Index screen (see pg. 26) and the Mapping Display screen (see pg. 27).

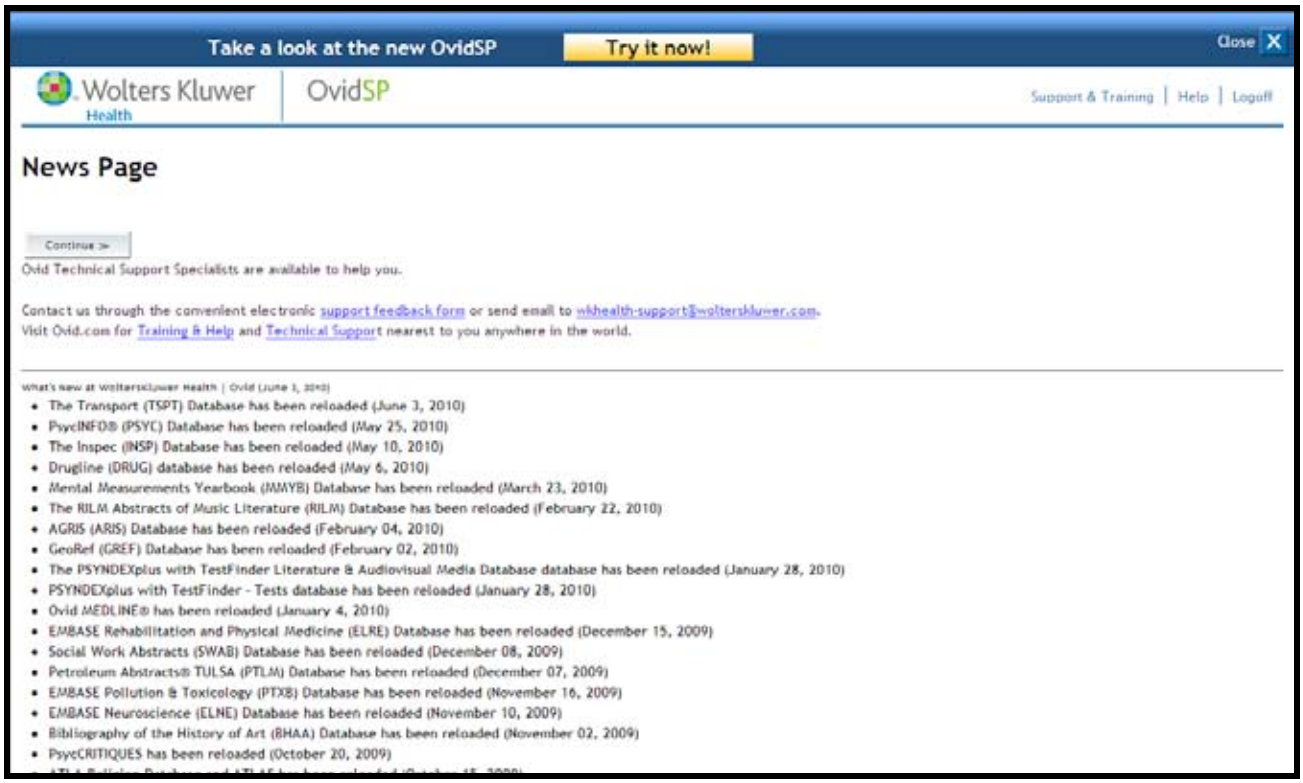
Classification Codes – Find suitable Classifications.

Searching Inspec

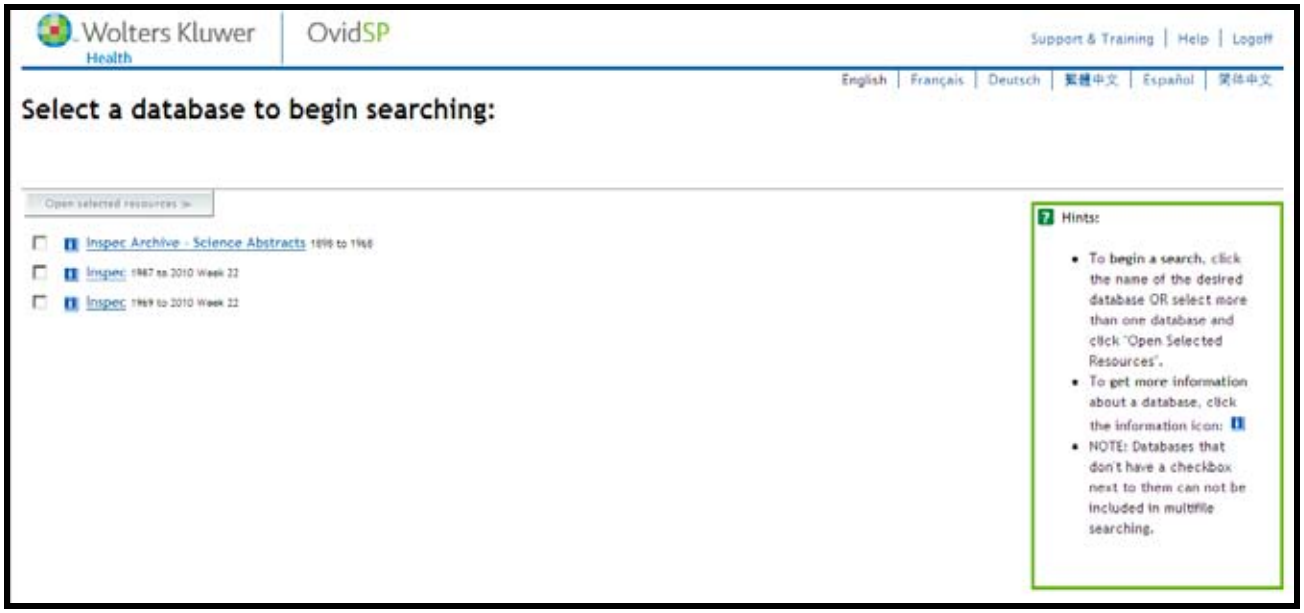
Logging on

Log in to OvidSP at http://ovidsp.ovid.com.

The first page provides news updates about the databases available on Ovid. There are also links to useful pages on the Ovid website which provide information for technical help, training etc.

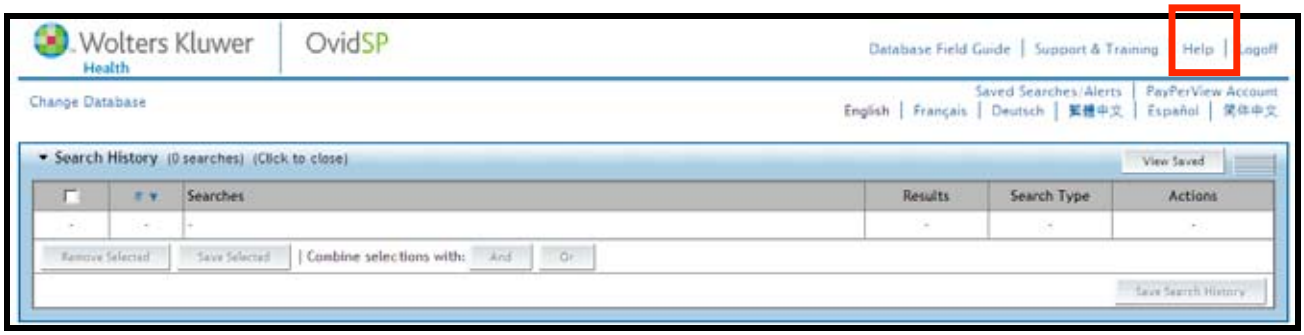


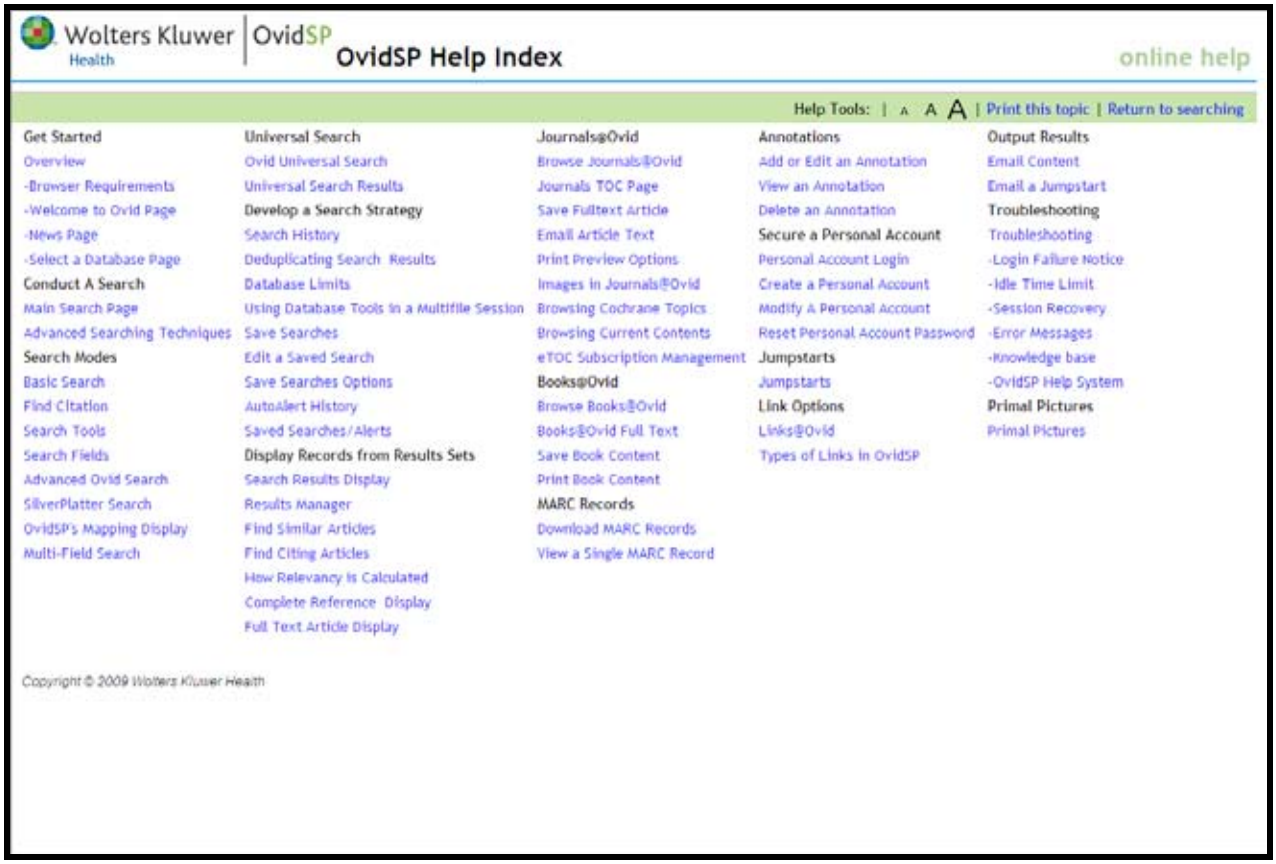
To Proceed to the database selection page click on Continue. All databases that a subscription is held for via Ovid will be listed. Select the Inspec Database to be searched. Depending on subscriptions there is a choice of 3, one or more of which can be searched at the same time.



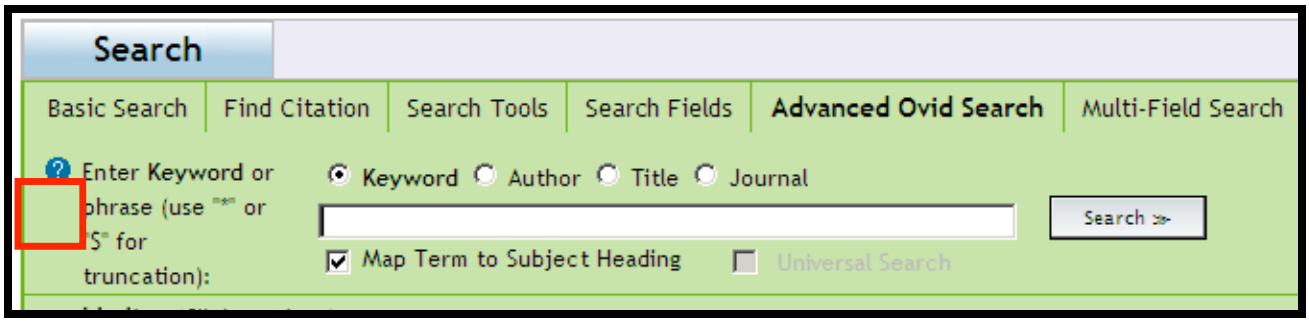
Help

Help on OvidSP is always available online. The full help file can be accessed by clicking on the Help link in the top right hand corner of the screens.





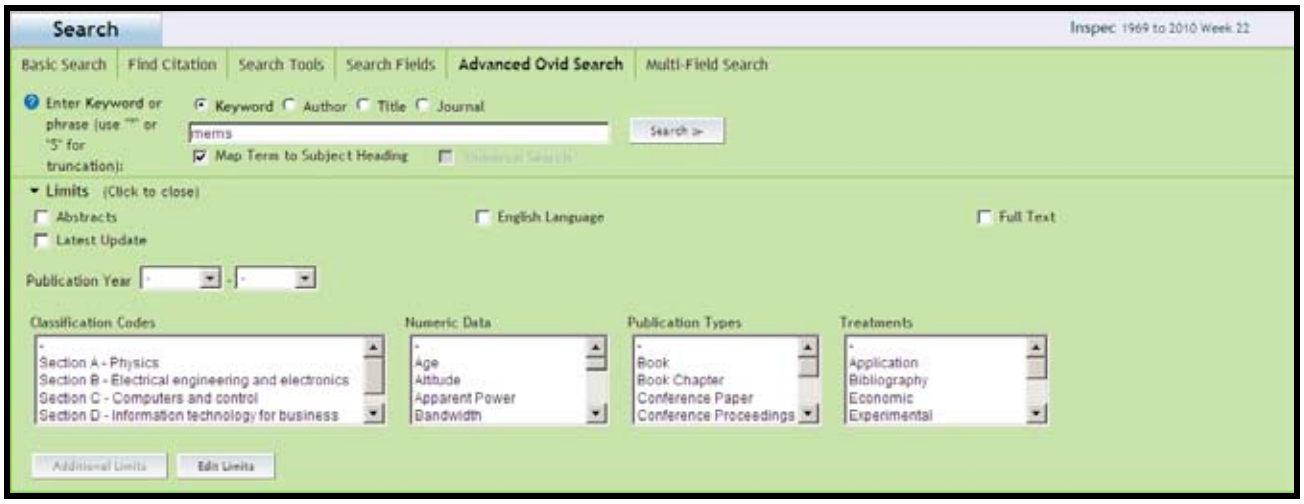
A question mark set into a blue disc ( ) indicates that contextual help for the feature it is next to is available; Click on the question mark to access this help.



Subject Searching

Advanced Search is used to illustrate the following.

Start a subject search by thinking of some suitable keywords, which broadly define the scope of the intended search, then examine the results of the search for information that can be added to subsequent searches.



1) Start by typing a suitable keyword, keywords or a phrase into the Search box. Boolean logic and Proximity Operators, as well as truncation symbols can be included if required to help broaden or narrow the scope of the search (see below).

2) Select either the Keyword or Title button;

> Selecting Keyword means that all the descriptive parts of the Inspec record is searched.
>
> Selecting Title means that the Inspec Title alone is searched. This would have the effect of restricting results to records that are highly focussed on the subject area being searched. Titles are short and tend to describe the most important themes contained in a document. However, because they do not contain much text in comparison to the record as a whole, it is possible that important documents may be missed.

3) Select “Map Terms to Subject Headings” for suggested Subject Headings are required.

4) Select limits if required. More than one limit can be selected from a list by holding down the shift key.

5) Click on Search.

Boolean Operators

The following Boolean operators are available for use in a search query. Depending on the operators used, a search can be broadened or narrowed in scope.

OR - finds records that contain at least one of the terms searched. It is used to broaden a search. For example, when searching for computers or the networks, results would include all records where the search field contains either the word computers or the word networks or both words.

AND - finds records that contain all the terms searched and thus is used to narrow a search. For example, computers and networks would include all records where the record contains both the word computers and the word networks.

NOT - finds records that contain one term but not another. It is used to narrow a search by excluding specific terms. For example, computers not networks would include all records where the search field contains the word computers but not the word networks.

Proximity Operators

Proximity operators can be used to perform a search for 2 or more words that occur up to a specified number or words apart.

ADJ - finds records where the search terms are next to each other and are in the specified order (i.e. a phrase). When two or more query words separated by a space are entered in a search then Ovid assumes them to be adjacent and automatically inserts the adjacency operator between the words. This **assumed proximity** means that the search “computer networks”, for example, is identical to the search “computer adj networks”.

ADJn – as above but allows for search terms to be separated by up to n words in any direction, where n=a positive whole number, (e.g. computer ADJ2 networks will find records which contain the word networks within two words of computers. neural networks for computer, computer communication networks, and networks of computer servers would all be retrieved).

n = 1 and 99, and should follow ADJ immediately, without a space.

Operator precedence

There is no predefined order of precedence for the operators. Instead, they are processed “left-to-right”, unless overriden by parentheses. The most deeply nested parenthetical statement is processed first.

Truncation

Unlimited truncation “$” or “:” – Truncate a search term to retrieve words which the same but have alternative endings. (e.g. searching elect* retrieves records containing elect, electrical, electricity, electronics, electronically etc.)

Limited truncation “$n” – As above but allows the truncation to be limited by up to n characters, where n is a positive whole number, (e.g. computer$1 would retrieve papers with the word computer or computers but would not retrieve documents with the word computerised).

Wildcards “?” or “#” - serves as a substitute for one or none letters. It can be used at the end of a word or in the middle of it

eg.

colo?r retrieves both colour and color;

t##th retrieves both tooth, teeth, tenth etc.

ioni?ation retrieves ionisation or ionization.

computer# retrieves both computer and computers

Search Results

Search Results appear in the Results Manager There are 3 columns.

Refining options appear on the left hand side.

Actual results are in the central column. They initially appear in the titles display format in groups of 10 per page. This can be changed using the options in the Results Manager. Each reference has links to the Inspec Abstract and complete reference.

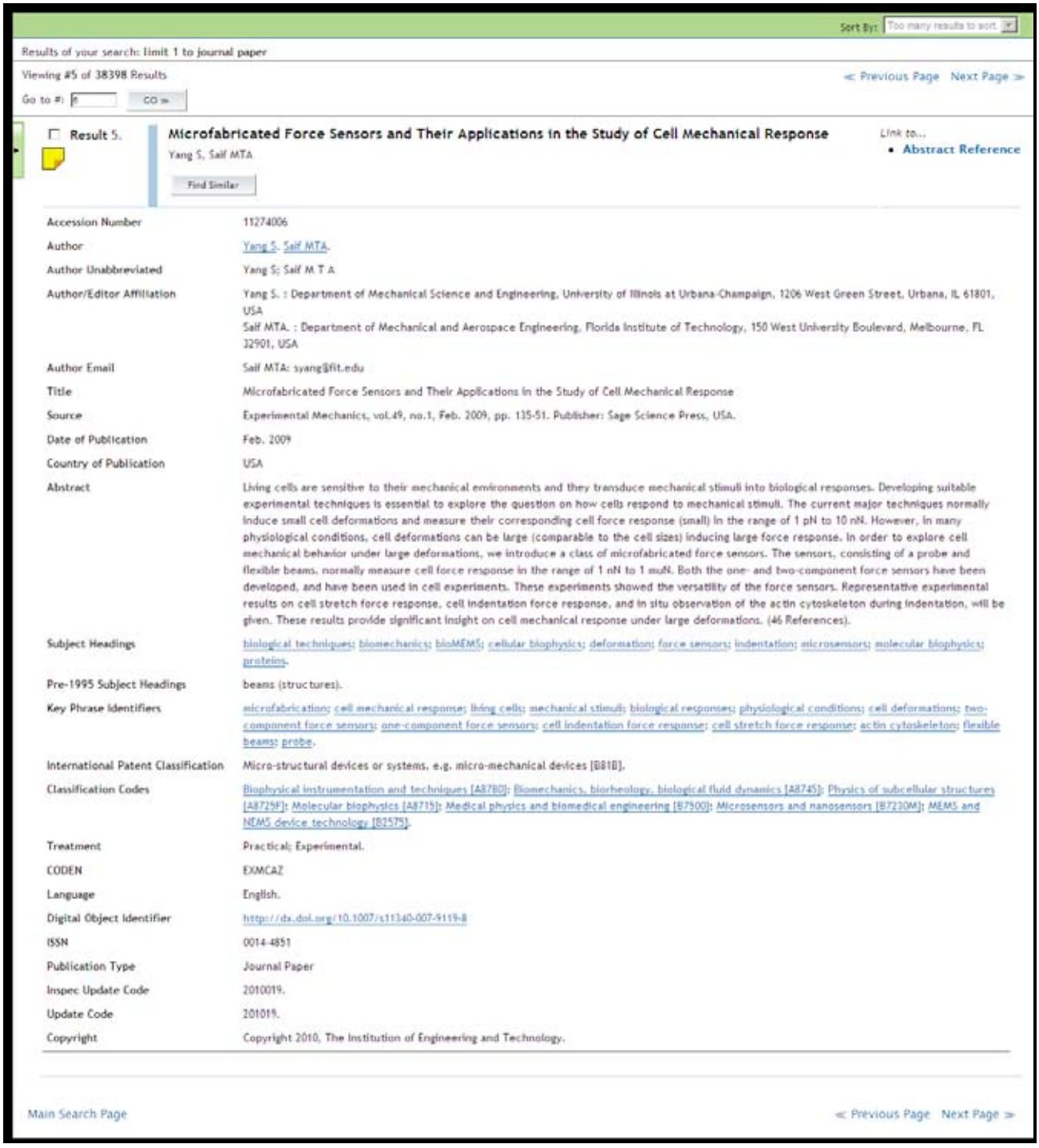
To print, e-mail or search results use the options in the Results Manager

Search History

Search history is an important search and navigation tool. It can be used to review current searches and to build up complex searches by combining previously run queries. Combine various search steps by

INSPEC Record Examples

The following display formats are available. Select the desired one using from the Titles Display format (see below) or the Results Manager (p. 9).



Sort By: Too many results to sort

Results of your search: limit 1 to journal paper

Viewing #5 of 38398 Results

« Previous Page Next Page »

Go to #: 5 GO »

Result 5.

Microfabricated Force Sensors and Their Applications to the Study of Cell Mechanical Response

Yang S, Saif MTA

Find Similar

Link to...
- Abstract Reference

Accession Number	11274006
Author	Yang S; Saif MTA.
Author Unabbreviated	Yang S; Saif M T A
Author/Editor Affiliation	Yang S. : Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, 1206 West Green Street, Urbana, IL 61801, USA Saif MTA. : Department of Mechanical and Aerospace Engineering, Florida Institute of Technology, 150 West University Boulevard, Melbourne, FL 32901, USA
Author Email	Saif MTA: syang@fit.edu
Title	Microfabricated Force Sensors and Their Applications to the Study of Cell Mechanical Response
Source	Experimental Mechanics, vol.49, no.1, Feb. 2009, pp. 135-51. Publisher: Sage Science Press, USA.
Date of Publication	Feb. 2009
Country of Publication	USA
Abstract	Living cells are sensitive to their mechanical environments and they transduce mechanical stimuli into biological responses. Developing suitable experimental techniques is essential to explore the question on how cells respond to mechanical stimuli. The current major techniques normally induce small cell deformations and measure their corresponding cell force response (small) in the range of 1 pN to 10 nN. However, in many physiological conditions, cell deformations can be large (comparable to the cell sizes) inducing large force response. In order to explore cell mechanical behavior under large deformations, we introduce a class of microfabricated force sensors. The sensors, consisting of a probe and flexible beams, normally measure cell force response in the range of 1 nN to 1 muN. Both the one- and two-component force sensors have been developed, and have been used in cell experiments. These experiments showed the versatility of the force sensors. Representative experimental results on cell stretch force response, cell indentation force response, and in situ observation of the actin cytoskeleton during indentation, will be given. These results provide significant insight on cell mechanical response under large deformations. (46 References).
Subject Headings	biological techniques; biomechanics; bioMEMS; cellular biophysics; deformation; force sensors; indentation; microsensors; molecular biophysics; proteins.
Pre-1995 Subject Headings	beams (structures).
Key Phrase Identifiers	microfabrication; cell mechanical response; living cells; mechanical stimuli; biological responses; physiological conditions; cell deformations; two-component force sensors; one-component force sensors; cell indentation force response; cell stretch force response; actin cytoskeleton; flexible beams; probe.
International Patent Classification	Micro-structural devices or systems, e.g. micro-mechanical devices [B81B].
Classification Codes	Biophysical instrumentation and techniques [A8780]; Biomechanics, biorheology, biological fluid dynamics [A8745]; Physics of subcellular structures [A8725F]; Molecular biophysics [A8715]; Medical physics and biomedical engineering [B7900]; Microsensors and nanosensors [B7230M]; MEMS and NEMS device technology [B2575].
Treatment	Practical; Experimental.
CODEN	EXMCAZ
Language	English.
Digital Object Identifier	http://dx.doi.org/10.1007/s11340-007-9119-8
ISSN	0014-4851
Publication Type	Journal Paper
Inspec Update Code	2010019.
Update Code	201019.
Copyright	Copyright 2010, The Institution of Engineering and Technology.

Main Search Page

« Previous Page Next Page »

Complete Reference (All Fields)

5. A disposable microfluidic biochip with on-chip molecularly imprinted biosensors for optical detection of anesthetic propofol

Chien-Chong Hong, Po-Hsiang Chang, Chih-Chung Lin, Chian-Lang Hong.

Biosensors & Bioelectronics, vol.25, no.9, 15 May 2010, pp. 2058-64. Publisher: Elsevier Science Ltd.,UK.

[Journal Paper]

View Abstract

- Abstract Reference
- Complete Reference

Citation (Title, Author, Source)

1. Mossbauer study of nanomagnetics

Bachurin VI, Zakharova IN, Shipilin MA, Shipilin AM.

SPIE - The International Society for Optical Engineering. Proceedings of the SPIE - The International Society for Optical Engineering, vol.7521, 2010, pp. 75210Q (8). USA.

AN: 11272102

The interest to nanomagnetic substances is caused by their abundance in natural materials and by their application in different fields of technology particularly the use of magnetic anisotropy is of interest for the microelectromechanical systems obtained by filling microcapillaries with magnetic fluids composed of nanoparticles. Nanoscale particles differ from massive particles by their magnetic properties. The bulk of "surface area" is comparable with the bulk of a whole particle it is the distinguishing feature of nanoparticles. At the same time magnetic properties of "surface area" can greatly differ from "internal area" properties and their contribution to the whole magnetic properties of the particle should be viewed separately. Massive and nanodispersed powders of maghemite (gamma-Fe_2O_3 magnetic oxide) and the similar powders of magnetite (Fe_3O_4 magnetic oxide) and magnetic fluid on the base of nanodispersed magnetite have been studied by means of Mossbauer spectroscopy. The average size and composition of nanoparticles were evaluated. The distribution functions of effective magnetic fields on the nuclei were obtained and on their basis the magnetic properties of "surface" and "internal" areas were analyzed. (6 References).

Author Unabbreviated

Bachurin V I, Zakharova I N, Shipilin M A, Shipilin A M

Author/Editor Affiliation

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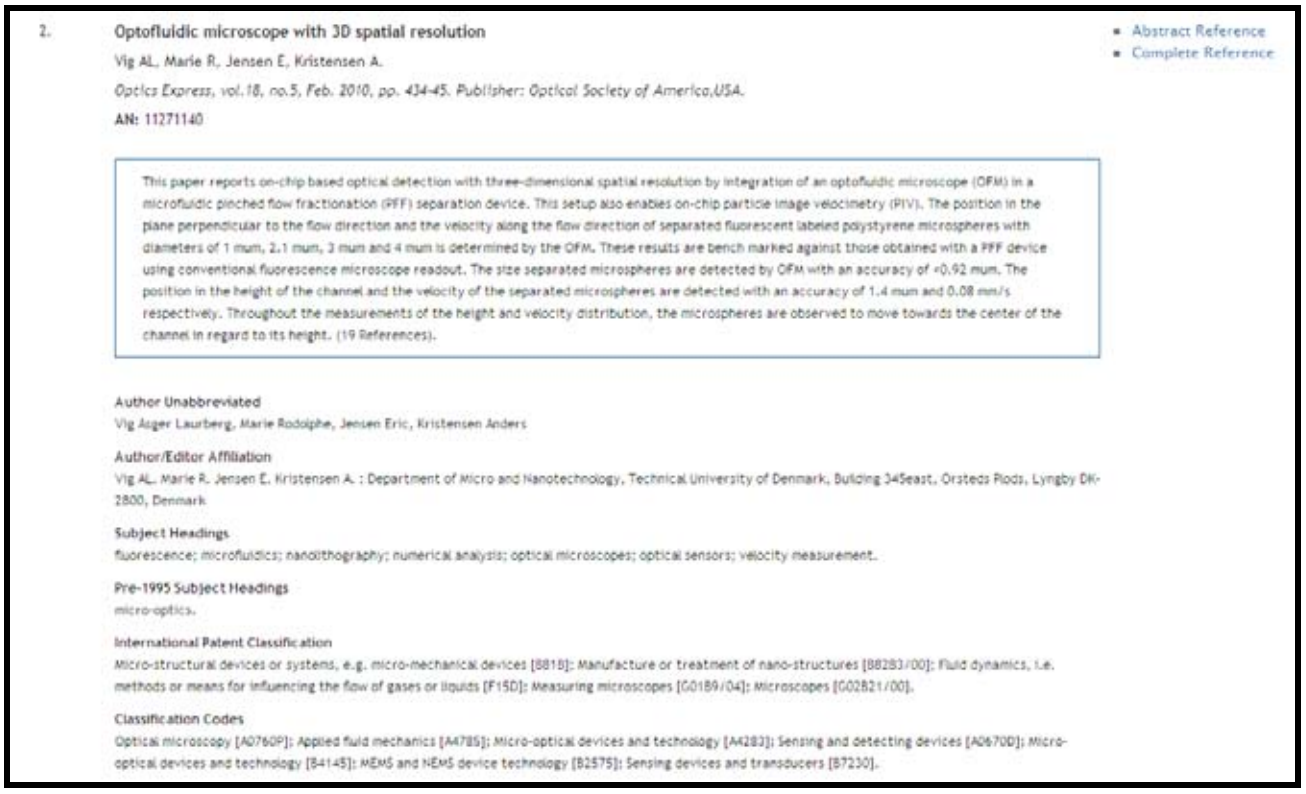
Shipilin AM. : M.V. Lomonosov Moscow State University, Moscow, Russia

Conference Information

International Conference on Micro- and Nano-Electronics 2009. Zvenigorod, Russia. 5-9 Oct. 2009.

- Abstract Reference
- Complete Reference

Citation + Abstract



2. **Optofluidic microscope with 3D spatial resolution**

• Abstract Reference
• Complete Reference

Vig AL, Marie R, Jensen E, Kristensen A.

Optics Express, vol.18, no.5, Feb. 2010, pp. 434-45. Publisher: Optical Society of America,USA.

AN: 11271140

This paper reports on-chip based optical detection with three-dimensional spatial resolution by integration of an optofluidic microscope (OFM) in a microfluidic pinched flow fractionation (PFF) separation device. This setup also enables on-chip particle image velocimetry (PIV). The position in the plane perpendicular to the flow direction and the velocity along the flow direction of separated fluorescent labeled polystyrene microspheres with diameters of 1 mum, 2.1 mum, 3 mum and 4 mum is determined by the OFM. These results are bench marked against those obtained with a PFF device using conventional fluorescence microscope readout. The size separated microspheres are detected by OFM with an accuracy of <0.92 mum. The position in the height of the channel and the velocity of the separated microspheres are detected with an accuracy of 1.4 mum and 0.08 mm/s respectively. Throughout the measurements of the height and velocity distribution, the microspheres are observed to move towards the center of the channel in regard to its height. (19 References).

Author Unabbreviated
Vig Asger Laurberg, Marie Rodolphe, Jensen Eric, Kristensen Anders

Author/Editor Affiliation
Vig AL, Marie R, Jensen E, Kristensen A. : Department of Micro and Nanotechnology, Technical University of Denmark, Building 345east, Orsteds Plods, Lyngby DK-2800, Denmark

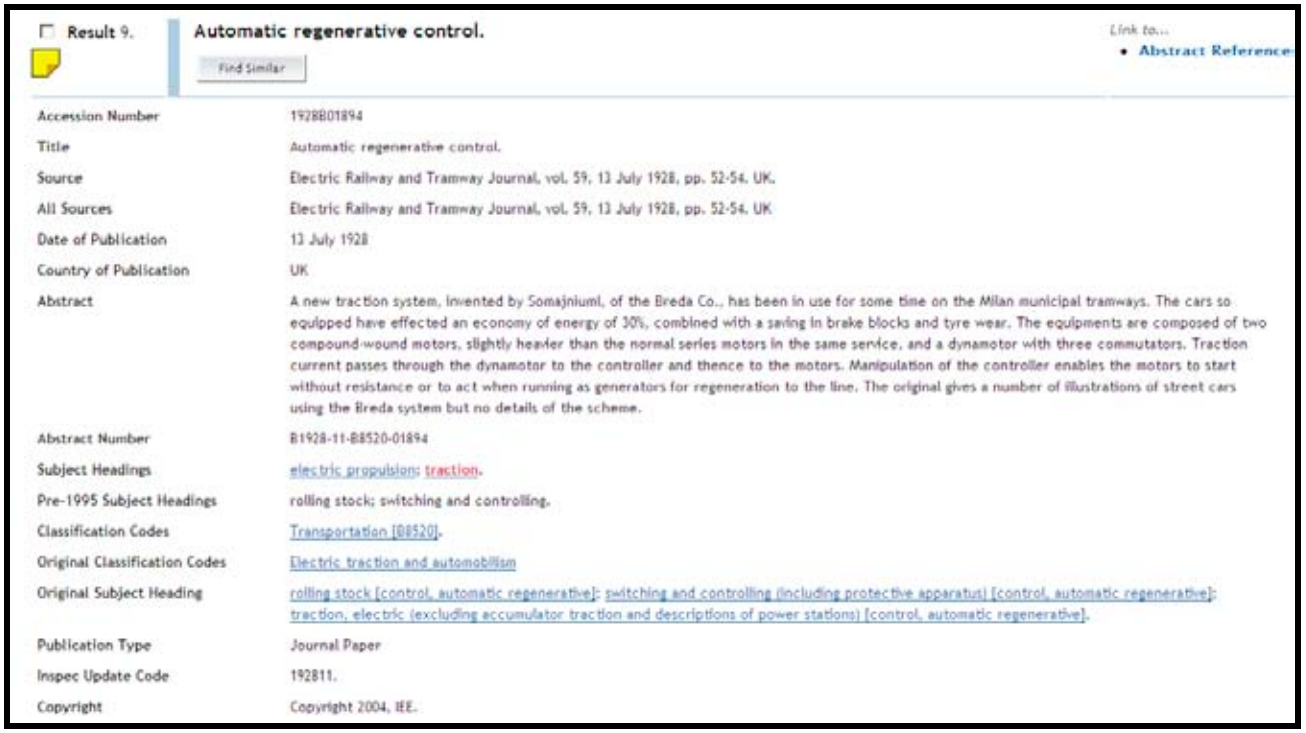
Subject Headings
fluorescence; microfluidics; nanolithography; numerical analysis; optical microscopes; optical sensors; velocity measurement.

Pre-1995 Subject Headings
micro-optics.

International Patent Classification
Micro-structural devices or systems, e.g. micro-mechanical devices [B81B]; Manufacture or treatment of nano-structures [B82B3/00]; Fluid dynamics, i.e. methods or means for influencing the flow of gases or liquids [F15D]; Measuring microscopes [G01B9/04]; Microscopes [G02B21/00].

Classification Codes
Optical microscopy [A0760P]; Applied fluid mechanics [A4785]; Micro-optical devices and technology [A4283]; Sensing and detecting devices [A0670D]; Micro-optical devices and technology [B4145]; MEMS and NEMS device technology [B2575]; Sensing devices and transducers [B7230].

Citation + Abstract + Subject Headings



Result 9. **Automatic regenerative control.**

Find Similar

Link to...
• Abstract Reference

Accession Number	1928801894
Title	Automatic regenerative control.
Source	Electric Railway and Tramway Journal, vol. 59, 13 July 1928, pp. 52-54. UK.
All Sources	Electric Railway and Tramway Journal, vol. 59, 13 July 1928, pp. 52-54. UK
Date of Publication	13 July 1928
Country of Publication	UK
Abstract	A new traction system, invented by Somajniuml, of the Breda Co., has been in use for some time on the Milan municipal tramways. The cars so equipped have effected an economy of energy of 30%, combined with a saving in brake blocks and tyre wear. The equipments are composed of two compound-wound motors, slightly heavier than the normal series motors in the same service, and a dynamotor with three commutators. Traction current passes through the dynamotor to the controller and thence to the motors. Manipulation of the controller enables the motors to start without resistance or to act when running as generators for regeneration to the line. The original gives a number of illustrations of street cars using the Breda system but no details of the scheme.
Abstract Number	B1928-11-8520-01894
Subject Headings	electric propulsion; traction.
Pre-1995 Subject Headings	rolling stock; switching and controlling.
Classification Codes	Transportation [8520].
Original Classification Codes	Electric traction and automobilism
Original Subject Heading	rolling stock [control, automatic regenerative]; switching and controlling (including protective apparatus) [control, automatic regenerative]; traction, electric (excluding accumulator traction and descriptions of power stations) [control, automatic regenerative].
Publication Type	Journal Paper
Inspec Update Code	192811.
Copyright	Copyright 2004, IEE.

Inspec Archive Sample record

In addition it is possible to produce a tailor made record by selecting desired fields to be displayed in the Results Manager.

Command Line Syntax

Many Ovid commands may be entered directly into the Search box (Command line) instead of using the button bar and selecting search terms via Search Fields or other search tools. For example, you can specify which field you wish to search as follows:

aircraft.sh.

searches for aircraft as a Subject Heading (Thesaurus Term)

conference paper.pt.

searches for conference papers in the Publication Types field
economic.tr.

searches for papers which were assigned the Treatment Code "economic".

Other commands that are available include the following:

..e x	Executes temporary or permanent search strategy
..L/n yr=x	Limits set n to publication year(s) x (e.g. 98, 98-99)
..pg x	Purges specific search sets (x=1, 2,… or all)
..ps	Displays complete current search strategy
..root x.yy.	Displays alphabetic position x in index for field yy
..sv x	Saves search strategy temporarily (24 hours) – name x
..sv ps(x)	Saves search strategy permanently under name x

Post-qualification of Sets

Each search that has been executed is assigned a set number. To modify one of these searches, rather than type out the whole query again, the set number can be used.

You can specify adjacency in post-qualification statements, e.g.

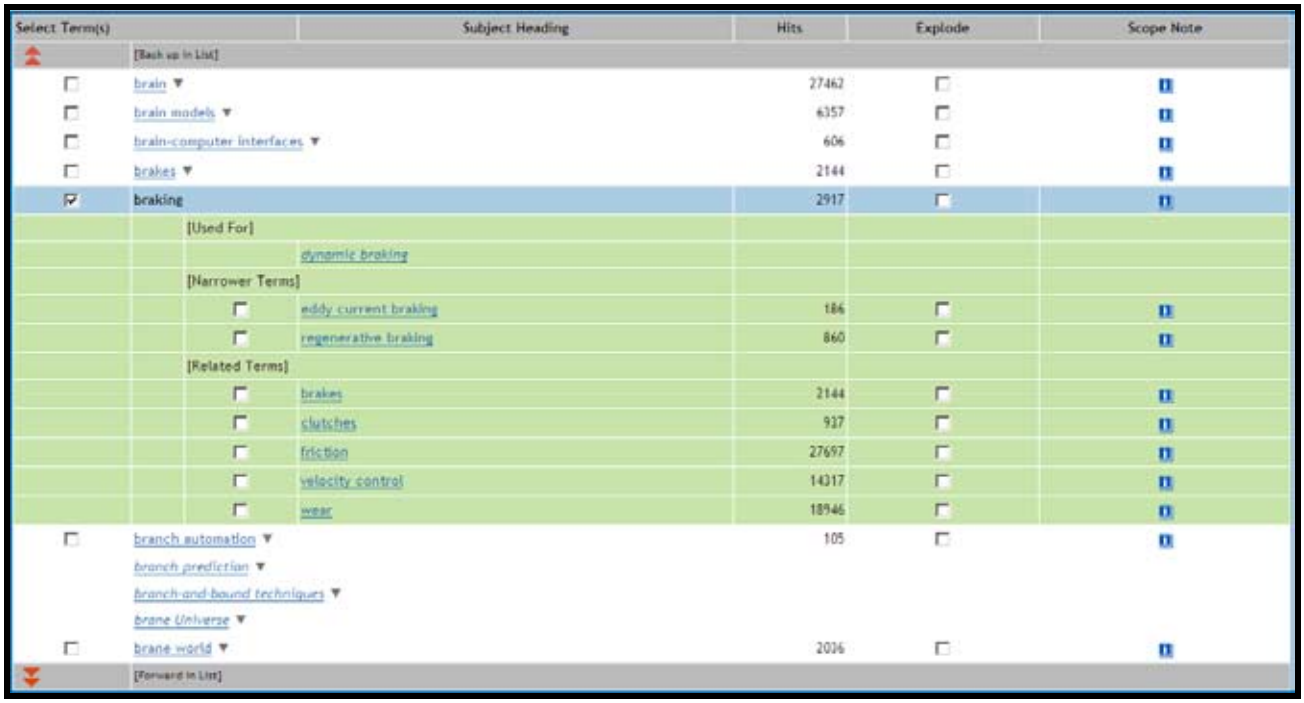
Search Topic	#	Search results (April 2010)
aircraft$.hw.	1	33573
display$.hw.	2	45380
1 adj 2	3	1284
3.ti.	4	225

.

Inspec Thesaurus

The Inspec Thesaurus is a subject key to the Inspec Database which provides a powerful search aid. The 2010 edition contains approximately 18,300 terms of which some 9,500 terms are preferred terms (Subject Headings). Each Inspec record is typically assigned 5-6 Subject Headings from the Inspec Thesaurus. Subject Headings are always assigned at the most specific level. In the example below you can see Subject Headings as they appear in a typical Inspec record. For comparison the display of Key Phrase Headings are also shown..

Each Subject Heading has a number of terms associated with it. Dome of these are in a direct relationship with the Subject Heading. (i.e. broader or Narrower Terms) whilst others terms deal with related topics (i.e. Related terms). A Typical example of a Subject Heading entry in the Thesaurus is shown below.



Select Term(s)	Subject Heading	Hits	Explode	Scope Note
	[Back up in List]			
☐	brain ▼	27462	☐	
☐	brain models ▼	6357	☐	
☐	brain-computer interfaces ▼	606	☐	
☐	brakes ▼	2144	☐	
☑	braking	2917	☐	
	[Used For]			
	dynamic braking			
	[Narrower Terms]			
☐	eddy current braking	186	☐	
☐	regenerative braking	860	☐	
	[Related Terms]			
☐	brakes	2144	☐	
☐	clutches	937	☐	
☐	friction	27697	☐	
☐	velocity control	14317	☐	
☐	wear	18946	☐	
☐	branch automation ▼	105	☐	
	branch prediction ▼			
	branch-and-bound techniques ▼			
	brane Universe ▼			
☐	brane world ▼	2036	☐	
	[Forward in List]			

Terms that are displayed at the end of the hierarchy (i.e. Used For terms) are called Lead-ins. These are a part of the thesaurus but are not actual searchable terms, instead they direct the user to the Preferred Term (i.e. Subject Heading). In this case braking.

Finding Thesaurus Terms

Finding appropriate Thesaurus Terms for a search requires the adoption of one of several methods:

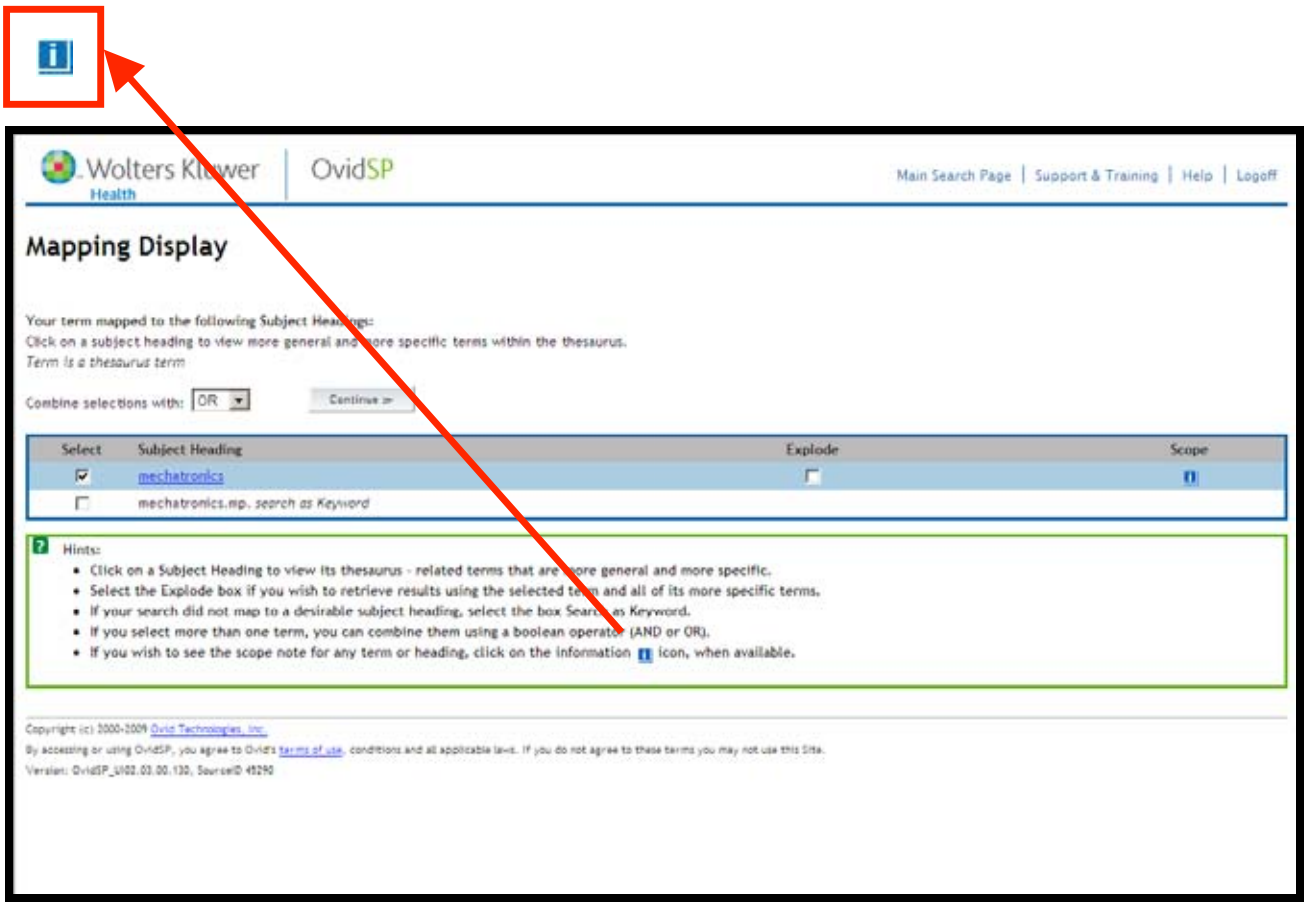
- browse through the Thesaurus, either using Search tools or the Permuted Index (see pg.26)
- use the Mapping tool.
- browse through the Subject Headings Index Display obtained via the “Search Fields” button.
- use search results from a trial search – display records either in ‘Complete Reference’ format or a format which includes the ‘Subject Headings’ field use the Results Manager to select the required format.
- Initiate a new search by clicking on any of the ‘Subject Headings’ displayed in the records retrieved by the original search.

Permuted Index

An alternative way to access the Thesaurus is via the alphabetically arranged Permuted Index. You can choose to search from this screen or to select any of the Thesaurus Terms and browse through their hierarchy in the Thesaurus.

Select Term(s)	Subject Heading	Hits	Explode	Scope Note
braking		2917		
	see related brakes	2144		
	see related clutches	937		
	see related friction	27697		
	see related velocity control	14317		
	see related wear	18946		
braking		2917		
dynamic braking				
	see braking	2917		
eddy current braking		186		
	see related eddy currents	6450		
eddy current braking		186		
regenerative braking		860		
	see related electric motors	8187		

In the Main Search Tools Screen, type a keyword or phrase into the Search box, mark the check box for “Map Term”. The Mapping Display screen will be displayed with a list of Subject Headings from which you will be able to select relevant terms.



Click on a Subject Heading to view its thesaurus hierarchy – showing more general, more specific and related terms.

Select, in a single step, all more specific terms for a Subject Heading by marking the Explode check box.

Click the icon to view Scope Notes which contain additional information about the Subject Heading including Date of Entry of the term, Prior Term and Related Classification Codes.

If more than one Subject Heading is selected, search them using AND or OR Boolean operators. Select the appropriate terms using the drop down menu above the Subject Heading list.

If none of the mapped headings are suitable, search the original keyword by marking the check box to the left of the keyword (indicated Search as Keyword) To search, click on Continue.

just mark the check box alongside the term you want to 'explode'. For example, by 'exploding' the Thesaurus term 'steel', you will additionally retrieve in the same search the narrower terms:

alloy steel	austenitic steel	carbon steel
tool steel	martenitic steel	stainless steel.

Using Explode is very useful method of broadening your original search.

Enter one or more search terms into the search box at the top of the screen and click on the Search button to run the search or the Display Indexes button to browse the appropriate index(es).

N.B. When searching from phrase indexes such as Author, Journal Name or Subject Headings, it is advisable to display the searched term first and then select and search it. This is because the precise phrase must be selected. Click the check-box on the left of a term to select it.

Supplementary Headings

Supplementary Headings are words or phrases which express all the significant concepts described in a document (both implicit and explicit). They may contain additional significant concepts that are not contained in the Author Title or Abstract but are found in the full text document. Supplementary Terms are not standardised like subject Headings. A typical display of a Supplementary Terms Field in a record is shown below.

- Supplementary terms are particularly useful for the searching of:
- Subjects that are new and for which no appropriate Subject Heading is available.
- Organic chemical substances (this type of substance are not covered by Chemical Indexing).
- Inorganic substances in records added to the database prior to 1987, which is the introduction date for Chemical Indexing.
- Words that have both common and technical meaning (e.g. terminal)
- Acronyms and manufacturers brand names.

Inspec Classification

The Inspec Classification is a powerful tool that enables a search to be limited to predetermined sections of the Inspec Database.

The Inspec Classification is divided into four sections. Codes begin with

A, B, C or D, where:

A = Physics

B = Electrical Engineering and Electronics

C = Computers and Control Engineering

D = Information Technology

E Manufacturing and Production Engineering

A typical section from the Inspec Classification is as follows:

b5210	**Electromagnetic wave propagation**
	(inc. diffraction, scattering and reflection)
b5210C	Radiowave propagation
b5210E	Light propagation
b5210H	Electromagnetic wave propagation in plasma

All codes starting with b52... are also indexed as b52. As a result, it is not necessary to use truncation to retrieve a group of codes starting with b52. If the required code is longer than three characters, truncation needs to be used.

Eg.

'b5210.cc.' will retrieve only records which deal with electromagnetic wave propagation in general, whereas 'b5210#.cc.' will also retrieve all records which deal with radiowave propagation, light propagation and electromagnetic wave propagation in plasma.

At least one classification code is assigned for the main subject matter of each record, and additional codes may be assigned for subsidiary subjects. Codes are always assigned to the most specific level possible and can be assigned from one or more of the four sections of the Database depending upon the subject matter. This cross-classification is common between the A, B and C sections of the database. However, there are very few records cross-classified from the B or C sections of the database to the D section and vice versa, and hardly any between A and D. The reason for this is that the A, B and C sections are of a purely scientific and technical nature which are of interest to scientists and engineers whereas the D section covers more commercial and management aspects of applied technology.

Outline of the Inspec Classification

A - Physics

A0 General

A1 The physics of elementary particles and fields

A2 Nuclear physics

A3 Atomic and molecular physics

A4 Fundamental areas of phenomenology

A5 Fluids, plasmas and electric discharges

A6 Condensed matter: structure, thermal and mechanical properties

A7 Condensed matter: electronic structure, electrical, magnetic, optical props.

A8 Cross-disciplinary physics and related areas of science and technology

A9 Geophysics, astronomy and astrophysics

B - Electrical Engineering & Electronics

B0 General topics, engineering mathematics and materials science

B1 Circuit theory and circuits

B2 Components, electron devices and materials

B3 Magnetic and superconducting materials and devices

B4 Optical materials and applications, electro-optics and optoelectronics

B5 Electromagnetic fields

B6 Communications

B7 Instrumentation and special applications

B8 Power systems and applications

C - Computers and Control

C0 General and management topics

C1 Systems and control theory

C3 Control technology

C4 Numerical analysis and theoretical computer topics

C5 Computer hardware

C6 Computer software

C7 Computer applications

D - Information Technology for Business

D1 General and management aspects

D2 Applications

D3 General systems and equipment

D4 Office automation – communications

D5 Office automation – computing

E – Manufacturing and Production Engineering

E0 General topics in manufacturing and production engineering

E1 Manufacturing and production

E2 Engineering Mechanics

E3 Industrial sectors

Treatment Codes

The purpose of treatment codes is to indicate what type of approach the author(s) have adopted to the subject they are describing (e.g. theoretical, experimental, review etc.) There are nine Treatment Codes available and they can be used to limit search results to abstracts written in a particular style. For example if reviews of technology are being sought, carry out the subject search then limit the results using General or review Treatment Code.

Treatment Codes
application (a)
bibliography (b)
economic (e)
general or review (g)
new development (n)
practical (p)
product review (r)
theoretical or mathematical (t)
experimental (x)

Chemical Indexing

Inspec 's Chemicals field (ch) is a controlled indexing system for inorganic substances and material systems. It is designed to overcome a number of problems which arise in searching for chemical substances in uncontrolled index terms. These include:

- Non-stoichiometric compounds or alloys which may be represented in several ways, e.g. GaAlAs or GaxAl1-xAs.
- Chemical formulae that have the same spellings as common English
- words, e.g., GaP (gap).
- Some chemicals have the same letters and are differentiated by the use of upper and lower case, e.g., Co (cobalt) or CO (carbon monoxide).

Role indicators – Each chemical substance which is significant for the record is assigned one of three basic role indicators:

role	Definition	examples
El	Element	Si; He; Fe
Bin	binary (two components)	GaAs; He-Ne laser; FeMn alloy
Ss	system (three or more components)	H_2SO_4; He-Ne-Ar laser; GaAlAs;

Some substances may be assigned one or more special roles which are of significance to solid-state physics. These are:

Int	Interface system
Sur	surface or substrate
Ads	Adsorbate
Dop	Dopant

The system automatically assigns the appropriate basic role and breaks the substances into their basic components.

Examples of Chemical Substance Indexing

H_2SO_4	H2SO4/ss SO4/ss H2/ss O4/ss H/ss S/ss O/ss
P doped Si	Si:P/bin Si/bin P/bin Si/el P/el P/dop
Cu-Al alloy	CuAl/bin Cu/bin Al/bin
Si-Au interface	Si-Au/int Si/int Au/int Si/el Au/el
GaAlAs	GaAlAs/ss Ga/ss Al/ss As/ss
$Ga_xAl_{1-x}As$	GaAlAs/ss Ga/ss Al/ss As/ss
Al0.75/ss	$Ga_{.25}Al_{0.75}As$ Ga0.25Al0.75As/ss Ga0.25/ss Ga/ss Al/ssAs/ss

The user has a choice to search by combining the components together using the adj operator or, where a precise formula is known, by searching for the complete substance. For search examples see pg. 40.

It is also possible to search directly for the following groups:

Al2O3	BrO3	Fe2O4	MoO4	P2O7	TaO3
Al5O12	ClO3	Fe3O4	NbO3	P4O12	TiO3
AsO4	CO3	Fe5O12	Nb2O5	SeO3	VO3
As2O3	CrO3	Ga5O12	Nb2O7	SeO4	VO4
Bi2O3	CrO4	GeO2	NO2	SiO2	V2O5
BO3	Cr2O3	GeO3	NO3	SiO4	WO3
BO4	Cr2O7	IO3	PO3	SO3	WO4
B2O3	FeO3	MgO3	PO4	SO4	ZrO3
B3O6	Fe2O3	MnO4	P2O5	S2O3	

Numeric Data Indexing

Numeric data indexing (nd) overcomes problems due to the variety of ways in which authors may express a particular value. For example, to find all the references to power stations generating between 20 and 30 MW, values in this range may be expressed as 29.2 MW, 27500 kW, 25 megawatts, 29 MWatt, etc., making it impossible to achieve comprehensive retrieval.

Inspec's numeric data indexing standardises the format:

power of 25 megawatts:	power 2.5E+07 W
range of 30 Hz to 18 kHz:	frequency 3.0E+01 to 1.8+04 Hz

Values are expressed in floating point format, e.g., 1.8E+04 for 18,000 and 9.5E-01 for 0.95. Each numerical index term has the following format:

Quantity Value (to Value) Unit

where:

- **quantity** = the physical quantity, e.g., temperature, wavelength;
- **unit** = the SI type, e.g. metre (M), hertz (Hz), kelvin (K).
- **value** = the actual value or range expressed in floating point format

A quick guide to numerical quantities and units is presented on pg.45, while search examples are shown on pg. 40.

Astronomical Object Indexing

Astronomical Object designations (ao) have been indexed in a separate field since 1995. This allows named or numbered objects to be retrieved more efficiently. The designations are of the following types:

- **Name-based acronyms**. For example, LMC is an acronym for the Large Magellanic Cloud. Objects in constellations, such as R Sct, appear with the IAU-approved three-letter abbreviation for the constellation.

- **Catalogue-based acronyms**. A designation containing an acronym for the catalogue followed by the catalogue entry number. This number may be sequential, such as NGC 204, or it may represent an approximate location in the sky, usually in terms of right ascension and declination (such as PSR 1913+16) or Galactic coordinates (such as G 345.01+1.79).
- **Positional information only**. For example, 013022+30233.

Notes:

- Inspec follows the guidelines produced by the International Astronomical Union. A thesaurus-type document entitled "Nomenclature of Astronomical Catalogue Designations" is available upon request from Inspec.

- For search examples using Astronomical Object Indexing, see p. 25.

Subject Search Examples

Eg. 1 Cockpit displays

This example illustrates the use of Thesaurus Terms (Subject Headings)

Concept	Search Hints:	#	Search statement	Results April 2010
Cockpit displays	type the phrase 'cockpit display?' into the search box in Advanced search (OvidSP searches default search fields - Ti, Ab, Key Phrase Identifiers and Subject Heading Words)	1	cockpit display?	457
	identify appropriate Thesaurus Term (examine Subject Headings in the Search Results, use the Mapping facility or browse through the Subject Headings Display Index)	2	aircraft displays.sh.	1284
head-up displays	associated term (found via Thesaurus)	3	head-up displays.sh.	337
Helmet-mounted displays	associated term (found via Thesaurus)	4	helmet mounted displays.sh.	1067
aircraft or head-up or helmet mounted displays	Include sets #3 and #4 if they are relevant to your search.	5	2 or 3 or 4	2372

Eg. 2 Data analysis in biomedical environment & power industry

This example illustrates the use of INSPEC Classification Codes in navigating a search for a general topic such as data analysis to very different subject fields
.

Concept	Search Hints	#	Search Statement	Hits April 2010
data analysis	In Advanced Search search for "data analysis" in the default fields – Ti, Ab, Key Phrase Identifiers and Subject Headings	1	data analysis	41334
	repeat the search after identification of Subject Heading	2	data analysis.sh.	17658
Biomedical environment	search for the term biomedic$ in the default fields; examine classification codes assigned to the retrieved records	3	biomedic$	167500
	a87, b75 and c7330 are identified as relevant classification codes (use cc field when searching 'cascaded' codes	4	(a87 or b75 or c7330).cc.	152964
data analysis in biomedical environment	Combine relevant sets	**5**	2 and 4	2175
power industry	identify relevant classification codes (search in default fields for advanced search and examine search results **or** browse through classification on p. 17)	6	power	1074659
	B8 and c7410b codes	7	b8.cc or c7410b.cc.	72460
data analysis in power industry	combine relevant sets	8	2 and 7	146

Eg. 3 Relative economics of coal-fired & nuclear power stations

This e.g. illustrates the use of the Subject Heading Words and Treatment Codes

Concept	Search Hints	#	Search Statement	Results April 2010
Power stations	start in default subject fields	1	power station?	72747
coal-fired power stations	limit 1 to records with 'coal' appearing in hw or id fields	2	1 and (coal.hw. or coal.id.)	5510
nuclear power stations	limit 1 to records with nuclear appearing in hw or id fields	3	1 and (nuclear.hw. or nuclear.id.)	27918
coal-fired and nuclear power stations	combine the two above sets	4	2 and 3	394
economics related papers	use Treatment Index Display to identify records indexed 'economic'	5	economic.tr.	64191
	alternatively, search for 'economic?' in hw field	6	economic?.hw.	77894
economics of coal & nuclear power stations	combine relevant sets using Treatment Codes	7	4 and 5	83
	combine sets using economic? as a Subject Heading Word	8	4 and 6	104

Chemical Search Examples

Search topic	Search statement
Element in any role	si**.ch**.
Element with special role (e.g. dopant)	si-dop**.ch.**
Specific compound, alloy or mixture: HgCdTe $In_{0.36}Ga_{0.64}$ FeMn alloy He-Ne laser	hg-ss **adj10** cd-ss **adj10** te-ss **.ch.** “in0.36-int” **adj10** “ga0.64-int”**.ch.** fe-bin **adj10** mn-bin**.ch.** he-bin **adj10** ne-bin**.ch.**
Compound with precise formula	h2so4-ss**.ch.**
Groups of compounds (e.g. niobates)	nbo3-ss.**ch.**

Numerical Search Examples

Quantity	search type	numerical value	search statement
Temperature	point value	4K	“temperature 4.0e+00”.nd.
Size	point value	60mm	“size 6.0E-02 m”.nd.
Pressure	Range	10 to 40 GPa	“pressure 1.0e+10 to 4.0E+10”.nd.
Frequency	Range	10 kHz to 10 MHz	“frequency 1.0e+04 to 1.0e+07”.nd.

Notes:

- Numerical data must be enclosed in double quotes
- Positive and negative values within the exponential number are not distinguished. For example, both 60 mm (6.0E-02m) and 600m (6.0E+02m) will be retrieved in the above example – use identifier to verify the required set (i.e. search additionally for “60 mm”.id. or “60mm”.id. if you are searching for the value of 60 mm or alternatively search for “600 m”.id. or “600m”.id. if this is appropriate for you search.)

Astronomical Search Examples

Search Examples	Search Statement	Search Hints
Markarian galaxies	mrk**$.ao.**	before 1995: (mrk or mkn)**.id.** or (markarian or markaryan)**.id.**
X-ray source which starts '3A 0322'	3a 0322$**.ao.**	search for the string as indicated
Objects with positional designations	1608$**.ao.**	retrieves objects in both hemispheres
	1608-52$**.ao.**	retrieves objects in a small patch of the sky (southern hemisphere)

Treatment Codes/Record Types (search examples and types)

Treatment - tr	Publication Type - pt
practical**.tr.** or p**.tr.**	report**.rt**.
application (a)	Book
bibliography (b)	book chapter
economic (e)	conference paper
general or review (g)	conference proceedings
new development (n)	Dissertation
practical (p)	journal paper
product review (r)	Patent
theoretical or mathematical (t)	Report
experimental (x)	report section
Note: one record may have two or more codes assigned (or none)	Note: patents were discontinued in 1976

Bibliographic Searching

Field	label	Search Hints/ Notes	Examples	Search statement
Author	au	browse through the Author Index Display (via Tools or Search Fields), then select & search (preferred to searching directly)	M Zahn	**zahn m.au.**
Author Affiliation	in	search for the name of the organisation or town (via Search Fields **or** directly in command line)	Aston University AT&T	aston.in. at t.in.
	ca	use for searching reports	IEEE reports	ieee or (electr$ adj1 electr$).ca.
Country of Publication	cp	browse through the CP Index Displays field via Search Fields or search directly in the command line	France	France.cp.
Language	lg	browse through the Language Index Display via Search Fields **or** search directly in the command line **or** use limit facilities (p. 8)	French	French in la or la=french
Year	yr	browse through the Year Index Display via Search Fields **or** search directly in the command line **or** use	1998-1999	(“1998” or “1999”).yr. ..l/n yr=98-99
		limit facilities (p. 8)		

Field	label	Search Hints/ Notes	Examples	Search statement
publication type	pt	browse through the Publication Type Index Display via Search Fields **or** search directly in the command line **or** use limit facilities (for list of publication types see p. 25)	journal article	journal paper.pt.
journal name	jn	browse through the Journal Name Index Display Search Fields , then select and search (preferred to searching directly)	IEEE Spectrum (journal)	Ieee spectrum.jn.
journal word	jw	search in command line using adjacency operators	Journal of molecular spectroscopy	molecular spectroscopy.jw.
conference information	cf	conference title	IBC Conference	Ibc.cf.
		conference location	Amsterdam	Amsterdam.cf
		conference year	1996	1996.cf.
accession number	an	unique number is assigned to each record entering the INSPEC Database	six millionth record on the database	6000000.an.
abstract number	ax	INSPEC numbers assigned to documents within the four main sections of the database (middle part of the number matches classification code)	A9707-4350-008 C9707-3395-001 (both assigned to one record)	A9707-4350-008.ax. or C9704-3395-001.ax.

Quick Guide to Numerical Quantities and Their Units

Quantity	Unit	Quantity	Unit
age	Yr	loss	dB
altitude	M	magnetic flux density	T
apparent power	VA	mass	Kg
bandwidth	Hz	memory size	Byte
bit rate	bit/s	noise figure	dB
byte rate	Byte/s	picture size	Pixel
capacitance	F	power	W
computer execution rate	IPS	pressure	Pa
computer speed	FLOPS	printer speed	Cps
conductance	S	radiation absorbed dose	Gy
current	A	radiation dose equivalent	Sv
depth	M	radiation exposure	C/kg
distance	M	radioactivity	Bq
efficiency	percent	reactive power	VAr
electrical conductivity	S/m	resistance	Ohm
electrical resistivity	Ohm	size	M
electron volt energy	eV	stellar mass	Msol
energy	J	storage capacity	Bit
frequency	Hz	temperature	K
gain	dB	time	S
galactic distance	Pc	velocity	m/s
geocentric distance	M	voltage	V
heliocentric distance	AU	wavelength	M
		word length	Bit