

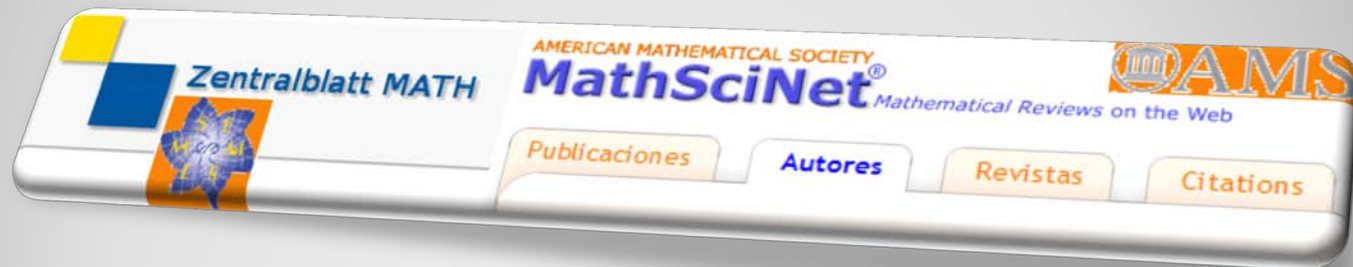
Curso **FI***mat*

# Introducción a las Fuentes de Información en CC. Matemáticas

Biblioteca de la Facultad de CC. Matemáticas  
Curso 2012/2013

# Tema 5

## Bases de datos específicas de matemáticas



# CONTENIDOS DEL TEMA

Mathscinet



Zentralblatt Math



# CONTENIDOS DEL TEMA



## Mathscinet

- Introducción
- Preferencias
- Nuevas herramientas
- Tipos de consulta
- Citaciones
- Búsquedas

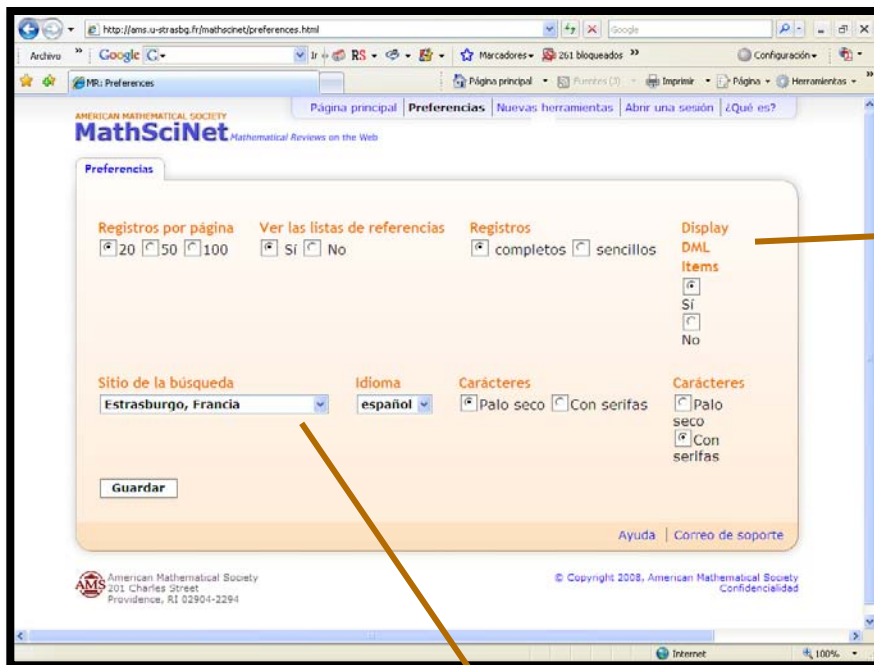
# Mathscinet-Introducción

- Base de datos de **reseñas, resúmenes e información bibliográfica** de la literatura matemática más importante. Contiene más de 2 millones de registros clasificados según la Mathematics Subject Classification (MSC).

- **Cobertura:** lo publicado desde 1940 (1864 con el proyecto DML) en la publicación *Mathematical Reviews* (MR). Más de 1900 revistas indexadas.



# Mathscinet-Preferencias



## DML:

- Se incluyen artículos digitalizados por proyectos incluidos en la Biblioteca digital mundial de matemáticas (artículos anteriores a 1940 y artículos posteriores no incluidos en MR)

## Sitio de la búsqueda:

- Elegir el lugar más cercano

# Mathscinet-Nuevas herramientas

**Búsquedas en MSC**

**Distancia entre colaboradores**

**Revistas actuales**

**Publicaciones actuales**

# Mathscinet-Tipos de consulta I

AMERICAN MATHEMATICAL SOCIETY  
**MathSciNet** Mathematical Reviews on the Web

[Página principal](#) [Preferencias](#) [Nuevas herramientas](#) [Abrir una sesión](#) [¿Qué es?](#)

**Publicaciones** Autores Revistas Citaciones: Autores Citaciones: Revistas

**Terminos de la búsqueda**

Autor  y

Titulo  y

Serie  y

Dondequiera

Buscar Borrar

**Cuándo?**

Base de datos entera  Año

Años:  a

**Tipo de documento**

Todos  Libros  Revistas  Actas de congresos

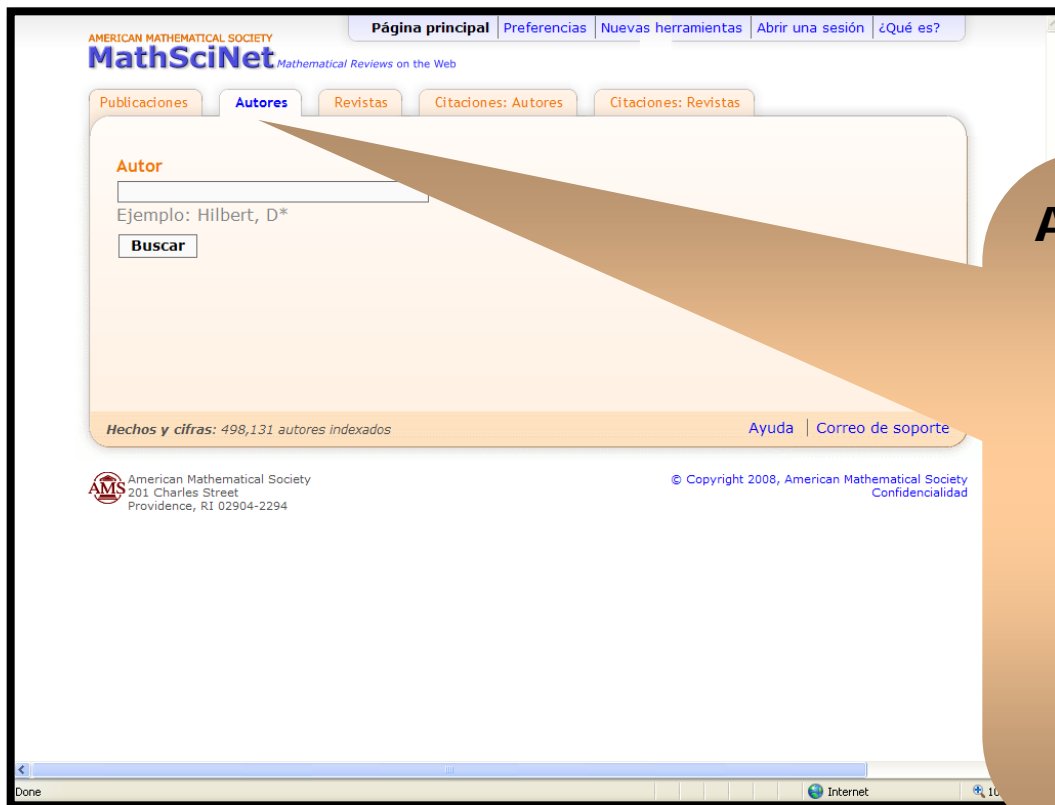
Registros y cifras: 2,304,423 registros totales [Ayuda](#) [Correo de soporte](#)

American Mathematical Society © Copyright 2008. American Mathematical Society Confidencialidad

**Publicaciones.** Busca en la base de datos bibliográfica y nos da los datos, comentarios y (si están disponibles) enlaces a los artículos o libros a texto completo.



# Mathscinet-Tipos de consulta II



**Autores.** Busca en la base de datos de autores y nos identifica únicamente de acuerdo con sus publicaciones ; identifica también las distintas formas en que aparecen en la base de datos.

# Mathscinet-Tipos de consulta III

The screenshot shows the MathSciNet author profile for Fernando Bombal. The page includes the MathSciNet logo, navigation links (Home, Help, Support Mail), and a list of links for further exploration (View Publications, View Author/Related Publications, Refine Search, Co-Authors, Collaboration Distance, Mathematics Genealogy Project, Citations). The author's MR Author ID is 39045, with 72 total publications and 93 total citations. A section for co-authors lists names like Pilar Cembranos and Maite Fernández Unzueta. Below, there are sections for publications by area (Functional analysis, General topology, etc.) and by number of citations (Functional analysis, Operator theory).

AMERICAN MATHEMATICAL SOCIETY  
**MathSciNet** Mathematical Reviews on the Web

Home | Help | Support Mail

**Bombal, Fernando**  
MR Author ID: **39045**  
Earliest Indexed Publication: 1969  
Total Publications: **72**  
Total Author/Related Publications: **74**  
Total Citations: **93**

View Publications  
View Author/Related Publications  
Refine Search  
Co-Authors  
Collaboration Distance  
Mathematics Genealogy Project  
Citations

Also published as: Bombal, F....

**Co-authors (by number of collaborations)**

Cembranos, Pilar   Emmanuele, Giovanni   **Fernández Unzueta, Maite**   Fierro Bello, Carmen  
González Llavona, J. L.   Gutiérrez del Alamo, Joaquín M.   Herando, Beatriz   Jiménez Guerra, Pedro   Mendoza, José  
Pérez-García, David   Porras, B.   Rodríguez-Marín, Luis   Rodríguez-Sallinas Palero, Baltasar   Vera, Gabriel  
**Villanueva Díez, Ignacio**

**Publications (by number in area)**

Abstract harmonic analysis   **Functional analysis**   General topology   History and biography  
Measure and integration   Operator theory   Order, lattices, ordered algebraic structures

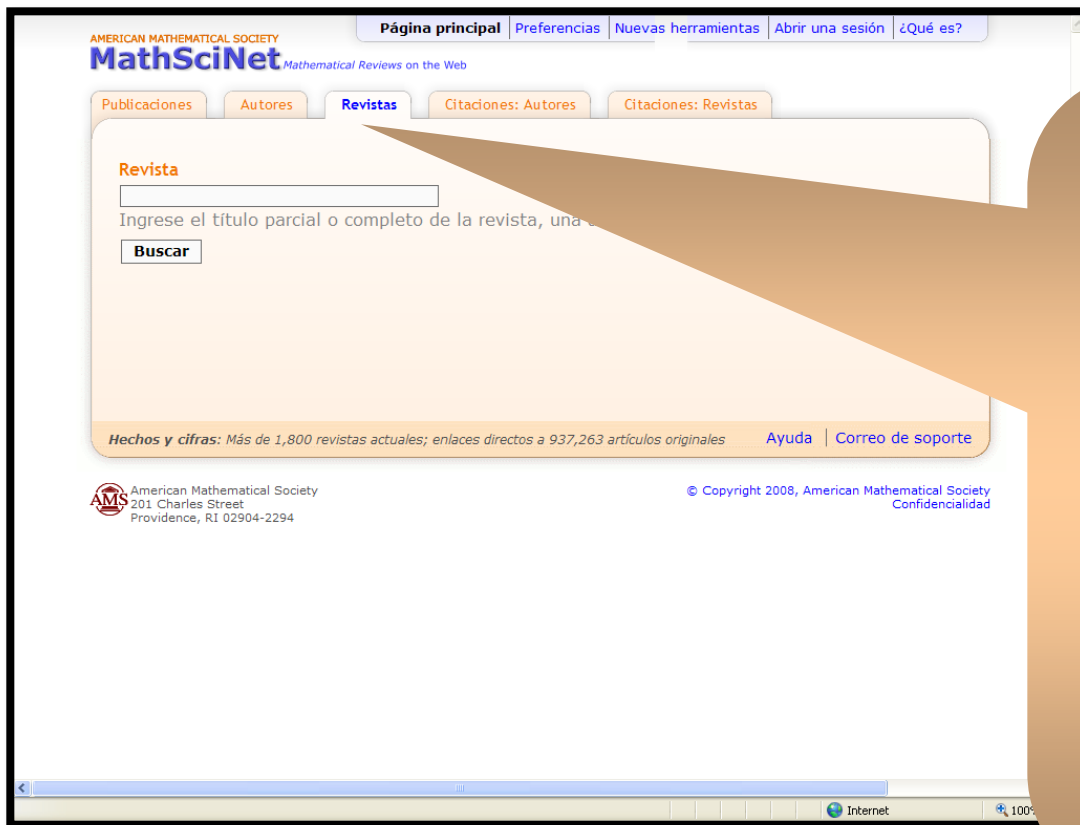
**Publications (by number of citations)**

**Functional analysis**   General topology   Operator theory

Internet 100%

Página de autor

# Mathscinet-Tipos de consulta IV




**Revistas.** Busca en la base de datos de revistas y nos devuelve una lista de revistas con enlaces a la información bibliográfica y al sitio web del editor. Se puede consultar por título parcial o completo, por el título abreviado, o por el ISSN

# Mathscinet-Citaciones



**Autores.** Lista de hasta 10 elementos ordenados por el número de referencia en MathSciNet.



**Revistas.** Nos da información sobre las citas de las revistas sobre la base de las listas de referencia de MathSciNet

**El botón Top 10.** Muestra tres pestañas (Top Books, Top Journal Articles, y Top Journals). En cada caso, un menú desplegable permite seleccionar un año a partir del año 2000. Los 10 primeros libros y los primeros 10 artículos de revistas citados en el año seleccionado enumeran según el número de citas. Las 10 principales revistas se enumeran en función de su Mathematical Citation Quotient (MCQ) = Cociente de Citas de Matemáticas (PEM) para el año elegido.

# Mathscinet-Búsquedas I

Nº de items encontrados

Formato de descarga

Clave de búsqueda

Cada uno de los items encontrados

AMERICAN MATHEMATICAL SOCIETY  
MathSciNet  
Mathematical Reviews on the Web

Matches: 6

Batch Download: **Reviews (HTML)** Retrieve Marked | Retrieve First 50 | Unmark All

Publications results for "Items authored by Hilbert, David<sup>1</sup> AND Title=(equations)"

- MR2197276 (2006h:83005)** Sauer, Tilman Einstein equations and Hilbert action: what is missing on page 8 of the proofs for Hilbert's first communication on the foundations of physics? *Arch. Hist. Exact Sci.* 59 (2005), no. 6, 577--590. (Reviewer: Dean Rickles) 83-03 (01A60)  
PDF | Doc Del | Clipboard | Journal | Article
- MR2186515** Majer, U.; Sauer, T. Hilbert's "world equations" and his vision of a unified science. *The universe of general relativity*, 259--276, *Einstein Stud.*, 11, Birkhäuser Boston, Boston, MA, 2005. 83-03 (01A60)  
PDF | Doc Del | Clipboard | Journal | Article
- MR1057179 (92b:01081)** Hilbert, D.; Schmidt, E. Integralgleichungen und Gleichungen mit unendlich vielen Unbekannten. (German) [Integral equations and equations with infinitely many unknowns] Edited and with a foreword and afterword by A. Pietsch. With English, French and Russian summaries. *Teubner-Archiv zur Mathematik [Teubner Archive on Mathematics]*, 11. BSB B. G. Teubner Verlagsgesellschaft, Leipzig, 1989. 316 pp. ISBN: 3-322-00681-6 (Reviewer: F. Smithies) 01A75 (01A60 45-02 47-03)  
PDF | Doc Del | Clipboard | Journal | Article
- MR0589789 (83h:01062)** Vizgin, V. P. On the history of the discovery of equations of gravitation (Einstein and Hilbert). (Russian) *Istor.-Mat. Issled.* No. 25 (1980), 261--265, 379. 01A60 (83-03)  
PDF | Doc Del | Clipboard | Journal | Article
- MR0550669 (80k:01049)** Vizgin, V. P. Hilbert and the problem of general covariant equations of gravitation. (Russian) *Istor.-Mat. Issled.* No. 24 (1979), 226--246, 388. (Reviewer: H. Treder) 01A60 (83-03)  
PDF | Doc Del | Clipboard | Journal | Article
- MR0140802 (25 #4216)** Courant, R.; Hilbert, D. *Methods of mathematical physics. Vol. II: Partial*

# Mathscinet-Búsquedas II

Nº de referencia en MR

Autor

Título

Citaciones

MR2197276 (2006h:83005)  
Sauer, Tilman(1-CAIT-EPP)  
Einstein equations and Hilbert action: what is missing on page 8 of the proofs for Hilbert's first communication on the foundations of physics? (English summary)  
*Arch. Hist. Exact Sci.* 59 (2005), no. 6, 577--590.  
83-03 (01A60)

PDF | Doc Del | Clipboard | Journal | Article | Make Link

Citations

From References: 1  
From Reviews: 0

Enlaces hipertextuales

In this paper Sauer discusses a very interesting fragment from the development of the general theory of relativity, namely the competition Hilbert and Einstein were locked in close to the publication of the final set of generally covariant field equations by the latter. Sauer aims to give a "succinct and balanced assessment of the respective contributions of both authors in the final establishment of the general theory of relativity". He achieves this aim in what is an extremely well-informed, very readable paper.

At the core of the discussion is an analysis of a set of Hilbert's proofs of his paper documenting his work on general relativity. The problem is that some of the pages are missing. The question then is: might Hilbert have gotten to the Einstein tensor before Einstein? Sauer answers this by performing what can best be described as a piece of "reconstructive surgery" on the proofs, filling in the missing gaps on the basis of the rest of the proofs. He concludes from this that it is highly unlikely that the missing pages contained some version of the Einstein tensor (with its trace term). More likely, argues Sauer (on the basis of the coherence and consistency of the text as a whole), is that Hilbert's missing piece contained a specification of the Lagrangian of Hilbert's action principle written as a sum of gravitational and matter parts, along with a further specification of the gravitational part as the Riemann curvature scalar (also giving the Ricci tensor).

Resumen

Reviewed by Dean Rickles

Revisor

References

1. Mehra, J. *Einstein, Hilbert, and The Theory of Gravitation*. Dordrecht, Boston: D. Reidel, 1974.
2. Earman, J., Glymour, C. "Einstein and Hilbert. Two Months in the History of General Relativity." *Archive for History of Exact Sciences* 19 (1978), 291--308. MR0507744 (80d:01017)
3. Pais, A. *Subtle is the Lord... The Science and the Life of Albert Einstein*. Oxford and New York: Clarendon Press and Oxford University Press, 1982. MR0690419 (84j:01072)
4. Norton, J. "How Einstein Found His Field Equations: 1912--1915" *Historical Studies in the Physical Sciences* 14 (1984) 253--316. Reprinted in: Howard, D. and Stachel, J., (eds.) *Einstein and the History of General Relativity*. Boston: Birkhäuser, 1989, pp. 101--159. MR1200720 (94i:83001)

Bibliografía

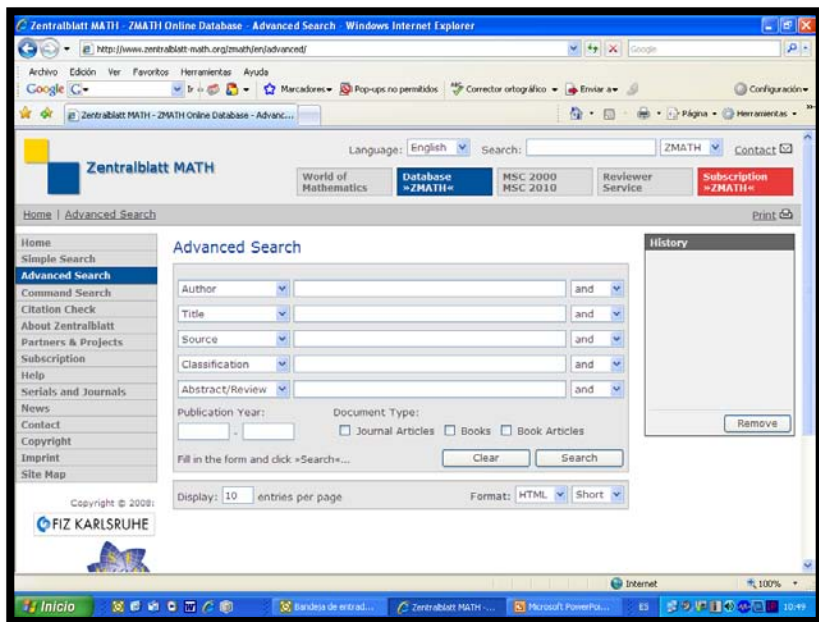
# CONTENIDOS DEL TEMA



## Zentralblatt MATH

- Introducción
- Tipos de consulta
- Citaciones
- Búsquedas

# Zentralblatt Math-Introducción



- Base de datos que recoge **más de 3 millones de reseñas y resúmenes de matemáticas** procedentes de 3500 títulos de revistas y más de 1100 series monográficas (congresos, colecciones). Todos los registros están clasificados conforme a la MSC.
- **Cobertura:** desde 1826.
- **Temática:** se extiende a todas las áreas de la Matemática Pura y Aplicada y a la Historia de las Matemáticas.
- **Actualización:** diaria

- La producen la European Mathematical Society (EMS), el Fachinformationszentrum (Centro para la Información Científica) (FIZ), Karlsruhe y la Academia de Ciencias de Heidelberg.
- Enlaza al texto completo de los artículos



# Zentralblatt Math-Tipos de consulta I

The screenshot shows the Zentralblatt MATH website interface. At the top, there is a language dropdown set to 'English', a search bar, and a dropdown for 'MSC 2000'. Below this are navigation buttons for 'World of Mathematics', 'Database »ZMATH«', 'MSC 2000 MSC 2010', 'Reviewer Service', and 'Subscription »ZMATH«'. The main content area is titled 'Search and Browse the MSC 2000' and features a search box with a 'Search' button. A note indicates that MSC2010 is being deployed in the second half of 2009. A sidebar on the left contains navigation links for 'MSC 2010', 'Search and Browse', 'Instructions', 'MSC 2000', 'News', 'Contact', 'Copyright', 'Imprint', and 'Site Map'. A 'News' section on the right lists 'Abel prize 2010', 'I. M. Gelfand 1913-2009', and 'MSC2010'. The main content area displays a list of MSC 2000 categories with links to their respective pages:

- [00-XX](#) General → [ZMATH](#)
- [01-XX](#) History and biography [See also the classification number -03 in the other section]
- [03-XX](#) Mathematical logic and foundations → [ZMATH](#)
- [05-XX](#) Combinatorics {For finite fields, see [11Txx](#)} → [ZMATH](#)
- [06-XX](#) Order, lattices, ordered algebraic structures [See also [18B35](#)] → [ZMATH](#)
- [08-XX](#) General algebraic systems → [ZMATH](#)
- [11-XX](#) Number theory → [ZMATH](#)
- [12-XX](#) Field theory and polynomials → [ZMATH](#)
- [13-XX](#) Commutative rings and algebras → [ZMATH](#)
- [14-XX](#) Algebraic geometry → [ZMATH](#)
- [15-XX](#) Linear and multilinear algebra; matrix theory → [ZMATH](#)
- [16-XX](#) Associative rings and algebras {For the commutative case, see [13-XX](#)} → [ZMATH](#)
- [17-XX](#) Nonassociative rings and algebras → [ZMATH](#)
- [18-XX](#) Category theory; homological algebra {For commutative rings see [13Dxx](#), for as for groups [20Jxx](#), for topological groups and related structures [57Txx](#); see also

**Búsqueda por MSC. Es el tipo de búsqueda más pertinente** porque busca por la MSC que cada autor asigna a cada artículo. Permite refinar por comandos la búsqueda inicial

# Zentralblatt Math-Tipos de consulta I

The screenshot shows the Zentralblatt MATH website interface. At the top, there is a navigation bar with 'Zentralblatt MATH' logo, a language dropdown set to 'English', a search input field, and buttons for 'ZBMATH' and 'Contact'. Below this is a secondary navigation bar with 'World of Mathematics', 'Database >ZBMATH<', and 'MSC 2000 MSC 2010'. The main content area is titled 'Zentralblatt MATH has released its new interface!' and includes a 'Simple Search' section. The search interface features a 'Query:' input field, a 'Display: 3 entries per page' option, and a 'Brief help on search ZBMATH database' section. The help section includes 'General search syntax' and 'Examples' with search strings like 'fixed point theorem' and 'ti:"cauchy process" bi:eigenvalue'. At the bottom, there is a 'Search fields' table.

Field	Long form	Description
bi	basic	Basic index include abstracts and reviews, keywords, authors, titles, and citations.
au	author	Index of authors, editors, and author references.
ti	title	Index of original and translated title.

**Búsqueda simple.** Dirigida a los campos Autor, Título, Índice de palabras, Publicación y Clasificación. Puede delimitarse por Tipo de documento y años. El asterisco \*, símbolo de truncamiento (derecho), se utiliza para buscar variaciones del término deseado. En las búsquedas por autor el truncamiento se utiliza por defecto.

**Búsqueda por Índice básico (bi):** se hace sin especificar un campo determinado. Es la herramienta de búsqueda más importante

# Zentralblatt Math- Tipos de consulta II

The screenshot shows the Zentralblatt MATH website interface. At the top, there is a language selector set to 'English', a search bar, and navigation links for 'World of Mathematics', 'Database >ZBMATH<', 'MSC 2000 MSC 2010', 'Reviewer Service', and 'Subscription >ZBMATH<'. The main content area is titled 'ZBMATH Database | Advanced Search'. A sidebar on the left lists various search options, with 'Advanced Search' selected. The central search form is titled 'Advanced Search' and includes fields for 'Author', 'Title', 'Source', 'Classification', and 'Abstract/Review', each with a dropdown menu and a search operator (and, or, not) selector. There are also fields for 'Publication Year' and 'Document Type' (Journal Articles, Books, Book Articles). A 'Search' button is at the bottom of the form. The right sidebar contains a 'Login' form, a 'Highlights' section with links to 'Scientific prize winners of the ICM 2010' and 'Lie groups, physics and geometry. An introduction for physicists, engineers and chemists.', and a 'Master Server' section for Zentralblatt MATH Berlin [Germany].

**Consulta avanzada.** Se realiza con **operadores booleanos** en los campos Autor, Título, Índice básico, Clasificación y Publicación. Puede restringirse la búsqueda por año.

# Zentralblatt Math- Tipos de consulta

The screenshot shows the Zentralblatt MATH website interface. At the top, there is a navigation bar with the logo, language selection (English), a search box, and links for ZBMATH and Contact. Below this, there are buttons for 'World of Mathematics', 'Database >ZBMATH<', 'MSC 2000 MSC 2010', 'Reviewer Service', and 'Subscription >ZBMATH<'. The main content area is titled 'ZBMATH Database | Command Search'. On the left, there is a sidebar menu with options like 'Simple Search', 'Advanced Search', 'Command Search', 'Author Search', 'Citation Check', 'New Interface', 'About Zentralblatt', 'Partners & Projects', 'Subscription', 'Serials and Journals', 'Help', 'Highlights', 'News', 'Mirror Sites', 'Contact', 'Copyright', 'Imprint', and 'Site Map'. The 'Command Search' section is highlighted, showing a 'Query:' input field and a 'Search' button. Below the input field, there is a 'Display: 3 entries' option. To the right, there is a 'Login' form with 'Username:' and 'Password:' fields and a 'Login' button. Below the login form, there is a 'Highlights' section with a list of items: 'Scientific prize winners of the ICM 2010' and 'Overhang'. At the bottom left, there is a logo for 'FIZ Karlsruhe Leibniz Institute for Information Infrastructure' and a copyright notice for 2011.

**Búsqueda por comandos.** Consulta dirigida en un lenguaje de interrogación libre en los siguientes campos:

**an** Número de Acceso: Número de item Zentralblatt-MATH

**au** Nombre del Autor

**bi** Índice básico

**cc** Código de clasificación de tema matemático

**dt** Tipo de Documento

**la** Idioma

**py** Año de publicación

**rv** Nombre del revisor

**so** Fuente (Publicación, Editorial...)

**ti** Palabras del título

# Zentralblatt Math-Búsquedas I

Clave de búsqueda

Nº de resultados

Cada uno de los items encontrados

The screenshot displays the Zentralblatt MATH search interface. At the top, there is a navigation bar with the logo and the text 'Zentralblatt MATH'. Below this, there are links for 'World of Mathematics', 'Database >>ZMATH<<', 'MSC 2000', 'MSC 2010', 'Reviewer Service', and 'Subscription >>ZMATH<<'. A search bar is located on the right with a 'Search' button and a 'Language' dropdown set to 'English'. Below the navigation bar, there are links for 'Home', 'Simple Search', 'Advanced Search', and 'Command Search'. The 'Simple Search' section contains a 'Query:' field with the text 'ti:"cauchy process" bi:eigenvalue', a 'Clear' button, and a 'Search' button. Below the search bar, there are options for 'Display: 3 entries per page', 'Show checked entries', and 'Format: HTML Short'. The search results are displayed as a list of two items. Each item includes a checkbox, a Zbl number, the authors' names, the title, the journal information, and various download and linking options. The first item is 'Eigenvalue gaps for the Cauchy process and a Poincaré inequality' and the second is 'The Cauchy process and the Steklov problem'. At the bottom of the results, there is a 'Result: 1 - 2 of 2' summary and navigation links. The footer contains copyright information for Zentralblatt MATH, the European Mathematical Society, and Springer-Verlag.

# Zentralblatt Math-Búsquedas II

Referencia Zbl

Autores

Título

Datos de la revista

Resumen

Notaciones de la MSC

Palabras clave

Enlaces hipertextuales

Formatos

World of Mathematics Database »ZMATH« MSC 2000 MSC 2010 Reviewer Service Subscription »ZMATH«

Home | Simple Search

Simple Search Home Simple Search Advanced Search Command Search

Query: ar:1089.60029

Enter a query and click »Search«... Clear Search

Display: 3 entries per page Show checked entries Format: HTML Complete

Zbl 1089.60029

**Bañuelos, Rodrigo; Kulczycki, Tadeusz**

**Eigenvalue gaps for the Cauchy process and a Poincaré inequality.** (English)

[J] [J. Funct. Anal.](#) 234, No. 1, 199-225 (2006). ISSN 0022-1236

Advertisement: io-port.net world-wide knowledge in informatics

Summary: A connection between the semigroup of the Cauchy process killed upon exiting a domain  $D$  and a mixed boundary value problem for the Laplacian in one dimension higher known as the mixed Steklov problem, was established by the authors [J. Funct. Anal. 211, No. 2, 355--423 (2004; [Zbl 1055.60072](#))]. From this, a variational characterization for the eigenvalues  $\lambda_n$ ,  $n \geq 1$ , of the Cauchy process in  $D$  was obtained. In this paper, we obtain a variational characterization of the difference between  $\lambda_n$  and  $\lambda_{n+1}$ . We study bounded convex domains which are symmetric with respect to one of the coordinate axis and obtain lower bound estimates for  $\lambda_n - \lambda_{n+1}$  where  $\lambda_n$  is the eigenvalue corresponding to the "first" antisymmetric eigenfunction for  $D$ . The proof is based on a variational characterization of  $\lambda_n - \lambda_{n+1}$  and on a weighted Poincaré-type inequality. The Poincaré inequality is valid for all  $\alpha$  symmetric stable processes,  $0 < \alpha \leq 2$  and any other process obtained from Brownian motion by subordination. We also prove upper bound estimates for the spectral gap  $\lambda_2 - \lambda_1$  in bounded convex domains.

MSC 2000:

- 60G52 Stable processes
- 60J45 Probabilistic potential theory

Keywords: Steklov problem; spectral gap

Citations: [Zbl 1055.60072](#)

[PDF](#) [XML](#) [ASCII](#) [DVI](#) [PS](#) [BibTeX](#) [Online Ordering](#) [Link to Full Text](#) [Link to Serial](#)

Copyright © 2008 Zentralblatt MATH | European Mathematical Society | FIZ Karlsruhe | Heidelberg Academy of Sciences  
Published by Springer-Verlag | Webmaster

■ ¡Muchas gracias!