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Introduction to the database
zbMATH Open – Zentralblatt MATH

Table of contents

1. General

1.1. Content
zbMATH Open is the online version of the journal "Zentralblatt für Mathematik und ihre Grenzgebiete", which was founded in Germany in 1931 by Otto Neugebauer. This bibliographical database, which also contains reviews and abstracts, is now issued jointly by the European Mathematical Society, the Heidelberg Academy of Sciences, and the FIZ Karlsruhe. It covers all areas of pure and applied mathematics and the history of mathematics. Its entries date back to the 19th century. The "Jahrbuch über die Fortschritte der Mathematik" (1868–1942) was incorporated into the database in 2003 under the ERAM project and other resources are constantly being added as part of ongoing digitisation projects.

1.2. Database
The database contains more than 4.3 million bibliographical descriptions of articles from journals, book series, and conference proceedings, together with bibliographical descriptions of monographs. The documents are classified by content according to the Mathematics Subject Classification (MSC 2020). More than 120,000 new entries are added each year, edited by about 8,000 subject specialists from all over the world. More than half of the publications are reviewed, with the remainder only summarised. Reviews and abstracts are now written almost exclusively in English. There are links to the full text of more than 2.9 million entries.

1.3. Update
The bibliographical entries are updated daily. Reviews and abstracts are updated as soon as editing is complete.

1.4. Access
The database is freely accessible. Access to the full texts of the articles depends on licensing of the corresponding journals and is restricted to the network of ETH Zurich (domain ethz.ch). ETH Zurich members also have access off-campus by using proxy.ethz.ch or VPN.

1.5. Home page
The home page of the database is shown below:

Notes

- The database offers in different tabs a simple and a structured search for publications, authors, and serials and a simple search for codes of the MSC 2020 (see α).
- The database also offers a search for mathematical software and the corresponding references to software-relevant mathematical publications contained in the database as well as a search for formulae (see β).
- In each simple search you can either search in all fields or in specific fields. You can use the pull-down menu "Fields" to choose the fields you want to search in (see γ).
- In each search you can use Boolean operators. These can be chosen by using the pull-down menu "Operators" (see γ). Here you can also find the characters you have to use to right-truncate a word or to search for an exact phrase.
- The home page also contains useful information about the database (see δ). Additional information is often available from mouse-over functionalities or pull-down menus.
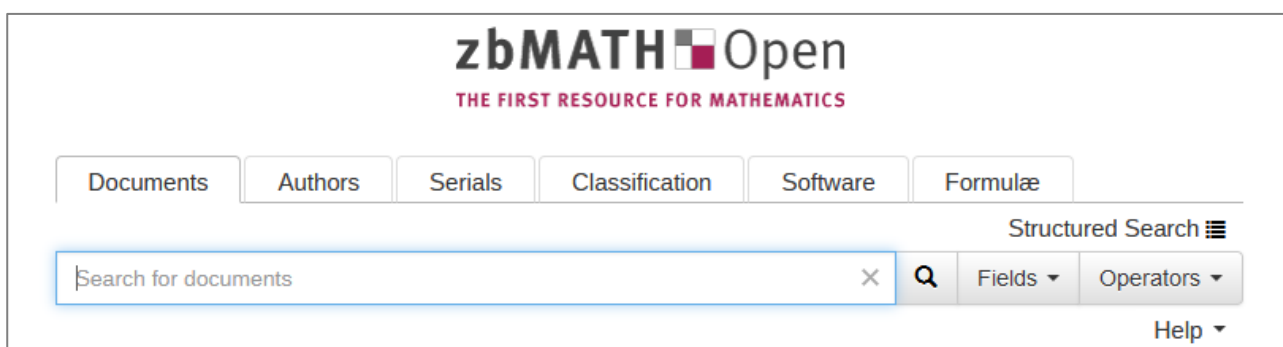
1.6. Copyright

All the abstracts and reviews provided by zbMATH Open are, like any other publication, subject to copyright. Copyright for individual articles is covered by the terms of the journals in which the articles were published.

2. Searching
[zbMATH Open](#) offers a variety of search options. Before beginning a search, it is useful to define and limit the topic as closely as possible. Deciding on the right search strategy usually determines the most suitable search option to choose.

2.1. Documents: One-Line Search
This simple search allows you to research information from all fields of the database by entering keywords into a single box. Where the field being searched is not specified, the search is carried out in all fields of the database. This may generate unwanted links. All non-English titles are translated into English, abstracts and reviews are written in English. It is therefore advisable to use English search terms.

Notes
- Where more than one word is entered, these will be linked by the Boolean operator *and*.
- If you wish to search in a specific field, this must be specified (see pull-down menu "Fields").
- Terms being searched for can be linked using the Boolean operators & (*and*), | (*or*) and ! (*not*) (see pull-down menu "Operators").
- Where you are looking for an exact phrase, this must be entered within quotation marks.
- A word can be right-truncated using *. This allows you to search for variants of a word and is particularly recommended in the case of an author search.

Examples
Query: publications by Parsons on the philosophy of mathematics
Enter: parsons philosophy mathematics

Query: publications by Konrad Osterwalder as author, editor, ...
Enter: au:osterwalder, k*

Query: publications by Atiyah and Singer
Enter: au:atiyah singer

Query: publications on electronic publishing
Enter: "electronic publishing"

2.2. Documents: Structured Search

This advanced search offers several fields for searching. These are interlinked with each other using the Boolean operator *and*.

Notes

- The terms being searched in the different fields are linked using the Boolean operator *and*.
- Boolean operators can also be used within a field: & (*and*) and ! (*not*) have the same (highest) priority, | (*or*) has a lower priority.
- You can limit the number of results by document type.

Examples

Query:	publications by Donald Knuth, containing the expression "discrete mathematics" in the title
Enter:	field Authors: knuth, d*
	field Title: "discrete mathematics"

Query:	publications by Beno Eckmann, published between 2000 and 2004
Enter:	field Authors: eckmann, b*
	field Year of Publication: 2000–2004

Query:	publications by Wiles or Taylor on Fermat's theorem
Enter:	field Authors: wiles | taylor
	field Anywhere: fermat theorem
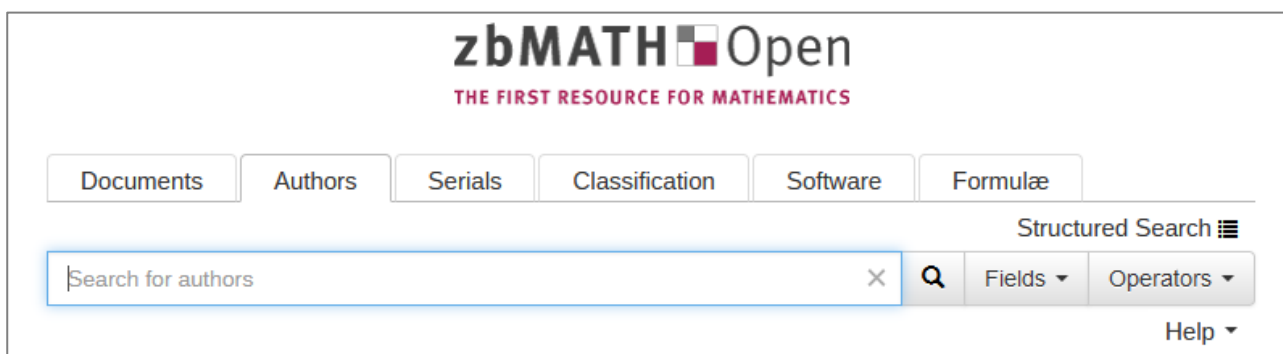
Query:	books on Poisson algebras (MSC=17B63) issued in 1999
Enter:	field Classification: 17B63
	field Year of Publication: 1999
	Document Type: Books

2.3. Authors

This search enables you to identify an author. The publications of a specific author can be found even if the author is referred to by different variations of name or where several authors have identical names. The authors' profiles provide more information on their publications. The best results are achieved by right-truncating the author's name with *.

Example

Query:	profile of Jacques Thévenaz
Enter:	thevenaz, j*

Thévenaz, Jacques

Edit Profile

Author ID:	thevenaz.jacques
Published as:	Thevenaz, Jacques; Thévenaz, J.; Thévenaz, Jacques
External Links:	MGP · Wikidata

Compute Distance To:
Paul Erdős

Documents Indexed: 60 Publications since 1980, including 3 Books

Co-Authors all ▾

25 single-authored
12 Bouc, Serge
7 Carlson, Jon Frederick
4 Lassueur, Caroline
4 Mazza, Nadia Paola
4 Webb, Peter J.

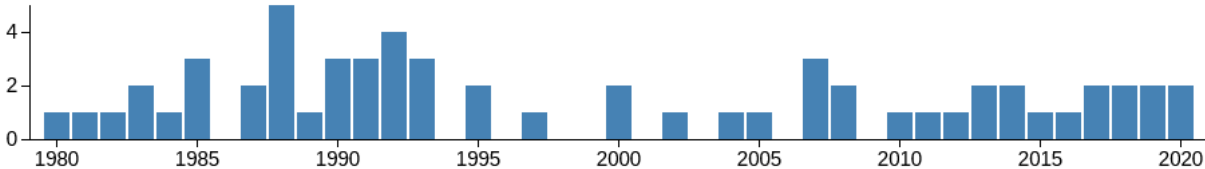**Serials** all ▾

10 Journal of Algebra
4 Archiv der Mathematik
3 Communications in Algebra
3 Commentarii Mathematici Helvetici
3 Inventiones Mathematicae

Fields all ▾

54 Group theory and generalizations (20-XX)
21 K-theory (19-XX)
14 Associative rings and algebras (16-XX)
8 Order, lattices, ordered algebraic structures (06-XX)
6 Category theory; homological algebra (18-XX)

Publications by Year

Note

The profile of an author also displays his co-authors and the number of articles they wrote together. Clicking on a co-author's name leads you to the respective profile, while the displayed number of common publications links to the corresponding joint documents. Analogous navigation is provided for journals, subjects, and publication years. Further, you can find the publications contained in the database that cite the articles of this particular author (not in this figure).

2.4. Serials

This search allows you to search in the database of the journals and book series indexed by zbMATH Open and to display, among other things, the reviewed articles. You can search by important data as words from the title of the serial publication, ISSN, and publishers (see pull-down menu "Fields" or the "Structured Search").

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Structured Search ☰

Search for serials   ✕ 🔍 Fields ▾ Operators ▾

Help ▾

Example

Query: profile of the journal "The Annals of Statistics"
Enter: annals statistics

The Annals of Statistics

An Official Journal of the Institute of Mathematical Statistics

Short Title: Ann. Stat.
Publisher: Institute of Mathematical Statistics (IMS), Beachwood, OH/Bethesda, MD
ISSN: 0090-5364; 2168-8966/e
Online: http://projecteuclid.org/all/euclid.aos
http://www.jstor.org/journals/00905364.html
http://www.imstat.org/aos
Predecessor: Annals of Mathematical Statistics
Comments: Indexed cover-to-cover

Documents indexed: 5,246 Publications (since 1973)
References indexed: 2,225 Publications with 68,174 References

Latest Issues   all ▾
47, No. 4 (2019)
47, No. 3 (2019)
47, No. 2 (2019)
47, No. 1 (2019)
46, No. 6B (2018)

Authors   all ▾
105 Hall, Peter Gavin
58 Brown, Lawrence D.
47 Bickel, Peter John
47 Fan, Jianqing
42 Dette, Holger

Fields   all ▾
5,122 Statistics (62-XX)
1,125 Probability theory and stochastic processes (60-XX)
510 Numerical analysis (65-XX)
165 Combinatorics (05-XX)
93 Operations research, mathematical programming (90-XX)

Publications by Year

Note

The profile of a journal also displays the authors and the number of articles they published in this journal. Clicking on an author's name leads you to the respective profile, while the displayed number of publications links to the corresponding documents. Analogous navigation is provided for subjects and publication years. Further, you can find the publications contained in the database that cite the articles of this particular journal (not in this figure).

3. Results

3.1. Results list
Unless otherwise specified, the results of a search for publications are displayed in HTML format and in a short view. There are numerous links to additional information (see mouse-over texts).

Notes

- The search you have just carried out is shown above the results list and can be modified (see α).
- The short view shows the bibliographical data author, article title, source, and the MSC codes.
- The filtering function shown on the right-hand side provides you with a refinement of the results.
- Click on the article title or on the Zbl reference number to go to the full view of the data set (see β).
- By clicking on the name of an author you get to his profile where you find a link to all his publications (see γ).
- Other reviews by the same reviewer can be found by clicking on the name (see δ).

- By clicking on the journal title, you get to its profile. Indexed articles of this journal can then be requested (see ε).
- A classification code leads you to other publications on the same topic (see φ).
- Click on the button DOI (or Link, Euclid, Numdam, EuDML, …) to see the full text, where available (see λ).
- The format of the display can be changed using the button below the entry.

3.2. Full view of an entry

Click on the article title or on the Zbl reference number to go from a short view in the results list to a display of an entry in the full view. In addition to the links mentioned above under "Results list", the full view also gives additional information.

Notes

- Full view shows the review or abstract (see α).
- The content is described in greater detail in the full view. The MSC codes are shown with their text entries. In addition, there are English keywords which describe the content in greater detail (see β).
- You can access the full text of an article (where available) by clicking on the button DOI (or Link, Euclid, Numdam, EuDML, …) (see γ).
- The format of the display can be changed using the button below the entry.

3.3. Further use of results

Neither the results of a search you have carried out nor any search history can be saved in zbMATH Open.

zbMATH Open offers the option of getting, every two weeks, an update of recently included items and reviews. Simply click on the feed icon next to the author ID in an author's profile or the subject heading in the classification. If you are interested in a specific subject, you can access this news feed also using the URL https://zbmath.org/atom/cc/ and the MSC code of the subject you are interested in. You may list more than one code, as specific as you wish (e.g. https://zbmath.org/atom/cc/20,18G,22F05). If you are interested in a specific author, you can access this news feed also using the URL https://zbmath.org/atom/ai/ and the author ID you find in the author's profile (e.g. https://zbmath.org/atom/ai/thevenaz.jacques). Several author IDs must be listed with commas.

In you want to edit the results of a search for publications, you can select them and save them in BibTeX format. You can then use the literature management program of your choice (e.g. RefWorks, EndNote).

The information in the database is recorded in TeX, but the database can be used even if you do not have TeX installed on your computer. If you want to export data with high quality and you wish to maintain a format similar to that in the database, it is advisable to install the programs for DVI, PostScript or PDF.

4. Accessing full text

zbMATH Open is a bibliographical database that contains the full texts of reviews and abstracts but not of individual articles. A most welcome development of zbMATH Open is the ability to link the articles to external collections of full texts. Links to articles in the journal "Jahrbuch über die Fortschritte der Mathematik" (1868–1942) have been substantially expanded by the addition of links to the full texts of the articles digitised under various projects. Access to all these digitised mathematical journals is unlimited.

For articles from about 600 journals, the entries are linked to their electronic versions via DOI. This link takes you to the full text if the ETH Library has licensed the journal online. If the journal is not available online, you can check the availability of a printed version in ETH Library @ swisscovery. If it is not possible to order the publication itself, or a copy, online, it can be obtained through the interlibrary loan service.

5. Using MSC

The Mathematics Subject Classification is maintained jointly by the editors of [zbMATH Open](#) and [MathSciNet](#) and is constantly being developed. This classification system is very widely used, and the version currently in use is MSC 2020, which is made up of 63 main classes and more than 6,000 sub-classes.

The content of the documents indexed in zbMATH Open is described by MSC 2020 codes. The use of MSC is best for a precise thematic search and has the great advantage that the codes do not depend on the language. A search can be started with a keyword search in order to find the appropriate classes by following the example of appropriate entries. The search can then be continued in a structured way with the help of the codes found and by combining them with other terms. It is also possible to carry out a more comprehensive search by entering only the first two numbers of the code and then right-truncating with *. The classification system differentiates between primary and secondary classification, depending on whether a topic is taken to be the main topic or not. Where a topic is to be treated as the main topic in the publications being searched, the * symbol must be entered in front of the code.

The complete MSC 2020 can be downloaded as a [PDF](#).

MSC 2020 can be searched directly from the home page of zbMATH Open in the tab *Classification*. You can perform a keyword search or search by codes. You can also browse the hierarchy.

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Search for classification   × 🔍   Fields ▾   Operators ▾

Help ▾

Mathematics Subject Classification – MSC2020

MSC2020 is the latest revision of the Mathematics Subject Classification (MSC), jointly published by Mathematical Reviews and zbMATH Open under a Creative Commons CC-BY-NC-SA license. It replaces the 2010 Mathematics Subject Classification. For more details on the revision, read more in the article https://doi.org /10.4171/NEWS/115/2.

- 00 General and overarching topics; collections 🔊
- 01 History and biography 🔊
- 03 Mathematical logic and foundations 🔊
- 05 Combinatorics 🔊
- 06 Order, lattices, ordered algebraic structures 🔊
- 08 General algebraic systems 🔊
- 11 Number theory 🔊
- 12 Field theory and polynomials 🔊

- 34 Ordinary differential equations 🔊
- 35 Partial differential equations 🔊
- 37 Dynamical systems and ergodic theory 🔊
- 39 Difference and functional equations 🔊
- 40 Sequences, series, summability 🔊
- 41 Approximations and expansions 🔊

- 62 Statistics 🔊
- 65 Numerical analysis 🔊
- 68 Computer science 🔊
- 70 Mechanics of particles and systems 🔊
- 74 Mechanics of deformable solids 🔊
- 76 Fluid mechanics 🔊
- 78 Optics, electromagnetic theory 🔊
- 80 Classical thermodynamics,

Example

Query:	literature dated 2010 on the number of solutions of Diophantine equations
Enter:	keyword search for *solutions diophantine equations* takes you to classification code 11D45, click on the number of documents and filter the results by the year 2010

cc:11D45 py:2010

🔍   Fields ▾   Operators ▾

Help ▾

Mark All   Display Marked Items ▾

Page 1 of 1   First   Prev   ♦   Next   Last

Found 49 Documents (Results 1–49)

Hits per Page ▾   100   Display Format ▾   MathJax   Result Sorting ▾   Newest 1st

☐ Chen, Sheng; Li, Nan; Sam, Steven V.
Generalized Ehrhart polynomials. (English. French summary) [Zbl 1374.52017]
Proceedings of the 22nd annual international conference on formal power series and algebraic combinatorics, FPSAC 2010, San Francisco, USA, August 2–6, 2010. Nancy: The Association. Discrete Mathematics & Theoretical Computer Science (DMTCS). Discrete Mathematics and Theoretical Computer Science. Proceedings, 239-246 (2010).
MSC: 52B20 11D04 11D45
PDF   BibTeX   XML   Cite   Full Text: Link   🌀 WorldCat°

☐ Marmon, O.
A generalization of the Bombieri-Pila determinant method. (English) [Zbl 1288.11030]
J. Math. Sci., New York 171, No. 6, 736-744 (2010) and Zap. Nauchn. Semin. POMI 377, 63-77 (2010).
MSC: 11D45 14G05 11G50   Reviewer: David McKinnon (Waterloo)
PDF   BibTeX   XML   Cite   Full Text: DOI   arXiv   🌀 WorldCat°

☐ Bazsó, András
On binomial Thue equations and ternary equations with S-unit coefficients. (English) [Zbl 1259.11037]
Publ. Math. 77, No. 3-4, 499-516 (2010).
MSC: 11D45 11D61 11D41 11J82 11J86
PDF   BibTeX   XML   Cite   🌀 WorldCat°

Filter Results by …

Document Type
Journal Articles (44)
Collection Articles (4)
Books (1)

Author   all ▾
Browning, Timothy Daniel (4)
Marmon, Oscar (2)
Munshi, Ritabrata (2)
Akhtari, Shabnam (2)
Yang, Shichun (2)

Serial   all ▾
Publ. Math. (3)
J. Number Theory (3)
Acta Arith. (3)
JP J. Algebra Number Theory Appl. (2)
J. Théor. Nombres Bordx. (2)

Classification   all ▾
11-XX (49)
14-XX (9)
05-XX (5)