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the Robinson-Schensted-Knuth algorithm. Also covered are connections between symmetric functions and representation theory. An appendix (written by Sergey Fomin) covers some deeper aspects of symmetric function theory, including jeu de taquin and the Littlewood-Richardson rule.

Ordre, treillis

George GRÄTZER. — **General lattice theory.** — 2nd ed. — Un vol. relié, 17,5×24, de XIX, 663 p. — ISBN 3-7643-5239-6. — Prix: SFr. 198.00. — Birkhäuser Verlag, Basel, 1998.

The core of *General Lattice Theory* combines the advantages of an introductory text with those of a monograph to introduce the general reader to lattice theory and to bring the expert up to date on the most recent developments. In this present edition, the work has been significantly updated and expanded. It contains an extensive new bibliography of 530 items and has been supplemented by eight appendices authored by an exceptional group of experts. The first appendix, written by the author, briefly reviews developments in lattice theory, specifically, the major results of the last 20 years and solutions of the problems proposed in the first edition.

Théorie des nombres

Rolf BERNDT, Ralf SCHMIDT. — **Elements of the representation theory of the Jacobi group.** — Progress in mathematics, vol. 163. — Un vol. relié, 16×24, de XIII, 213 p. — ISBN 3-7643-5922-6. — Prix: SFr. 88.00. — Birkhäuser Verlag, Basel, 1998.

The Jacobi group is a semidirect product of a symplectic group with a Heisenberg group. This text gathers for the first time from the representation theory of this group in both local (archimedean and non-archimedean) cases and in the global number field case. Via a bridge to Waldpurger's theory for the metaplectic group, complete classification theorems for irreducible representations are obtained. Further topics include differential operators, Whittaker models, Hecke operators, spherical representations and theta functions. The global theory is aimed at the correspondence between automorphic representations and Jacobi forms.

John H. CONWAY, Richard K. GUY. — **Le livre des nombres.** — Un vol. broché, 15,5×24, de VII, 310 p. — ISBN 2-212-03638-8. — Prix: FF 189.00. — Eyrolles, Paris, 1998.

Le livre des nombres est une source qui aborde le nombre sous ses différents aspects. — Le nombre et les langues: Comment les langues ont-elles créé le mot associé à un nombre? Quels sont les mots qui en dérivent? — Le comptage des nombres: Comment, par des arrangements appropriés, les mathématiciens ont-ils trouvé des relations entre des nombres dont les applications sont d'une incroyable variété? — La description des familles de nombres: L'inventivité des hommes est sans limite et l'on découvre comment et pourquoi ces familles se sont multipliées et continuent à se développer. Ce livre très complet, montre aussi la force de la géométrie dans la découverte de propriétés arithmétiques et algébriques. Cet ouvrage est accessible aux lecteurs non mathématiciens.

Dinakar RAMAKRISHNAN, Robert J. VALENZA. — **Fourier analysis on number fields.** — Graduate texts in mathematics, vol. 186. — Un vol. relié, 16×24, de XXI, 350 p. — ISBN 0-387-98436-4. — Prix: DM 79.00. — Springer, New York, 1999.

The general aim of this book is to provide a modern approach to number theory through a blending of complementary algebraic and analytic perspectives, emphasizing harmonic analysis on topological groups. The more particular goal is to cover John Tate's visionary thesis, giving

virtually all the necessary analytic details and topological preliminaries — technical prerequisites that are often foreign to the typical, more algebraically inclined number theorist. Specific topics include: topological groups, representation theory, duality for locally compact abelian groups, the structure of arithmetic fields, adeles and ideles, an introduction to class field theory, and Tate's thesis and applications.

A.J. SCHOLL, R.L. TAYLOR, (Editors). — **Galois representations in arithmetic algebraic geometry.** — London Mathematical Society lecture note series, vol. 254. — Un vol. broché, 15×23, de 493 p. — ISBN 0-521-64419-4. — Prix: £29.95. — Cambridge University Press, Cambridge, 1998.

This book is a conference proceedings based on a 1996 Durham Symposium. The title was interpreted loosely and the symposium covered recent developments on the interface between algebraic number theory and arithmetic algebraic geometry. Some articles are expositions of subjects which have received substantial recent attention: Erez on geometric trends in Galois module theory, Mazur on rational points on curves and varieties, Moonen on Shimura varieties in mixed characteristic, Rubin and Scholl on the work of Kato on the Birch-Swinnerton-Dyer conjecture, and Schneider on rigid geometry. Some are research papers: Coleman and Mazur, Goncharov, Gross, and Serre.

Nigel P. SMART. — **The algorithmic resolution of diophantine equations.** — London Mathematical Society student texts, vol. 41. — Un vol. broché, 15×23, de XVI, 243 p. — ISBN 0-521-64633-2. — Prix: £16.95 (relié: £45.00). — Cambridge University Press, Cambridge, 1998.

Beginning with a brief introduction to algorithms and diophantine equations, this volume aims to provide a coherent modern account of the methods used to find all the solutions to certain diophantine equations, particularly those procedures which have been developed for use on a computer. The study is divided into three parts, the emphasis throughout being on examining approaches with a wide range of applications. The first section considers basic techniques, including local methods, sieving, descent arguments and the LLL-algorithm. The second section explores problems which can be solved using Baker's theory of linear forms in logarithms. The final section looks at problems associated with curves, mainly focusing on rational and integral points on elliptic curves. Each chapter concludes with a useful set of exercises. A detailed bibliography is included.

David WELLS. — **Le dictionnaire Penguin des nombres curieux.** — Deuxième édition. — Un vol. broché, 15,5×24, de 270 p. — ISBN 2-212-03641-8 — Prix: FF 98.00. — Eyrolles, Paris, 1998.

Cette deuxième édition du *Dictionnaire Penguin des nombres curieux* a été entièrement revue et corrigée, augmentée et actualisée des découvertes les plus récentes: validité du théorème de Fermat, tous les nombres premiers records découverts depuis la précédente édition, nouvelles formes de coopération sur Internet, etc. Ceci porte le nombre d'entrées à 700, dont 174 nouvelles et 250 compléments aux entrées existantes.

Cem Y. YILDIRIM, Serguei A. STEPANOV, (Editors). — **Number theory and its applications.** — Proceedings of a Summer School at Bilkent University. — Lecture notes in pure and applied mathematics, vol. 204. — Un vol. broché, 17,5×25,5, de XIII, 343 p. — ISBN 0-8247-1969-7. — Prix: US$ 150.00. — Marcel Dekker, Inc., New York, 1999.

This book provides up-to-date surveys on modular forms and Hecke operators, exponential sums, and sieve methods with applications to additive and multiplicative number theory, for example, the ideas behind the recent surprising proof that there are infinitely many primes of the form a^2+b^4 are laid out... contains numerous results on character sums and finite fields

with applications to coding theory... covers classical and new material on algebraic numbers, transcendence theory, and diophantine approximation, including the recent proof of algebraic independence of the numbers p, e^p, $G(1/4)$... dwells on the connections between the distribution of primes and the Riemann zeta-function... etc.

Géométrie algébrique

C.G. GIBSON. — **Elementary geometry of algebraic curves: an undergraduate introduction.** — Un vol. broché, 15,5×23, de XVI, 250 p. — ISBN 0-521-64641-3. — Prix: £15.95 (relié: £42.50). — Cambridge University Press, Cambridge, 1998.

This is an introduction to plane algebraic curves from a geometric viewpoint. The book is well illustrated, and contains several hundred worked examples and exercises. From the familiar lines and conics of elementary geometry the reader proceeds to general curves in the real affine plane, with excursions to more general fields to illustrate applications, such as number theory. By adding points at infinity the affine plane is extended to the projective plane, yielding a natural setting for curves and providing a flood of illumination into the underlying geometry. A minimal amount of algebra leads to the famous theorem of Bézout, whilst the ideas of linear systems are used to discuss the classical group structure on the cubic.

Juan C. MIGLIORE. — **Introduction to liaison theory and deficiency modules.** — Progress in mathematics, vol. 165. — Un vol. relié, 16×24, de XII, 215 p. — ISBN 0-8176-4027-4. — Prix: SFr. 88.00. — Birkhäuser, Boston, 1998.

This book carefully examines liaison theory and deficiency modules from basic principles, taking a geometric approach to the subject. The focus is on the role of deficiency modules in algebraic geometry, particularly with respect to liaison theory, which is treated here both as a subject in itself and as a tool. The structure and classification of liaison classes are explored, and a variety of ways are described in which liaison has been applied to geometric questions. The classical study of liaison via complete intersections is compared and contrasted with the relatively new study of the subject via arithmetic Gorenstein ideals.

Algèbre linéaire et multilinéaire, théorie des matrices

Albrecht BÖTTCHER, Bernd SILBERMANN. — **Introduction to large truncated Toeplitz matrices.** — Universitext. — Un vol. relié, 16,5×24, de XI, 258 p. — ISBN 0-387-98570-0. — Prix: DM 98.00. — Springer, New York, 1999.

This is a text on the application of functional analysis and operator theory to some concrete asymptotic problems of linear algebra. The book contains results on the stability of projection methods, deals with asymptotic inverses and Moore-Penrose inversion of large Toeplitz matrices, and embarks on the asymptotic behavior of the norms of inverses, the pseudospectra, the singular values, and the eigenvalues of large Toeplitz matrices. The approach is heavily based on Banach algebra techniques and nicely demonstrates the usefulness of C*-algebras and local principles in numerical analysis.

Anneaux et algèbres

J. ELIAS, J.M. GIRAL, R.M. MIRÓ-ROIG, S. ZARZUELA, (Editors). — **Six lectures on commutative algebra.** — Progress in mathematics, vol. 166. — Un vol. relié, 16,5×24, de IX, 398 p. — ISBN 3-7643-5951-X. — Prix: SFr. 108.00. — Birkhäuser Verlag, Basel, 1998.

Interest in commutative algebra has surged over the past decades. In order to survey and highlight recent developments in this rapidly expanding field, the Centre de Recerca Matema-