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Zentralblatt MATH Database

Composite Ranking: 4.5 stars out of 5
November 1999 (date reviewed)

1. Product title and URL: Zentralblatt MATH Database
http://www.emis.de/ZMATH
http://www.springer-ny.com/ZMATH/ (mirror site in New York, USA; one of 6 mirror sites)

2. Reviewed by: Kristine K. Fowler
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3. Pricing: The list price of the Zentralblatt MATH Database is $5,929 for the year 2000 (DM 9,790 advertised). For an institution already subscribing to the print or CD-ROM versions at this price, Internet access can be added for about $600 (DM 995 advertised). There is a 15% discount for members of societies in the European Mathematical Society. Also, at least in 1999, there is a 5% discount for early payment.

Consortial agreements are available by negotiation with the editor-in-chief.

4. Score: The maximum number of stars in each category is 5.
COMPOSITE RANKING: 4.5 STARS
* Content: 4 stars. Bibliographic information covers a much longer time period than many databases, but older abstracts are only included in limited form and new citations are slow to appear.
* Searchability: 5 stars. Solid functionality offered in novice and expert searching modes.
Pricing: 4 stars. The terms for multiple formats are fair, but US customers pay more than the exchange rate justifies on an already stiff list price.
* Contract Options: 5 stars. Limited access is universally free.

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6. Product Description: This webbed version of the Zentralblatt fur Mathematik provides comprehensive indexing of the mathematics literature from 1931, when the print version began, to the present. The Zentralblatt MATH

Database is published by Springer-Verlag in conjunction with various European agencies, including the Fachinformationzentrum Karlsruhe and the Heidelberger Akademie der Wissenschaften, their partners in production of the print and CD-ROM (sometimes called CompactMATH) versions. The MATH Database is also part of the developing EULER project, which aims to provide one-stop searching for all types of mathematics resources.

Current coverage includes 2000 journals and serials, books, conference proceedings, and "other research papers appearing in any language," with more than 50,000 items added annually. Bibliographic information is provided for all items; signed reviews from 1982 to the present are fully incorporated, with prior citations containing a reference to the corresponding printed review (also, links to the scanned page images are being added, starting 12/14/99). Reviews and title translations may occur in English, French, or German, with English predominating in recent years. A few items are linked to their full-text online locations.

7. Critical Evaluation: This extensive database has a flexible interface with effective search modes accommodating three levels of user need and expertise. The standard query form allows keyword or phrase searching in a variety of fields, with examples shown for author searches. The advanced search form has a similar design but enables more complicated combinations of fields. The free query form allows the expert user to structure searches using a command language compatible with STN online searching; this may offer some extra functionality but more users will

probably appreciate the consequent reduced use of the mouse. There are several ways to search using the Mathematics Subject Classification; that the basic index allows a keyword search of the text associated with the numeric codes is a useful shortcut. Precision author searching requires practice, since several search options automatically truncate names, sometimes to disadvantage; on the other hand, the automatic inclusion of variant transliterations of Cyrillic names is a plus. The Help text could be more thorough in describing the search functionality.

The default display shows brief citations in html format, with its limitations for displaying mathematical symbols. The complete record reveals not only the review, when available, but also well-designed icons linking to other standard record display formats and sometimes to the full-text online article or journal. (These links are relatively few and not necessarily reliable: all the links to Academic Press journal articles were outdated during testing, for example.) It is irritating not to be able to step through these complete records-one must return to the citation list prior to choosing another item-but the ability to mark a set for display as complete records in a chosen format is a workable alternative. References within a review to other database items are active links. Conversely, an item's complete record contains a link for items citing it, although unfortunately this option appears active even when there are no citing items.

The user can opt to access the search interface and help features in English, French, or German. (The translation is not always seamless: occasional non-idiomatic English, and "basic index" is used in the documentation when "global index" is the term used on the search forms.) Other features of particular value to the European user base include information on journal holdings in four Dutch, German and Italian library systems, and links to three German fee-based document delivery services.

Comparison of search results for identical searches in the Zentralblatt MATH Database and MathSciNet indicates that each has a good claim to comprehensiveness. The vast majority of items appear in both databases; most items unique to one database are exceptions: for example, a single article missing from a journal usually covered. MATH covers the translation literature more thoroughly, typically citing the appearances of an article in both Matematicheskii Zametki and Mathematical Notes, whereas MathSciNet (perhaps surprisingly) usually cites only the Russian original. The nine-year publication jump the Zentralblatt got over MR makes MATH an invaluable resource for searching older materials. It is a limitation, however, that only bibliographic information is searchable for items prior to 1982; the new initiative to make the text of those older reviews available online, while adding some convenience, provides only scanned page images linked to the relevant citations.

8. Contract Provisions: The liberal access policy enables non-subscribers to perform a search of the database, which

will display three of the retrieved hits. The online version has no explicit license agreement.

9. Authentication: Institutional subscribers are authenticated by IP filtering.

MathSciNet

Composite Ranking: 4.75 stars out of 5
November 1999 (date reviewed)

1. Product title and URL: MathSciNet
http://www.ams.org/mathscinet
http://ams.mathematik.uni-bielefeld.de/mathscinet/ (mirror site in Bielefeld, Germany; one of 5 mirror sites)

2. Reviewed by: Kristine K. Fowler
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3. Pricing: The pricing structure for the suite of formats of Mathematical Reviews (MR) begins with the Data Access Fee (DAF), the base subscription fee supporting creation and maintenance of the MR database. The list DAF for 2000 is $5,849; institutional members of the American Mathematical Society (AMS) pay 20% less ($4,679). On top of the DAF, institutions pay for the delivery methods they choose: print, CD-ROM, or Internet access; the standard

delivery fee for MathSciNet is $1775, which is discounted to $625 if the CD-ROM subscription is also held.

The AMS has recently begun offering consortial pricing, in order to assist smaller institutions that find the DAF prohibitive. They also sponsor a program to facilitate access to MathSciNet in developing countries.

4. Score: The maximum number of stars in each category is 5.

COMPOSITE RANKING: 4.75 STARS

* Content: 5 stars. Full text of abstracts back to 1940 is the most substantial of several recent content additions to an already good product.
* Searchability: 5 stars. Well-designed, with value-added features like name authority control.
* Pricing: 4.5 stars. Good value for money, but it remains to be seen if the new consortium program will enable smaller institutions to meet the price tag.
* Contract Options: 4.5 stars. Nothing special.

5. Contact Information: American Mathematical Society Customer Services
P.O. Box 6248
Providence, RI 02940-6248 USA.
Phone: 800-321-4267 or 401-455-4000 (worldwide)
Fax: 401-331-3842
E-mail: cust-serv@ams.org

6. Product Description: This is the web-accessible version of Mathematical Reviews, the comprehensive index to the mathematics literature published since 1940 by the

American Mathematical Society, which is also available in print format and on CD-ROM (MathSci Disc, from SilverPlatter). Since the recent completion of a retrospective project, MathSciNet includes the complete contents of Mathematical Reviews for the entire time period. The database also includes MR's current awareness counterpart, Current Mathematical Publications; it does not include the statistics literature coverage found on MathSci Disc. It is updated daily, with signed reviews being added to existing bibliographic citations as they are finished (in advance of print publication).

Coverage includes approximately 1600 current serials and journals, as well as conference proceedings and books of mathematics research. Items judged to be of particular importance are highlighted as Featured Reviews, which are fuller than usual and freely available. Direct links are provided to over 75,000 electronic articles and also to some journal home pages.

7. Critical Evaluation: MathSciNet offers excellent content with powerful search functionality. The new Basic Search option provides a single search field, with Author being the default value, reflecting the known usage pattern that the majority of searches in this database are for author. The Full Search form allows searching by any or all of the major fields. Boolean or nested Boolean searches are easy to construct, with adjacency being the default operator for multiple terms in a single field. Date limiting options include the unusual but useful distinction between date of publication and date of MR treatment, which enables online

browsing of the "current issue" of MR or CMP. The journals database not only allows searching by title abbreviation, but also tracks recent title changes and links to tables of contents and journal homepages. The author database is an extremely useful tool for identifying and concatenating different versions of an individual's name; the only downside is that this kind of author search can produce noise in the form of items about or dedicated to that individual. Searching for conference papers requires care, since some conference proceedings are treated like a single book, with the table of contents in the review field; thus the author or title of a conference paper must be searched in the Anywhere (i.e., keyword) field. Subject search options include searching by the Mathematics Subject Classification code; the user can link to an html version of the MSC that allows keyword searching to find the relevant code. The otherwise admirable search functionality does not allow manipulation of search sets or reviewing search history (although they have at least recently renamed the old "Review Search" button, which seemed to promise this: it has split into the two new buttons, "Full Search" and "Basic Search"). Also, some users may find the heavy dependence on mouse navigation inconvenient. The Help documentation provides clear guidance, and a targeted help message frequently accompanies the notice that a search has produced no hits. The novice user will also appreciate the extensive online demonstration.

The default display makes clear the mathematical inadequacy of html: non-ASCII characters appear as "raw" TeX mark-up, which is also the only way to search for them.

Search results can, as a second step, be displayed in a good variety of other standard formats, although the prominently featured pdf icon misleads some users into thinking it leads to the full text of an article. The icon that actually does lead to full text is clearly displayed when available; this facility is available for many more items than in the Zentralblatt MATH Database.

Comparison of search results for identical searches in MathSciNet and the Zentralblatt MATH Database indicates that each has a good claim to comprehensiveness. The vast majority of items appear in both databases; most items unique to one database are exceptions: for example, a single article missing from a journal usually covered. MathSciNet has the edge on timeliness, both for bibliographic citations and for full reviews. It is a major advantage that all reviews from the beginning of MR are included (now totaling nearly 1,400,000), although this does not mean every entry has one, since some citations appeared only in CMP and were not reviewed.

8. Contract Provisions: Institutional subscriptions include access for all authorized users, including on-site users allowed by the institution. Fair use is supported in that use is explicitly allowed "to the same extent as the printed version of the publication."

9. Authentication: Institutional access is authenticated by IP number for registered ranges, under the stated definitions of campus or site. For an individual subscriber, access is authenticated by username and password.