

Several major chemical literature information resources and their retrieval methods

Xin-Ya Mei

The literature information resources of chemistry are rich. Combined with the needs of readers, several main chemical literature information resources and their retrieval methods are introduced here.

The rapid development of modern network information technology has hitherto brought unknown opportunities for global information exchange and cooperation, and resource sharing. There are several major chemical literature information resources available on the internet. Many readers, especially scientific researchers are able to make full use of a variety of academic, educational and research resources at home and abroad through data query and information retrieval via the internet using remote login and file transfer facilities. In this commentary, I provide guidance and reference for readers to search and retrieve information from complex document resources available from the main chemical literature information resources on the World Wide Web.

Major chemical literature information resources

*American Chemical Society*¹

American Chemical Society (ACS), founded in 1876, is the world's largest science and technology (S&T) association. Over the years, it has been committed to the global chemical research institutes, universities, enterprises and individuals to provide literature, information and service with high quality. ACS has become a world-renowned S&T publishing institution. It publishes about 35 journals, covering 24 major fields of chemical research. These are the 'most cited journals in the field of chemistry' according to *Journal Citation Report (JCR)* of ISI database. In addition to the traditional print journals, ACS also provides full-text electronic journals on the web. The contents of publishing from the publisher are comprehensive. It includes all text contents from publication number to the latest for each periodical, including up to 11,000 issues, 500,000 articles and 25,000,000 pages for chemical

information. Resources go back to 1879. Second, some contents can be accessed in advance. The reader can see the latest article before it appears in print in paginated form. Third, it provides free services. For example, it provides free abstracts for readers. Fourth, it comes with strong graphic functions. It provides many vivid animations, three-dimensional colour molecular models and controllable chemical structures. Fifth, it has strong reference link service. The related abstract and bibliographic information can be obtained through the Chemportsm reference link, which is convenient. It can also be linked to other accepted databases, such as PubMed.

*The Royal Society of Chemistry*²

The Royal Society of Chemistry (RSC) is an international authoritative academic institution. It is also one of main transmission institutions and publishers of chemical information. RSC was founded in 1841, and is a professional academic group composed of about 45,000 chemical researchers, teachers and chemical experts. The published journals and established databases from RSC are always the core journals and authoritative databases in chemistry. The published journals from RSC are mostly included in *SCI*, and are cited many times among the chemical journals.

All electronic publications of RSC are updated weekly, and appear on-line often weeks or months ahead of the printed versions. The information resource site only provides service for the universities and research institutions that have purchased the right of use. It can retrieve all contents of about 23 electronic journals, and the searching range in most publications is from 1997 to the present. For publications before 1977, one can use a search engine to access the website of RSC electronic journals. It is also a good chemical information resource.

*Wiley InterScience*³

John Wiley & Sons Inc, founded in 1807, is one of the oldest and most famous academic publishers. It enjoys the reputation of being the largest and independent academic book publishers and the third largest academic journal publisher in the world. The quality of academic journals from publisher is high, especially chemistry and chemical engineering, life sciences, polymer and materials science, engineering, medicine, etc. Currently of about 500 published journals, more than half was included in *SCI*, *SSCI* and *EI* in 2005.

Wiley InterScience website is the online network platform of academic publications. Readers can access 14 subject areas of various electronic journals since 1997, including chemistry and chemical engineering, life sciences, medicine, polymer and materials science, etc. The content is extensive, and the reader can also search literature information on chemical aspects from this website.

*Elsevier Science*⁴

Elsevier Science is a company that publishes high-quality academic journals. It is also the world's largest academic journal publisher. Elsevier Science has about 100 years of history. The journal contents are similar to Wiley InterScience. They also involve chemistry, life sciences, medicine, etc. The contents are rich, and many are core journals. Now, Elsevier Science uses SDOL (foreign mirror) website for as many as 1500 electronic journals to provide on-line search service. Readers can search, browse, download and print the required papers on the internet. The site also provides literature information on chemical aspects.

*NCBI PubMed*⁵

NCBI (National Center for Biotechnology Information of USA), established in

1988, is a website for biological and chemical information. PubMed is a retrieval system for biology and chemistry, including abstract and name of the journal. It also includes the related information directly supplied by the publisher to NCBI, and the website is linked to full text. PubMed is a database holding a large amount of information. It is also one of the main chemical information resources.

*CNKI Chinese academic journals*⁶

Chinese academic journals contain several databases, for example, full-text database, journal bibliographic database, Chinese master–doctor dissertation database, and China patent bibliographic database.

The full-text database of CNKI Chinese academic journals contains the full texts of 5700 academic core and specialty journals since 1979. Readers can see the full text by the subject, title, keywords, author, institution, name of journal, classification, and so on. The related literature can be obtained by two searches and an advanced search. The journal bibliographic database from the website is available for free. At present, many universities and professional research institutions have CNKI discs, and retrieval platform of image journal full-text database.

*China patent network*⁷

Chinese patent network is a website of open access established by the State Intellectual Property Office. It includes all patents applied in the China patent office since 1985, and readers also can inquire laws and regulations, patent management, patent application, patent examination, etc. It can also link to the foreign patent websites. The readers can search patent literature through the Chinese

patent network. It also contains the patent literature of chemical aspects. Patent literature is the general term of official documents and publications in the approval process by the states and international patent organizations implementing the patent system. The patent literature is divided into three categories according to the different functions, namely the first patent literature, the second patent literature and patent classification data. The first patent literature contains detailed description of concrete content of invention creation and specification of patent protection scope of various types. The second patent document contains various official publications for published digest, or the patent title and index. The patent classification data are tool books that manage and retrieve the patent specification according to the technical subject classification of invention, including patent classification list and classification index. If you need to query the synthesis, preparation, analysis and detection technology of chemical problems, you can use the website.

The first five kinds of chemical information resources introduced above are foreign literature, and they are suitable for the chemical workers with higher culture, including teachers/researchers and graduate students at universities/research institutions. The last two are Chinese literature, and are suitable for all teachers and college students.

Retrieval methods

As the search engine coverage of literature information resources becomes bigger, the search engine now generally provides simple search and advanced search, the two query methods in order to get more accurate search results. You can check the full text from the subject, title, keywords, author, institution, name of journal, and so on. The readers can select query mode and query path to find

documents according to the needs. The simple query is to input keywords or phrases in unrestricted and extensive search. The results are a great many, but are not accurate. Advanced search is based on two or more restrictive conditions given at the same time, and let the search engine find out information meeting all the conditions. The search results are generally accurate.

The search engines of the above-mentioned major chemical literature information resources are all equipped with advanced search functions. In the advanced search process, we also need to learn some grammar, and perform the necessary logical retrieval. The various search engines usually provide some control options and logical operators, which are used to define the query content. In advanced search, the multiple keywords are allowed to input, and the keywords are matched using logical operators ‘and’, ‘or’ and ‘not’. Logical operator ‘or’ is required to retrieve the literatures containing keywords A or B. Logical operator ‘and’ is required to retrieve the documents containing keywords A and B. Logical operator ‘not’ is to retrieve the contents containing keyword A, but not containing keyword B. Quotation mark “ ” is used to combine several keywords, and carry out advanced search in the database.

Thus, one can make good use of the major chemical literature information resources on the web by mastering search and retrieval methods.

1. <http://pubs.acs.org>
2. <http://www.rsc.org>
3. <http://www3.interscience.wiley.com>
4. <http://www.sciencedirect.com>
5. <http://www.ncbi.nlm.nih.gov>
6. <http://www.cnki.net>
7. <http://www.sipo.gov.cn>

Xin-Ya Mei is in the Library at Chongqing Normal University, Chongqing 401331, China. e-mail: clwcf@126.com