American Mathematical Society

A QUARTERLY PUBLICATION TO INFORM MEMBERS ABOUT SOCIETY ACTIVITIES. THIS ISSUE COVERS THE SOCIETY'S MATHEMATICAL REVIEWS.

Mathematical Reviews

MathSciNet

Since its founding in 1940, the Mathematical Reviews (MR) Database has aimed to serve researchers and scholars in the mathematical sciences by providing timely information on articles and books that contain new contributions to mathematical research.

"MR" Past and Present

The classic orange paper journal, *Mathematical Reviews*, familiarly known as "MR", was founded in the late 1930s. Its first editor was Otto Neugebauer, a faculty member at Brown University in Providence, Rhode Island. The first issue of the journal appeared in January 1940.

A lot has changed since then, including the re-location of MR offices to the building that used to house the Michigan Union Brewing Co. Here's a quick comparison between the printed issue of January 1940 and the MR Database as of January 2002:

Then	Now
32 pages	784 pages
176 reviews	4,500 reviews (5,880 items)
4 staff	over 70 staff
3 person editorial board	6 person editorial committee

Information in the MR Database is available online as MathSciNet, with many features that the electronic medium makes possible, such as refined searching and extensive linking. The MR Database, which incorporates the infor-mation gathered for *Mathematical Reviews* since its founding and new information each working day, now contains over 1.7 million items.

Read more Information about Mathematical Reviews, past and present, can be found at www.ams.org/mr-database.

What's in the MR Database?

Over 8,000 issues of almost 1,700 different journal titles plus monographs and collections were acquired from over 1,000 sources in 2001.

The MR Database includes citations and reviews of journal articles, books (monographs, proceedings, advanced-level textbooks), and material in electronic format that are of interest primarily to research mathematicians.

Read more In 2001, the MR Database covered 42 new journal titles. See the list of Serials currently covered in the MR Database at www.ams.org/msnhtml/serials.pdf.

Almost all items are classified according to the **Mathematics Subject Classification** (MSC). The MSC is broken down into over 5,000 two-, three-, and five-character classifi-cations, each corresponding to an area of mathematics.

Read more The **MSC**—revised in 2000—is a joint project with *Zentralblatt MATH* and may be viewed at www.ams.org/msc.

AMS OFFICES: PROVIDENCE, RI   ANN ARBOR, MI   WASHINGTON, D.C.

Acquiring the Literature

The Department maintains contact with over 800 journal publishers and hundreds more book publishers.

The Bibliographic Services Department performs the multi-faceted functions of a research library: the department is the authority on publishers, serials, and bibliographic data. The staff order books and maintain the collection; verify basic bibliographic information; track changes to items; check for previous editions—earlier proceedings and original editions (if a translation); create links between related titles; and search all types of electronic and printed sources for new reviewable materials published (in all languages) throughout the world.

ACQUIRING
SELECTING
CREATING

Selecting Material for Coverage

The MR editors scanned over 100,000 journal and proceedings articles and monographs and selected about 71,000 for coverage in the MR Database in 2001.

Each working day journal issues and books are collected into an "Editors' Box". The editors determine whether each item should be added to the MR Database. For those selected for inclusion, the editors supply MSC classifications.

Largely as a result of requests from librarians, the MR Database now includes a new collection of items in the area of Applied Statistics.

Read more The MR Editorial Statement contains more information on the selection of items and may be viewed at www.ams.org/authors/mr-edit.html.

Creating and Entering the Bibliographic Data

About 300 new items are entered into the database each day.

Each item in the MR Database appears first as a bibliographic listing provided by the Bibliographic Services Department. The Production Department inputs the bibliographic data. The Copy Editing Department edits and proofs the data which become the headings that appear in printed MR and MathSciNet.

Identifying Authors

Over 370,000 authors are currently indexed in the MR Database.

Each author is unique; unfortunately, each author *name* is not unique. Take Mike Breen, Michael Breen, and Michael A. Breen—three authors or one?

MR's author identification process employs a number of algorithms to compare the author's name, institutional affiliation, and classification for the paper against author-individuals already in the MR database, which maintains a separate record for each author-individual. In most cases—roughly 80% of the time—the program matches all three elements.

It is on the remaining 20% that MR staff spend most of their time. They check for typos, the intent of the journal in name presentation (journals do make errors in the presentation of first name and family names), spellings, bibliographies (for self-citations), and co-authors for a possible match. When all possibilities available via paper are exhausted, staff use the internet and web-based tools to complete the identification of authors.

The verification and identification of individual authors is an intensely manual part of the production process and makes the MR Database unique.

Read more Read more about the **Author Database** at www.ams.org/mr-database/mr-authors.html and in "The Identification of Authors in the Mathematical Reviews Database" in *Issues in Science & Technology Librarianship*, Number 31, Summer 2001, at www.istl.org/istl/01-summer/databases.html.

IDENTIFYING
ASSIGNING

Assigning Reviewers

There are over 10,000 active MR reviewers, with about one quarter in the U.S. The large number of peer reviews in the MR Database is a valuable component. Those wishing to contribute to this important work are encouraged to send a note to mathrev@ams.org.

The MR editors determine the treatment for each item added to the MR Database. The majority of items are selected for review. The editor matches the item with a reviewer who has the appropriate interests and expertise, or decides that the author summary provides good guidance on the content of the item and is appropriate for the review. Items identified as especially notable are assigned *Feature Review* status. In other cases, the decision is made to list the item with the full bibliographic information, classification, and author information, without a review.

Read more For free access to the most recent *Featured Reviews*, see www.ams.org/msnhtml/featured-reviews.

The MR Reviewer Services Department mails out all material to be peer-reviewed—over 700 items per week—and processes it when it is returned. (If an item is out to a reviewer for over six months, it is re-assigned.) The AMS recently instituted a new system for thanking mathematicians for their reviews. The Society issues "points"—like airline frequent flyer miles—that may be used toward the purchase of AMS products or payment of AMS dues.

Read more The *Guide for Reviewers*, including procedures, schedules, manuscript and style elements, instructions for electronic submissions, and much more, is at www.ams.org/authors/guide-reviewers.html.

Processing Reviews

Up to 80% of reviews are now submitted electronically.

Most peer reviews arrive via the Interactive Web Form at www.ams.org/mresubs. Edited author summaries begin their life as paper copies taken from the original journals. Reviews and summaries are logged into the Database and delivered to the Production Department for any needed keyboarding or TeX adjustment.

A TeXed version of a review is attached to a review-form, which is then ready for editing. First, the copy editors proofread the review against the original hard copy (if necessary), correct spelling mistakes and grammatical errors, and put all verified references into standard format. Then the review is given to the editors for mathematical editing: the text and formulas are read for mathematical sense and are corrected if necessary (which sometimes involves checking the original book or paper). Each review is read by two editors to ensure that the review is faithful to the reviewer's intent and is fair to the author.

When the review is ready for publication it is entered into the Database, posted to **Math-SciNet** *that same night* and published in the next printed monthly issue of *Mathematical Reviews*.

PROCESSING

FORMATTING

Formatting the Data for the Various Publication Formats

The information in the MR Database is distributed in a variety of formats: MathSciNet, the classic print MR orange volumes, and MathSci on disk from SilverPlatter®. Each format requires customized programming, via scripts, of the underlying MR Database.

Read more To learn about ongoing updates and enhancements of functions and features of **MathSciNet**, bookmark www.ams.org/msnhtml/whats_new.html. Download the user **Guidebook** at www.ams.org/mathscinet/guidebook.

Read more The AMS provides special subscription options for institutions to access MathSciNet—the online product that allows researchers to more easily search for and download reviews by subject area, or MSC: **Consortia Pricing** for small- and mid-sized institutions that have relatively limited budgets, and the **National MR Subscription Program** for dollar-poor countries. See descriptions of these options at www.ams.org/bookstore/mathsciprice.

Adding Reference Lists

A new feature.

Reference lists are processed as issues of the selected journals are prepared for the MR Database. The lists are photocopied and then outsourced for keyboarding in tagged XML format. That format allows a program to match references with items in the MR Database. The tagged list is then added to the MR Database and MathSciNet.

Read more For more information on reference lists see a recent opinion column in the *Notices of the AMS* at www.ams.org/notices/200109/commentary.pdf.

ADDING

LINKING

Linking to Original Articles

There are now links from MathSciNet to over 186,000 original articles. The number of active links increases by about 20 per day.

Linking arrangements are made on a publisher-by-publisher basis. The Article links in MathSciNet take you directly to the online article, which may be at the publisher's or journal's website or at the website of a service such as JSTOR. Access to full articles may be dependent on having a subscription to that journal or service. Programs are written to construct the links from a data set in the MR Database. If papers are online, but links constructed by programs are not feasible, Journal links take you to the journal home page.

The AMS provides **MR Lookup**—a tool for verifying references and for adding Relay Station links from your references into MathSciNet—free of charge. Those who do subscribe to MathSciNet receive the added value of full MathSciNet access: users will link directly from the reference to the full MathSciNet.

Read more Use **MR Lookup** at www.ams.org/mrlookup.

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Notes:
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  - **Author:** Last Name Or Last Name, First initial; e.g: graham; graham, r; graham and chung, f
  - **Title:** Use word or phrase
  - **Journal:** Use either (part of) the full journal name or (part of) the MR journal abbreviation
- **Boolean:** AND is permitted in the Author, Title and Journal fields
- **Wild Cards:** Should not be used with this tool
- **Results:** If more than 3 items match the search criteria, only the most recent 3 items are returned.

AMS Comments: webmaster@ams.org
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AMS MEMBER NEWSLETTER

Mathematical Reviews Executive Editors

MR Executive Editors over the years have included prominent mathematical researchers, many of whom have taken a leave from academic positions to take up the position for a fixed term. One of the early editors was Ralph Boas (1945–50), who almost single-handedly took on all the editorial tasks in all fields (the staff was very small during this period). The longest serving Executive Editor was John Selfridge (1978–86); it was during his tenure that much of the production process at MR was computerized, thus laying the foundation for the later development of Math-SciNet.

Jane Kister is the current Executive Editor. She started at MR as an editor in 1979, having been on the mathematics faculty at the University of Oxford before that. In 1984 she was appointed Associate Executive Editor; she has been Executive Editor since 1998.

The MR Executive Editor and staff continue to develop the MR Database and MathSciNet, while maintaining the high editorial standards for which MR has always been known.

Read more For a listing of the Executive Editors see www.ams.org/publications/60ann/ExecutiveEditors.html.