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▶ Mathematical Reviews

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Manifolds, Curves, and Surfaces

Translated from the French by S. Levy

An introduction to modern differential geometry. The authors begin with the necessary tools from analysis and topology, including Sard's theorem, de Rham cohomology, calculus on manifolds, and a degree theory. The general theory is illustrated and expanded using the examples of curves and surfaces. In particular, the book contains the classical local and global theory of surfaces.

1988. XII, 474 p. 249 illus. (Graduate Texts in Mathematics, Volume 115) Hardcover  
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9 780387 966267

M. Berger, Bures-sur-Yvette, France

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1st ed. 1987. Corr. 4th printing 2009. XIV, 430 p. (Universitext) Softcover  
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M. Berger, Institute des Hautes Etudes Scientifiques, Bures-sur-Yvette, France

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Translated from the French by M. Cole, S. Levy

This is the second of a two-volume textbook that provides a very readable and lively presentation of large parts of geometry in the classical sense. For each topic the author presents a theorem that is esthetically pleasing and easily stated, although the proof may be quite hard and concealed. Yet another strong trait of the book is that it provides a comprehensive and unified reference source for the field of geometry in the full breadth of its subfields and ramifications.

1st ed. 1987. Corr. 4th printing 2009. X, 406 p. 364 illus. (Universitext) Softcover  
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From the reviews ▶ ... far more readable than most ... it is also much more complete.

▶ Olivier Debarre, Mathematical Reviews, 1994

2nd augmented ed. 2004. XII, 638 p. (Grundlehren der mathematischen Wissenschaften, Volume 302) Hardcover  
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▶ Mathematical Reviews

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1998. IX, 430 p. (Ergebnisse der Mathematik und ihrer Grenzgebiete. 3. Folge / A Series of Modern Surveys in Mathematics, Volume 36) Hardcover  
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1st ed. 1982. Corr. 3rd printing 1995. XIV, 331 p. 92 illus. (Graduate Texts in Mathematics, Volume 82) Hardcover  
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► Statistical Papers

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The central theme of this book is the solution of Diophantine equations, i.e., equations or systems of polynomial equations which must be solved in integers, rational numbers or more generally in algebraic numbers.

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2nd ed. 1990. Corr. 4th printing 1997. XVI, 399 p. 1 illus. (Graduate Texts in Mathematics, Volume 96) Hardcover  
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2nd ed. 1978. Corr. 7th printing 1995. XIII, 317 p. 30 illus. (Graduate Texts in Mathematics, Volume 11) Hardcover  
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2nd ed. 1979. XIV, 228 p. 10 illus. (Universitext)  
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1st ed. 2000. Corr. 2nd printing 2000. XII, 250 p. (Springer Undergraduate Mathematics Series)

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2007. XIV, 356 p. 42 illus. Hardcover

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▶ Mathematical Reviews

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▶ Mathematical Reviews

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1st ed. 1976. Corr. 6th printing 1997. X, 222 p.  
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2006. XI, 234 p. 126 illus., 5 in color. (Mathematics and Visualization) Hardcover  
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1st ed. 1972. Corr. 7th printing 1997. XII, 173 p.  
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K. Jänich, Universität Regensburg, Germany

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Translated from the German by S. Levy

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▶ Mathematical Reviews

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► Mathematical Reviews

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▶ Bulletin of the L.M.S.

1st ed. 1990. 3rd printing 2002. X, 512 p. (Grund-  
lehren der mathematischen Wissenschaften,  
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2001. XII, 375 p. (Ergebnisse der Mathematik und  
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**A. Kox**, University of Amsterdam, The Netherlands (Ed.)

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9 783540 677338

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▶ Zentralblatt MATH

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H. Kuo, Louisiana State University, Baton Rouge, LA, USA

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▶ The Mathematical Sciences Digital Library

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3rd ed. 2004. XXII, 631 p. 251 illus. (Applied Mathematical Sciences, Volume 112) Hardcover  
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9 783540 313427

S. Lang, Yale University, New Haven, CT, USA

## Algebra

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3rd rev. ed. 2002. Corr. 4th printing 2004. XV, 914 p. (Graduate Texts in Mathematics, Volume 211) Hardcover  
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9 780387 953854

S. Lang, Yale University, New Haven, CT, USA

## Algebraic Number Theory

This is a second edition of Lang's well-known textbook. It covers all of the basic material of classical algebraic number theory, giving the student the background necessary for the study of further topics in algebraic number theory, such as cyclotomic fields, or modular forms.

**From the reviews** ▶ *Lang's books are always of great value for the graduate student and the research mathematician. This updated edition of Algebraic number theory is no exception.*  
▶ Mathematical Reviews

2nd ed. 1994. Corr. 3rd printing 2000. XIII, 357 p. 7 illus. (Graduate Texts in Mathematics, Volume 110) Hardcover  
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▶ EMS Newsletter

1st ed. 1999. Corr. 2nd printing 2001. XVII, 535 p. 22 illus. (Graduate Texts in Mathematics, Volume 191) Hardcover  
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S. Lang, Yale University, New Haven, CT, USA

## Introduction to Differentiable Manifolds

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2002. XI, 250 p. 12 illus. (Universitext) Hardcover  
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Reprint of the 1st ed. Addison-Wesley, 1964.

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R. Lazarsfeld, University of Michigan, Ann Arbor, MI, USA

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Here is the second part of a two-volume work that contains a contemporary account of positivity in complex algebraic geometry. This volume begins with a survey of positivity for vector bundles and moves on to a systematic development of the theory of multiplier ideals and their applications. At least a third of the book is devoted to concrete examples, applications, and pointers to further developments.

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2000. XVII, 385 p. 194 illus. (Graduate Texts in Mathematics, Volume 202) Softcover  
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M. Loeve

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This book is intended as a text for graduate students and as a reference for workers in probability and statistics. The prerequisite is honest calculus.

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M. Loeve

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4th ed. 1978. 3rd printing 1994. XVI, 431 p. (Graduate Texts in Mathematics, Volume 46) Hardcover  
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2002. XV, 595 p. (Ergebnisse der Mathematik und ihrer Grenzgebiete. 3. Folge / A Series of Modern Surveys in Mathematics, Volume 44) Hardcover  
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1st ed. 1999. Corr. 3rd printing 2007. XIV, 274 p. (Lecture Notes in Mathematics, Volume 1702) Softcover  
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▶ Mathematical Reviews

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## Model Theory: An Introduction

**From the reviews** ▶ *Model theory is the branch of mathematical logic that examines what it means for a first-order sentence... to be true in a particular structure.... This is a text for graduate students, mainly aimed at those specializing in logic, but also of interest for mathematicians outside logic who want to know what model theory can offer them... it is one which makes a good case for model theory as much more than a tool for specialist logicians.* ▶ The Mathematical Gazette

2002. VIII, 342 p. 2 illus. (Graduate Texts in Mathematics, Volume 217) Hardcover  
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J. Marsden, A. Weinstein

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2nd ed. 1985. XV, 397 p. 528 illus.  
(Undergraduate Texts in Mathematics) Softcover  
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J. Marsden, California Institute of Technology, Pasadena, CA, USA; A. Weinstein, University of California, Berkeley, CA, USA

## Calculus II

The second of a three-volume work, this book is the outgrowth of the authors' experience teaching calculus at Berkeley. It covers the techniques and applications of integration, infinite series, and differential equations. Throughout the book, the authors motivate the study of calculus using its applications. Many solved problems are included and extensive exercises are given at the end of each section. In addition, a separate student guide has been prepared.

2nd ed. 1985. Corr. 4th printing 1998. XV, 345 p. 297 illus. (Undergraduate Texts in Mathematics) Softcover  
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J. Marsden, A. Weinstein, University of California, Berkeley, CA, USA

## Calculus III

The third of a three-volume work, this book is the outgrowth of the authors' experience teaching calculus at Berkeley. It covers multivariable calculus and begins with the necessary material from analytical geometry. It goes on to cover partial differentiation, the gradient and its applications, multiple integration, and the theorems of Green, Gauss and Stokes. The authors motivate the study of calculus using its applications. Features many solved problems and extensive exercises.

2nd ed. 1985. Corr. 4th printing 1998. XV, 341 p. 431 illus. (Undergraduate Texts in Mathematics) Softcover  
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D. Marsh

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2nd ed. 2005. XVI, 352 p. 127 illus. (Springer Undergraduate Mathematics Series) Softcover  
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9 781852 338015

T. P. Mathew

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This book serves as a matrix oriented introduction to domain decomposition methodology. Among the topics discussed are hybrid formulations, Schwarz, substructuring and Lagrange multiplier methods for elliptic equations, computational issues, least squares-control methods, multilevel methods, non-self adjoint problems, parabolic equations, saddle point applications (Stokes, porous media and optimal control), and more.

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J. Matousek, Charles University, Prague, Czech Republic; B. Gärtner, ETH Zurich, Switzerland

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**From the contents** ▶ 1. Corps ordonnés, corps réels clos ▶ 2. Ensembles sémi-algébriques ▶ 3. Variétés algébriques réelles: définitions et exemples ▶ 4. Algèbre réelle ▶ 5. Le principe de Tarski-Seidenberg comme outil de transfert ▶ 6. Le 17<sup>e</sup> problème de Hilbert ▶ 7. Spectre réel ▶ 8. Fonctions de Nash ▶ 9. Stratification ▶ 10. Places ▶ 11. Topologie des ensembles algébriques sur un corps réel clos ▶ 12. Fibres vectoriels algébriques.

1987. X, 373 p. 44 ill. (Ergebnisse der Mathematik und ihrer Grenzgebiete. 3. Folge / A Series of Modern Surveys in Mathematics, Volume 12) Relié  
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## Optimisation Numérique

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Ce livre est exclusivement consacré aux algorithmes numériques d'optimisation (quasi-Newton, faisceaux, programmation quadratique successive, points intérieurs); les bases théoriques (conditions d'optimalité, multiplicateurs de Lagrange) sont supposées connues.

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J. Bost, Université Paris-Sud, Orsay, France; F. Loeser, Centre de Mathématique, Ecole Polytechnique, Palaiseau, France; M. Raynaud, Université Paris-Sud, Orsay, France (Eds.)

## Courbes semi-stables et groupe fondamental en géométrie algébrique

Luminy, Décembre 1998

This volume contains detailed expositions of talks given during an instructional conference held at Luminy in December 1998, which was devoted to classical and recent results concerning the fundamental group of algebraic curves, especially over finite and local fields.

2000. IX, 289 p. (Progress in Mathematics, Volume 187) Relié  
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### Chapitres 1 à 5

Ce troisième volume du Livre sur les Groupes et algèbres de Lie, neuvième Livre du traité, est consacré aux structures de systèmes de racines, de groupes de Coxeter et de systèmes de Tits, qui apparaissent naturellement dans l'étude des groupes de Lie analytique ou algébriques. Il comprend les chapitres: Groupes de Coxeter et systèmes de Tits, Groupes engendrés par des réflexions, Systèmes de racines.

Réimpression inchangée de l'édition de 1981.  
2007. 368 p. Broché  
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**Groupes et algèbres de Lie**

Chapitres 4, 5 et 6

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Réimpression inchangée de l'édition de 1968. 2007. 288 p. Broché  
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N. Bourbaki

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Chapitres 1 et 2

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Réimpression inchangée de l'édition de 1967. 2007. IV, 166 p. Broché  
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A. Chenciner, Université Paris VII, France

**Courbes Algébriques Planes**

Issu d'un cours de maîtrise de l'Université Paris VII, ce texte est réédité tel qu'il était paru en 1978. A propos du théorème de Bézout sont introduits divers outils nécessaires au développement de la notion de multiplicité d'intersection de deux courbes algébriques dans le plan projectif complexe.

1ière ed. 1978. 2ième tirage 2008. X, 160 p. Broché  
ISBN ► 978-3-540-33707-2

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C. Chevalley

**Classification des Groupes Algébriques Semi-simples**

The Classification of Semi-simple Algebraic Groups

Révision par P. Cartier

Le texte de cet ouvrage correspond au Séminaire dirigé par Claude Chevalley, à l'École Normale Supérieure de Paris, pendant les années universitaires 1956/57 et 1957/58.

2005. XIII, 276 p. (Collected Works of Claude Chevalley, Volume 3) Relié  
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**Processus stochastiques et fiabilité des systèmes**

Le fil directeur de ce livre, construit à partir des cours de DESS et de DEA de l'auteur, est la fiabilité. Son but est de montrer concrètement ce que peut apporter l'étude des processus stochastiques dans ce domaine. Chemin faisant, cela permet d'aborder, dans des cas relativement simples, des techniques variées utilisées dans l'étude des processus stochastiques, tout en conservant l'esprit des démonstrations générales.

1997. XIV, 436 p. (Mathématiques et Applications, Volume 28) Broché  
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L. Decreusefond, A. Maruani, École Nationale Supérieure des Télécommunications, Paris, France

**Mathématiques, Informatique, Physique. Au fil des TIPE**

Responsables pédagogiques de l'épreuve pour les mathématiques, l'informatique et la physique, L. Decreusefond et A. Maruani ont contribué de manière significative à la conception et à la mise en œuvre des TIPE. Cet ouvrage présente neuf dossiers de mathématiques, de physique ou d'informatique proposés au concours. Chaque sujet est accompagné de remarques générales, d'un commentaire, d'une suggestion de plan, de questions qu'un jury aurait pu poser et d'un développement remplaçant le thème du dossier dans son contexte scientifique.

2005. XIII, 268 p. (SCOPOS, Volume 19) Broché  
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## Optimisation appliquée

Cet ouvrage présente les concepts fondamentaux d'optimisation classique et de programmation linéaire. Il comporte une partie de théorie mathématique sur le calcul matriciel et les systèmes d'équations et d'inéquations linéaires. L'ouvrage traite ensuite d'optimisation classique avec et sans contraintes, de programmation linéaire, de la méthode du simplexe et du simplexe révisé. Les derniers chapitres sont consacrés à la dualité, à la post-optimisation et analyse de sensibilité ainsi qu'aux problèmes de transport.

2005. X, 334 p. Broché  
ISBN ► 978-2-287-21335-9

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M. Duflo, Université de Marne-la-Vallée, Noisy-Le-Grand, France

## Algorithmes stochastiques

Au cours des dernières années, les algorithmes stochastiques se sont beaucoup développés tant sur le plan de l'analyse mathématique que vers diverses applications: automatique, images, neurones, statistique... Ce livre présente les divers types d'algorithmes stochastiques, illustrés par des exemples: algorithmes à pas décroissants, algorithmes markoviens, recuit simulé.

1996. XIII, 319 p. (Mathématiques et Applications, Volume 23) Broché  
ISBN ► 978-3-540-60699-4

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A. Ern, CERMICS, ENPC, Marne la Vallée, France;  
J. Guermont, LIMSI, CNRS, Orsay, France

## Éléments finis: théorie, applications, mise en oeuvre

Ces notes de cours (Ecole Nationale des Ponts et Chaussées, DEA de Mécanique de Paris VI) présentent la méthode des éléments finis dans un cadre mathématique rigoureux. En accordant une place fondamentale aux conditions inf-sup, elles s'affranchissent du cadre réducteur Lax-Milgram/Galerkin standard.

2002. CDXXX, 9 p. (Mathématiques et Applications, Volume 36) Broché  
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## L'isomorphisme entre les tours de Lubin-Tate et de Drinfeld

Ce livre contient une démonstration détaillée et complète de l'existence d'un isomorphisme équivariant entre les tours p-adiques de Lubin-Tate et de Drinfeld. Le résultat est établi en égales et inégales caractéristiques.

2008. XIII, 406 p. (Progress in Mathematics, Volume 262) Relié  
ISBN ► 978-3-7643-8455-5

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## Analyse mathématique I

### Convergence, fonctions élémentaires

Les deux premiers volumes de cet ouvrage sont consacrés aux fonctions dans  $\mathbb{R}$  ou  $\mathbb{C}$ , y compris la théorie élémentaire des séries et intégrales de Fourier et une partie de celle des fonctions holomorphes. L'exposé, non strictement linéaire, combine indications historiques et raisonnements rigoureux.

2ème éd. corr. 2001. XX, 458 p. Broché  
ISBN ► 978-3-540-42057-6

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R. Godement, Université Paris VII, France

## Analyse mathématique II

### Calcul différentiel et intégral, séries de Fourier, fonctions holomorphes

Les volumes 3 et 4 traiteront principalement des fonctions analytiques (théorie de Cauchy, théorie analytique des nombres et fonctions modulaires), ainsi que du calcul différentiel sur les variétés, avec un court exposé de l'intégrale de Lebesgue, en suivant d'assez près le célèbre cours donné longtemps par l'auteur à l'Université Paris VII.

2ème éd. corrigée 2003. VIII, 490 p. 19 ill. Broché  
ISBN ► 978-3-540-00655-8

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R. Godement, Université Paris VII, France

## Analyse mathématique III

Fonctions analytiques, différentielles et variétés, surfaces de Riemann

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2002. IX, 338 p. 27 ill. Broché  
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R. Godement, Université de Paris VII, Paris, France

## Analyse mathématique IV

Intégration et théorie spectrale, analyse harmonique, le jardin des délices modulaires

Ce 4<sup>ème</sup> volume initiera le lecteur à l'analyse fonctionnelle et aux méthodes de la théorie des fonctions modulaires. Tout comme pour les volumes 1 à 3, on reconnaîtra ici encore, le style inimitable de l'auteur et pas seulement par son refus de l'écriture condensée en usage dans de nombreux manuels. Mariant judicieusement les mathématiques dites 'modernes' et 'classiques', la première partie (Intégration) est d'utilité universelle tandis que la seconde oriente le lecteur vers un domaine de recherche spécialisé et très actif.

2003. XII, 599 p. 4 ill. Broché  
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A. Henrot, Université Henri Poincaré, Vandoeuvre-les-Nancy, France; M. Pierre, Antenne de Bretagne de l'ENS Cachan, Bruz, France

## Variation et optimisation de formes

### Une analyse géométrique

Ce livre est une initiation aux approches modernes de l'optimisation mathématique de formes. Il s'appuie sur les seules connaissances de première année de Master de mathématiques, mais permet déjà d'aborder les questions ouvertes dans ce domaine en pleine effervescence. On y développe la méthodologie ainsi que les outils d'analyse mathématique et de géométrie nécessaires à l'étude des variations de domaines.

2005. XII, 334 p. (Mathématiques et Applications, Volume 48) Broché  
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O. Kavian, Université de Nancy, France

## Introduction à la théorie des points critiques

### et applications aux problèmes elliptiques

Ce livre est conçu comme un manuel auto-suffisant pour tous ceux qui ont à résoudre ou étudier des problèmes elliptiques semi-linéaires. On y présente l'approche variationnelle mais les outils de base et le degré topologique peuvent être employés dans d'autres approches. Les problèmes sans compacité ainsi que les problèmes sans symétrie y sont étudiés. Avec plus de 150 exercices ou problèmes.

1993. VIII, 325 p. (Mathématiques et Applications, Volume 13) Broché  
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B. Lapeyre, E. Pardoux, R. Sentis

## Méthodes de Monte-Carlo pour les équations de transport et de diffusion

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1998. X, 178 p. (Mathématiques et Applications, Volume 29) Broché  
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C. Le Bris, École Nationale des Ponts et Chaussées, Marne la Vallée, France

## Systèmes multi-échelles

### Modélisation et simulation

Systèmes multi-échelles est une introduction à la problématique des systèmes multi-échelles du point de vue du mathématicien appliqué. Il se compose d'une mosaïque d'exemples de problèmes issus de la physique au sens large qui présentent pour leur modélisation et leur simulation cette difficulté essentielle de comporter en leur sein des échelles de temps ou d'espace très différentes.

2005. XII, 214 p. 35 ill. (Mathématiques et Applications, Volume 47) Broché  
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A. Lichnewsky, Université Paris Sud, Orsay, France (Ed.)

## Modélisation mathématique: un autre regard

Cet ouvrage rassemble plusieurs textes qui ont été soumis aux candidats de l'épreuve de modélisation du concours d'agrégation de mathématiques. Les textes sont complétés par une présentation de l'auteur, et plusieurs propositions d'exploitation convenant soit à cette épreuve, soit au contexte des T.I.P.E. et T.P.E. Les connaissances mathématiques correspondant aux deux premiers cycles universitaires y sont appliquées dans des situations concrètes simples aux prolongements multiples.

2002. XV, 267 p. 35 ill. (SCOPOS, Volume 16) Broché  
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O. Papini, Université d'Aix-Marseille 2, Marseille, France; J. Wolfmann, Université de Toulon, La Garde, France

## Algèbre discrète et codes correcteurs

Cet ouvrage issu d'enseignements de 2ème et 3ème cycle se veut une initiation à la théorie algébrique des codes correcteurs d'erreurs. Il s'adresse aussi bien à un public d'étudiants que de chercheurs ou d'ingénieurs dans le domaine des mathématiques ou de l'informatique. Il aborde à la fois les aspects théoriques et pratiques. Il présente un aperçu historique de la Théorie des Codes.

1995. XIII, 259 p. (Mathématiques et Applications, Volume 20) Broché  
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A. Quarteroni, Ecole Polytechnique Fédérale de Lausanne, Switzerland; R. Sacco, F. Saleri, Politecnico di Milano, Italy

## Méthodes Numériques

### Algorithmes, analyse et applications

Ce livre a pour but de présenter les fondements théoriques et méthodologiques de l'analyse numérique. Une attention toute particulière est portée sur les concepts de stabilité, précision et complexité des algorithmes. Les méthodes modernes relatives aux thèmes suivants sont présentées et analysées en détail.

2007. XIV, 538 p. Broché  
ISBN ► 978-88-470-0495-5

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J. Rakotoson, Université de Poitiers, Futuroscope Chasseneuil, France

## Réarrangement Relatif

### Un instrument d'estimations dans les problèmes aux limites

L'objectif de ce livre est de présenter une méthode méconnue voire nouvelle basée sur le concept du réarrangement relatif qui est le sujet principal de ce livre. Pour ce faire, on a développé des propriétés du réarrangement monotone dont certaines ne se trouvent dans aucun autre ouvrage que dans ce livre (sauf dans des revues) comme les inégalités de Polyà-Szego ou les  $C_\alpha$ -réarrangements.

2008. XVI, 294 p. 6 ill. (Mathématiques et Applications, Volume 64) Broché  
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E. Rio, Université Paris Sud, Orsay, France

## Théorie asymptotique des processus aléatoires faiblement dépendants

Ces notes sont consacrées aux inégalités et aux théorèmes limites classiques pour les suites de variables aléatoires absolument régulières ou fortement mélangeantes au sens de Rosenblatt. Le but poursuivi est de donner des outils techniques pour l'étude des processus faiblement dépendants aux statisticiens ou aux probabilistes travaillant sur ces processus.

2000. XII, 170 p. (Mathématiques et Applications, Volume 31) Broché  
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P. Robert, INRIA, Le Chesnay, France

## Réseaux et files d'attente: méthodes probabilistes

Ce livre présente une catégorie de modèles probabilistes regroupés sous le nom de réseaux ou systèmes de files d'attente. Ces modèles interviennent dans de nombreuses applications, comme les réseaux de télécommunication ou les réseaux informatiques. Sur le plan théorique ils sont à la source d'une large classe de problèmes : marches aléatoires et diffusions réfléchies, processus ponctuels, etc. Ce livre présente les techniques probabilistes qui permettent d'étudier le comportement qualitatif de ces modèles.

2000. XII, 368 p. 32 ill. (Mathématiques et Applications, Volume 35) Broché  
ISBN ► 978-3-540-67872-4

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