

# JORNADA SOBRE ZENTRALBLATT MATH (Z-MATH):

El concepto editorial, la búsqueda y navegación en la red de información, mejoras previstas en el futuro próximo

*Bernd Wegner*



## Z-MATH grupo editorial

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casa editorial

Sociedad Europea de Matemáticas

Academia de Ciencias en Heidelberg

## ZMATH - criterios de calidad

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- Información completa sobre publicaciones en matemática
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- opiniones independientes de revisores
- clasificación apropiada del contenido
- enlaces a ofertas electrónicas en matemática
- programas para búsquedas cómodas y precisas

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Temas: Matemática pura y aplicada, - física matemática,  
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2007    más que 5.000

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---

Nombre del autor

Título del artículo

Nombre de la revista

Clasificación MSC (Mathematics Subject Classification)

Palabras clave

Año de publicación

Todas las palabras (basic index)

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Enlaces:

citas internas, a una versión electrónica del artículo (DOI), a la biblioteca del usuario (Open URL), a citas en el artículo (reference links)

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Lista de revistas

Navegación por MSC

Navegación en la historia de búsquedas

## Proyecto ERAM – Matemática clásica

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La base de datos JFM - integrado en Z-MATH

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Mathematische Zeitschrift, Mathematische Annalen

Inventiones Mathematicae, J. reine angew. Mathematik (Crelle)



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Display

1.  [JFM 01.0045.04 Clebsch, A.](#)

**Ueber eine Eigenschaft der Functionaldeterminanten.** (German)

Borchardt J. LXIX. 355-358. *Published:* (1868)

*MSC 1991:* \*[26B10](#), *Reviewer:* Netto, Dr. (Berlin)

2.  [JFM 01.0234.02 Clebsch, A.](#)

**Note sur les surfaces algébriques.** (French)

C. R. LXVII. 1238. *Published:* (1868)

*MSC 1991:* \*[51N35](#) [14J25](#), *Reviewer:* Kretzschmer, Dr. (Frankfurt a.O.)



3.  [JFM 01.0258.01 Clebsch, A.](#)

**Ueber die Flächen vierter Ordnung, welche eine Doppelcurve zweiten Grades besitzen.** (German)

Borchardt J. LXIX. 142-147. Berl. Monatsber. 1868. *Published:* 1868

*MSC 1991:* \*[14J25](#) [14J17](#), *Reviewer:* Schuhmann, Dr. (Berlin)

4.  [JFM 02.0058.02 Clebsch, A.](#)

**Zur Theorie der binären algebraischen Formen.** (German)

Gött. Nachr. 405-409. 1870.\*) Clebsch Ann. III. 265-267. 1870. *Published:* 1870

, *Reviewer:* Netto, Dr. (Berlin)

5.  [JFM 02.0062.01 Clebsch, A.; Gordan, P.](#)

**Ueber biternäre Formen mit contragredienten Variabeln.** (German)

Clebsch Ann. I. 359-400. 1869. *Published:* 1869

, *Reviewer:* Netto, Dr. (Berlin)

6.  [JFM 02.0064.01 Clebsch, A.; Gordan, P.](#)

**Ueber die Theorie der ternären cubischen Formen.** (German)

Clebsch Ann. I. 57-89. 1869. *Published:* 1869

, *Reviewer:* Netto, Dr. (Berlin)



1.  JFM 01.0234.02[Clebsch, A.](#)**Note sur les surfaces algébriques.**

(French)

*Title in English:* Note on algebraic surfaces.

[J] C. R. LXVII. 1238.

*Published:* (1868)

Analog wie man Curven in Geschlechter theilt (cf. Clebsch und Gordan, Theorie der Abel'schen Functionen, oder Cremona Preliminari di una teoria geom. delle superficie), kann man auch Flächen eintheilen. In dasselbe Geschlecht gehören zwei Oberflächen  $n^{\text{ten}}$  Grades, wenn sich von ihren Gleichungen  $f=0$ ,  $\varphi=0$  die eine auf rationale, algebraische Weise in die andre transformiren lässt, so dass jedem Punkt der einen nur ein Punkt der andern entspricht. Verfasser giebt nun an, was man als Ordnungszahl dieser Geschlechter ansehen kann. Er nimmt der Einfachheit wegen nur Rücksicht auf Flächen mit regelmässigen Singularitäten, d. h. solchen, die sich entweder auf jeder Fläche selbst oder auf ihrer Reciproken finden. Dann ist Ordnungszahl des Geschlechtes die Zahl  $p$  der willkürlichen Constanten einer Fläche  $n\text{-}4^{\text{ten}}$  Grades, welche durch die Doppel- oder Rückkehr-Curven (arêtes de rebroussement) auf der betrachteten Fläche  $n^{\text{ten}}$  Grades  $f=0$  gelegt werden kann. Clebsch zeigt, dass diese Zahl für alle Flächen desselben Geschlechtes constant bleibt.

[ [Kretzschmer, Dr. \(Frankfurt a.O.\)](#) ]*Subject heading:* Achter Abschnitt. Analytische Geometrie. Capitel 3. Geometrie des Raumes B. Algebraische Curven und Flächen*MSC 1991:*\*[51N35](#) Questions of classical algebraic geometry[14J25](#) Special surfaces*Keywords:* Algebraic surfaces*Editor:* Bolondi, G. (Trento)

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2.  JFM 02.0064.01[Clebsch, A.](#); [Gordan, P.](#)**Ueber die Theorie der ternären cubischen Formen.**

(German)

[J] Clebsch Ann. I. 57-89. 1869.

*Published:* 1869

Brioschi hat in den C. R. 1863 eine typische Darstellung der ternären cubischen Formen gegeben. Hier wird eine ähnliche typische Darstellung entwickelt, indem Methoden auseinandergesetzt werden, alle zu jener Function gehörigen algebraischen Formen durch vier Covarianten und drei in Bezug auf die Liniencoordinaten  $u_1, u_2, u_3$  lineare Zwischenformen auszudrücken. Um aber auch zugehörige Formen bequem und naturgemäss durch einfache zugehörige Formen darzustellen, wird ein zweites System gegeben, bei dem die Grundformen aus vier zugehörigen Formen und drei in Beziehung auf  $x$  linearen Zwischenformen bestehen. -- Der Formelreichthum der Arbeit macht es uns unmöglich, diese Abhandlung ins Einzelne zu verfolgen, ohne bis zum Einzelnen zu kommen.

[ [Netto, Dr. \(Berlin\)](#) ]*Subject heading:* Zweiter Abschnitt. Algebra. Capitel 2. Theorie der Formen.

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## Ueber die Theorie der ternären cubischen Formen.

[Clebsch, A., Gordan, P.](#)

In Periodicals

[Mathematische Annalen](#) Volume: 1

## Ueber die Theorie der ternären cubischen Formen.

Von A. CLEBSCH und P. GORDAN in GIESSEN.

Eine typische Darstellung der ternären cubischen Formen hat, auf Grund seiner Erweiterung der HERMITESCHEN Theorie der „formes associées“, Hr. BRIOSCI in den Comptes Rendus von 1863, erste Hälfte, p. 661 gegeben. Der vorliegende Aufsatz hat den Zweck, die Resultate des Hrn. BRIOSCI, oder vielmehr eine der seinigen ähnliche typische Darstellung aus der Theorie der ternären cubischen Formen zu entwickeln, und die dabei auftretenden Gestalten mit dieser Theorie in Zusammenhang zu bringen. In diesem Sinne wird das Folgende vielleicht für Diejenigen nicht ohne Interesse sein, welche der Theorie dieser Formen ein näheres Studium widmen.

## §. 1.

## Grundformeln.

Wir adoptiren im Folgenden größtentheils die Bezeichnungen des Hrn. ARONHOLD. Sei  $f$  die gegebene Function dritter Ordnung von  $x_1, x_2, x_3$ :

$$f_i = \frac{\partial f}{\partial x_i}, \quad f_{ij} = \frac{\partial^2 f}{\partial x_i \partial x_j}$$

und

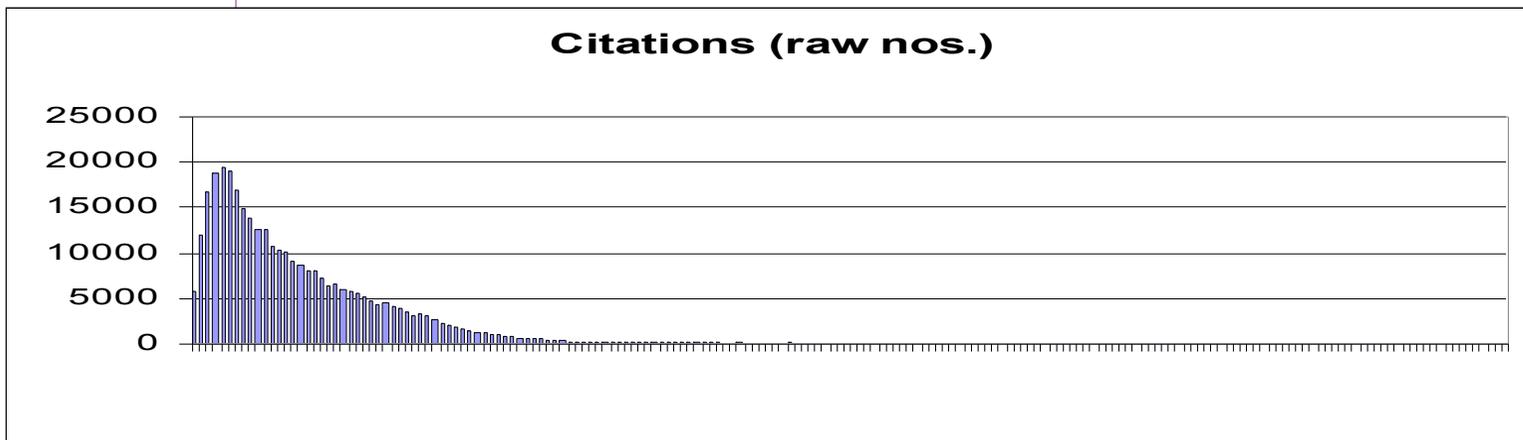
$$A = 6 \Delta \pm f_{11} f_{22} f_{33}.$$

Als zusammengesetzte Function benutzen wir  $\alpha f - \lambda A$ , und haben, nach ARONHOLD, finden, was der Klammer des §. 1. entspricht:

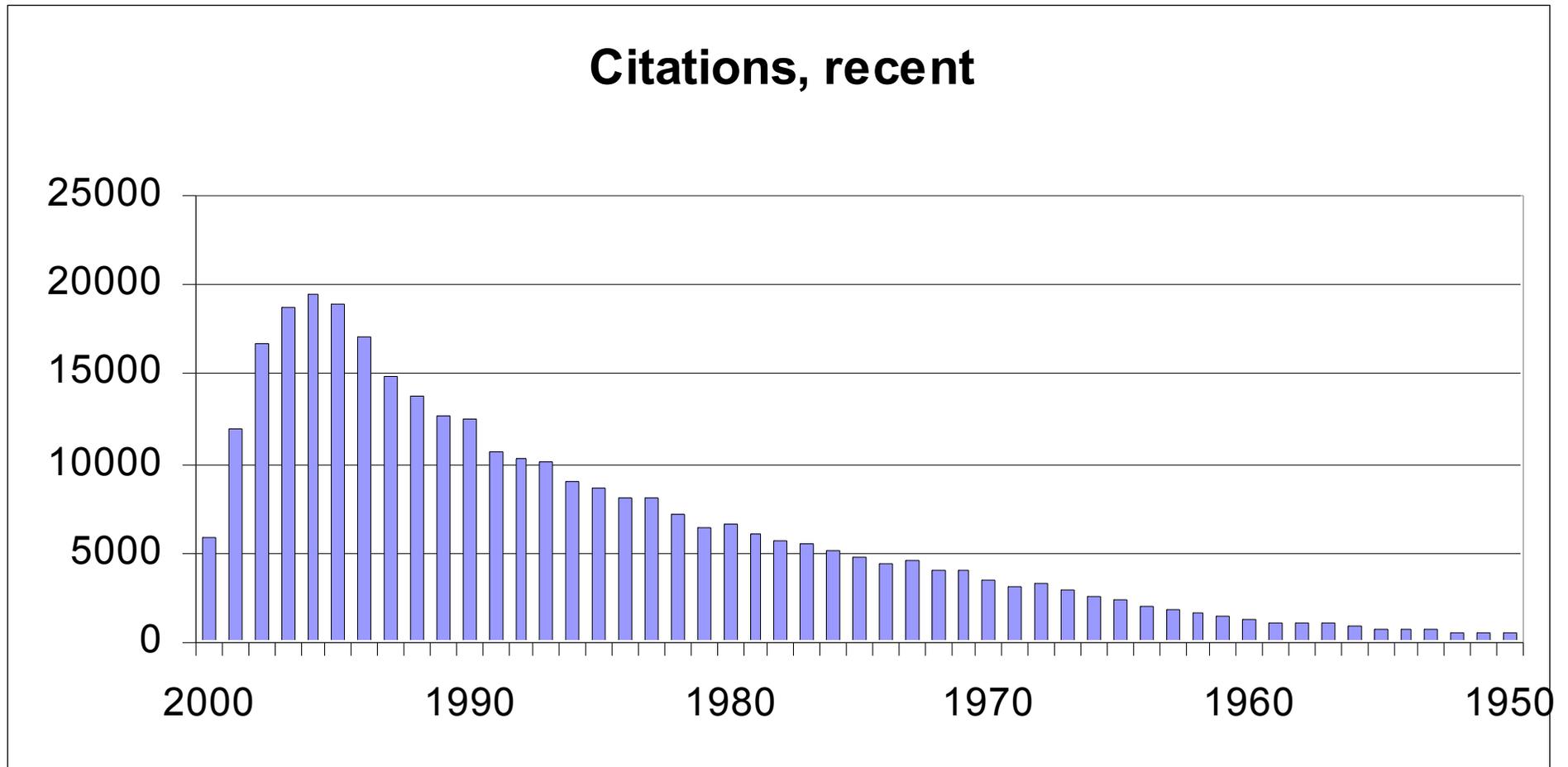


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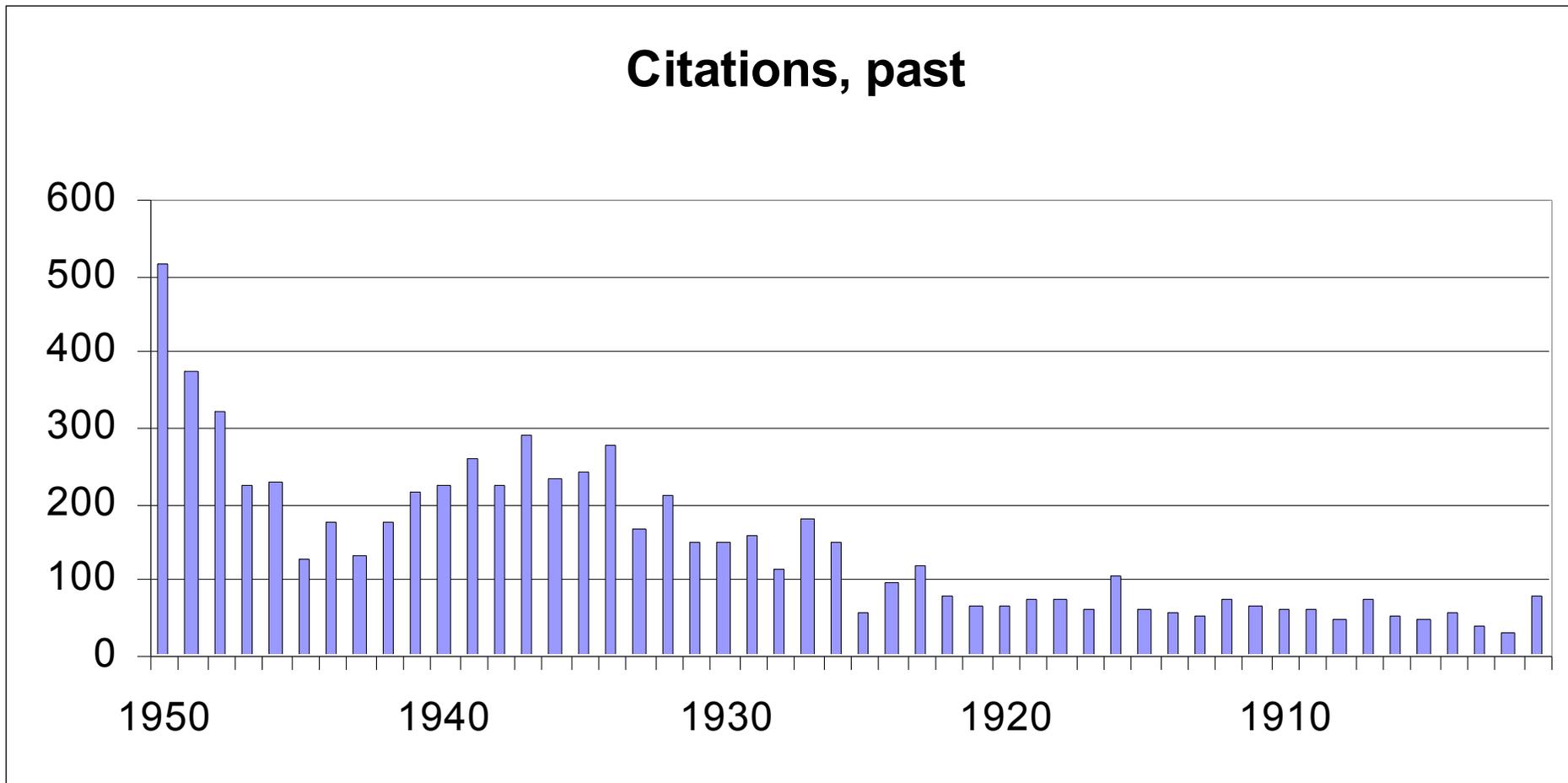


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# Los 50 años anteriores

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1 [ MATRIX ] Zbl 0990.05083 Erdős, Paul; Faudree, Ralph; Ordman, Edward T.   
**Blocking sets for paths of a given length.** (English)  
J. Comb. Math. Comb. Comput. 40, 65-78 (2002). MSC2000: \*05C38 05C35, Reviewer: Peter Horák (Safat)  
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2 [ MATRIX ] Zbl 0926.05016 Erdős, Paul; Fowler, Tom   
**Finding large  $\mathbb{F}_q$ -colored diameter two subgraphs.** (English)  
Graphs Comb. 15, No.1, 21-27 (1999). MSC2000: \*05C15 05C55, Reviewer: C.Jagger (Cambridge)  
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3 [ MATRIX ] Zbl 0924.05064 Erdős, Paul   
**A selection of problems and results in combinatorics.** (English)  
Comb. Probab. Comput. 8, No.1-2, 1-6 (1999). MSC2000: \*05C99, Reviewer: R.J.Faudree (Memphis)  
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4 [ MATRIX ] Zbl 0963.05068 Bollobás, Béla; Erdős, Paul   
**Graphs of extremal weights.** (English)  
Ars Comb. 50, 225-233 (1998). MSC2000: \*05C35 05C07, Reviewer: Martin Klazar (Praha)  
PDF XML ASCII DVI PS BibTeX Online Ordering Comment on this Item

5 [ MATRIX ] Zbl 0932.11013 Erdős, Paul; Sarkozy, Gabor N.   
**On cycles in the coprime graph of integers.** (English)  
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- 7: graph\* ai:erdős.paul so:comb. (70)
- 6: graph\* ai:erdős.paul so:combinatorics (78)
- 5: graph\* ai:erdős.paul (4)
- 4: graph\* au:erdős (460)
- 3: graph\* erdős (1551)
- 2: graph\* (97928)
- 1: graph (63777)

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#### Highlights

- Beyond partial differential equations
- 100 Years of Hardy's "A of Pure Mathematics"
- Bourbaki reprint

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- 13: any: graph\* & ai:erdős.p | so:comb. (21177)
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### Highlights

- Beyond partial differential equations
- 100 Years of Hardy's "A Course of Pure Mathematics"
- Bourbaki reprint

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1 [ MATRIX ] Zbl 1095.05037 Erdős, P.; Meir, A.; Sós, V.T.; Turán, P.

On some applications of graph theory. I. (English)

Discrete Math. 306, No. 10-11, 853-866 (2006). MSC2000: \*05C90

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2 [ MATRIX ] Zbl 1028.05031 Erdős, Paul; Hedetniemi, Stephen T.; Laskar, Renu C.; Prins, Geert C.E.

On the equality of the partial Grundy and upper chromatic numbers of graphs. (English)

Discrete Math. 272, No.1, 53-64 (2003). MSC2000: \*05C15

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3 [ MATRIX ] Zbl 1038.05055 Bollobás, B.; Erdős, P.; Faudree, R. J.; Rousseau, C. C.; Schelp, R. H.

Random induced graphs. (English)

Discrete Math. 248, No. 1-3, 249-254 (2002). MSC2000: \*05C80, Reviewer: James G. Oxley (Baton Rouge)

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4 [ MATRIX ] Zbl 0996.05076 Alon, N.; Erdős, P.; Gunderson, D.S.; Molloy, M.

A Ramsey-type problem and the Turán numbers. (English)

J. Graph Theory 40, No.2, 120-129 (2002). MSC2000: \*05C35 05C55 05D10, Reviewer: Ko-Wei Lih (Nankang)

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5 [ MATRIX ] Zbl 0983.05034 Erdős, P.; Faudree, R.J.; Gould, R.J.; Jacobson, M.S.; Lehel, J.

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13: any: graph\* & ( ai:erdös.paul | so:comb.) (9344)  
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[ MATRIX ] Zbl 0990.05083  
**Erdős, Paul; Faudree, Ralph; Ordman, Edward T.**  
**Blocking sets for paths of a given length.** (English)  
[J] [J. Comb. Math. Comb. Comput.](#) 40, 65-78 (2002). ISSN 0835-3026

Let  $\nu_k$  be the minimum number of vertices of a graph  $G$  which is  $k$ -blocking if  $\nu_k \leq \frac{|W|}{|G|}$ , where the minimum is taken over all  $k$ -blocking sets  $W$ . This blocking ratio is studied for some special graphs as well as for graphs (Peter Horák (Safat))

MSC 2000:  
\*05C38 Paths and cycles  
05C35 Extremal problems (graph theory)

Keywords: path; blocking set

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[ MATRIX ] Zbl 0926.05016  
**Erdős, Paul; Fowler, Tom**  
**Finding large  $p$ -colored diameter two subgraphs.** (English)  
[J] [Graphs Comb.](#) 15, No.1, 21-27 (1999). ISSN 0911-0119; ISSN 1435-

Given a colouring of the edges of the complete graph  $K_n$  on  $n$  vertices, find a subgraph whose edges only use colours from some  $p$ -element set. It is shown that there is a  $p$ -coloured diameter two subgraph of  $K_n$  containing at least  $(k+p)$  vertices for any additive constant  $k$  satisfying  $k \leq n/2$ . (C.Jagger (Cambridge))

MSC 2000:  
\*05C15 Chromatic theory of graphs and maps  
05C55 Generalized Ramsey theory

Keywords: colouring; diameter

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[ MATRIX ] Zbl 0924.05064  
**Erdős, Paul**  
**A selection of problems and results in combinatorics.** (English)  
[J] [Comb. Probab. Comput.](#) 8, No.1-2, 1-6 (1999). ISSN 0963-5483; ISS

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**Title:** On some applications of graph theory. I.  
**Source:** Discrete mathematics [0012-365X] yr:2006 vol:306 iss:10-11 pg:853

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- History**
- 3: ti:Ricci flow (168)
  - 2: an:1130.53003 (1)
  - 1: au:Perelman, Grisha & ti:Ricci flow (3)
- 

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[Zbl 1130.53001](#)  
[Perelman, Grisha](#)

**The entropy formula for the Ricci flow and its geometric applications.** (English)  
 arXiv e-print service, Cornell University Library, Paper No. 0211159, 39 p., electronic only (2002)

This is the first part of a masterpiece of mathematics which leads to a proof of the Poincaré and geometrization conjectures. Although the most striking application is in dimension 3 a good deal of the results presented here are valid in an arbitrary dimension  $n$ . This is the case for sections 1 to 10 of the present paper. It concerns the Ricci flow introduced by Richard Hamilton in the celebrated paper [R. Hamilton, J. Differ. Geom. 17, 255-306 (1982); [Zbl 0504.53034](#)]. Brief descriptions of each section follow. The detailed proofs can be read in [B. Kleiner and J. Lott, Notes on Perelman's papers", [arXiv: math.DG/0605567](#) (2006)], [J. Morgan and G. Tian, Ricci flow and the Poincaré conjecture, Clay Mathematics Monographs 3 (2007; [Zbl pre05188193](#))] and [H.-D. Cao and X.-P. Zhu, Asian J. Math. 10, No. 2, 165-492 (2006; [Zbl pre05071765](#))].

Section 1: On a closed manifold  $M$  the Ricci flow is presented as a gradient flow of a functional defined on the couples  $(g, f)$ , where  $g$  is a Riemannian metric and  $f$  is a function on  $M$ . The function is chosen so that  $e^{-f} d vol_g$  is a fixed measure. The functional is

$$F(g, f) = \int_M (R + |\nabla f|^2) e^{-f} d vol_g,$$

in dimension 3 the structure of the metric  $g$  and the conformal factor  $f$  is taken for this metric. Without proof to be a graph manifold. Some algorithms which are adapted from the work summarized here are more precisely treated in G. Perelman, "Ricci flow with surgery on three-manifolds", [arXiv: math.DG/0307155](#) (2003; [Zbl 1130.53002](#))]. Others concerning the case where the flow develops singularities are sketched but not justified. The reader is referred to [Perelman, loc. cit.].

[Gérard Besson (Grenoble)]

- MSC 2000:
- [\\*53-02](#) Research monographs (differential geometry)
  - [53C44](#) Geometric evolution equations (mean curvature flow)
  - [53C21](#) Methods of Riemannian geometry (global)
  - [57M40](#) Characterizations of Euclidean 3-space and 3-sphere
  - [57R60](#) Homotopy spheres, Poincaré conjecture

**Keywords:**  
 gradient flow; expanding breathers; Ricci solitons; shrinking breathers; differential Harnack inequality

**Citations:**  
[Zbl 0504.53034](#); [Zbl 1130.53002](#); [Zbl pre05188193](#); [Zbl pre05071765](#)



# Titulo

This is the first part of a masterpiece of mathematics which leads to a proof of the Poincaré and geometrization conjectures. Although the most striking application is in dimension 3 a good deal of the results presented here are valid in an arbitrary dimension  $n$ . This is the case for sections 1 to 10 of the present paper. It concerns the Ricci flow introduced by Richard Hamilton in the celebrated paper [*R. Hamilton*, *J. Differ. Geom.* 17, 255-306 (1982); [Zbl 0504.53034](#)]. Brief descriptions of each section follow. The detailed proofs can be read in [*B. Kleiner and J. Lott*, *Notes on Perelman's papers*", [arXiv: math.DG/0605567](#) (2006)], [*J. Morgan and G. Tian*, *Ricci flow and the Poincaré conjecture*, *Clay Mathematics Monographs* 3 (2007; [Zbl pre05188193](#))] and [*H.-D. Cao and X.-P. Zhu*, *Asian J. Math.* 10, No. 2, 165-492 (2006; [Zbl pre0507.1765](#))].

Section 1: On a closed manifold  $M$  the Ricci flow is presented as a gradient flow of a functional defined on the couples  $(g, f)$ , where  $g$  is a Riemannian metric and  $f$  is a function on  $M$ . The function is chosen so that  $e^{-f} d vol_g$  is a fixed measure. The functional is

$$F(g, f) = \int_M (R + |\nabla f|^2) e^{-f} d vol_g,$$

in which  $R$  has the scalar curvature of the metric  $g$  and the norm is taken for this metric. Without proof to be a graph manifold. Some analogies which are adapted from the work summarize and are more precisely treated in G. Perelman, "Ricci flow with surgery on three-manifolds", [arXiv: math.DG/0307109](#) (2003; [Zbl 1130.53002](#)). Others concerning the case where the flow develops singularities are sketched but not justified. The reader is referred to [Perelman, loc. cit.].

[Gérard Besson (Grenoble)]

MSC 2000:

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- [53C21](#) Methods of Riemannian geometry (global)
- [57M40](#) Characterizations of Euclidean 3-space and 3-sphere
- [57R60](#) Homotopy spheres, Poincaré conjecture

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[Zbl 1130.01012](#) [Zbl 1096.58008](#) [Zbl 1130.53002](#) [Zbl 1108.53002](#)

References:

- [1] *M. T. Anderson*, *Scalar curvature and geometrization conjecture for three-manifolds*. *Comparison Geometry* (Berkeley, 1993-94), MSRI Publ. 30, 49-82 (1997)
- [2] *D. Bakry, M. Émery*, *Diffusions hypercontractives*. in: *Sémin. de probabilités, XIX, 1983/84*, *Lect. Notes Math.* 1123, 177-206 (1985; [Zbl 0561.60080](#))
- [3] *H.-D. Cao, B. Chow*, *Recent developments on the Ricci flow*. *Bull. Am. Math. Soc., New Ser.* 36, No. 1, 59-74 (1999; [Zbl 0926.53016](#))
- [4] *J. Cheeger, T. H. Colding*, *On the structure of spaces with Ricci curvature bounded below. I*. *J. Differ. Geom.* 46, No. 3, 406-480 (1997; [Zbl 0902.53034](#))
- [5] *B. Chow*, *On the entropy estimate for the Ricci flow on compact 2-orbifolds*. *J. Differ. Geom.* 33, No. 2, 597-600 (1991; [Zbl 0734.53034](#))
- [6] *B. Chow, S. C. Chu*, *A geometric interpretation of Hamilton's Harnack inequality for the Ricci flow*. *Math. Res. Lett.* 2, No. 6, 701-718 (1995; [Zbl 0856.53030](#))
- [7] *E. D'Hoker*, *String theory. Quantum fields and strings: a course for mathematicians*, 807-1011. Princeton. (1996-97)
- [8] *E. Ecker*, *Logarithmic Sobolev inequalities on submanifolds of euclidean space*. *J. Reine Angew. Math.* 522, 105-118 (1999)

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## ZMATH - proyectos

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Conversi3n a MathML (listo en un mes), acceso para ciegos, la red semántica

Desarrollar un directorio inteligente de revistas matemáticas, historia de una revista, informaci3n editorial, ofertas electr3nicas, temas preferidos

Producci3n de reseñas revisadas, artículos con influencia fundamental a la investigaci3n en matemáticas

Establecer un acceso para non-matemáticos, traducci3n de otras ontologías a la ontología matemática

Remplazar MSC por un método moderno para la clasificaci3n de los artículos

# Gracias por su atención

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