

Analyse combinatoire

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Logique et fondements

Walter A. CARNIELLI, Marcelo E. CONIGLIO, Itala M. LOFFREDO D'OTTAVIANO, (Editors). — **Paraconsistency: the logical way to the inconsistent.** — Proceedings of the World Congress held in São Paulo. — Lecture notes in pure and applied mathematics, vol. 228. — ISBN 0-8247-0805-9. — Prix: US\$ 185.00. — Marcel Dekker, New York, 2002.

This compilation of the material presented at the 2nd World Congress on Paraconsistency introduces the logics of formal inconsistency... details several well-known paraconsistent systems and their subclasses, and highlights several new varieties of paraconsistent structures... establishes new relationship between paraconsistent, ambiguous, fuzzy, many-valued, and modal logics... presents innovative approaches to the problem of referential and inferential many valuedness... proposes a logical system to place the study of antinomies in its most general setting... introduces the system NCG_w , a sequent calculus formulation equivalent to da Costa's system C_w , and obtains new results on proof theory for this system... evaluates systems of logic such as Inconsistent Default Logic (IDL) and Logic of Epistemic Inconsistency (LEI) well suited to formalize reasoning under incomplete knowledge.

David MARKER. — **Model theory: an introduction.** — Graduate texts in mathematics, vol. 217. — Un vol. relié, 16×24, de VIII, 342 p. — ISBN 0-387-98760-6. — Prix: € 64.95. — Springer, New York, 2002.

This book is a modern introduction to model theory that stresses applications to algebra throughout the text. The first half of the book includes classical material on model construction techniques, types spaces, prime models, saturated models, countable models, and indiscernibles and their applications. The author also includes an introduction to stability theory beginning with Morley's Categoricity Theorem and concentrating on omega-stable theories. One significant aspect of this text is the inclusion of chapters on important topics not covered in other introductory texts, such as omega-stable groups and the geometry of strongly minimal sets. The author then goes on to illustrate how these ingredients are used in Hrushovski's applications to Diophantine geometry.

Analyse combinatoire

Béla BOLLOBAS, (Editor). — **Contemporary combinatorics.** — Bolyai Society mathematical studies, vol. 10. — Un vol. relié, 17×24,5, de 301 p. — ISBN 3-540-4275-2. — Prix: € 69.95. — Springer, Berlin, Janos Bolyai Mathematical Society, Budapest, 2002.

This volume is a collection of survey papers in combinatorics that have grown out of lectures given in the Workshop on Probabilistic Combinatorics at the Paul Erdős Summer Research Center in Mathematics in Budapest. The papers, reflecting the many facets of modern-day combinatorics, will be appreciated by specialists and general mathematicians alike: assuming relatively little background, each paper gives a quick introduction to an active area, enabling the reader to learn about the fundamental results and appreciate some of the latest developments. An important feature of the articles, very much in the spirit of Erdős, is the abundance of open problems.

Alan TUCKER. — **Applied combinatorics.** — Fourth edition. — Un vol. relié, 16×24, de IX, 446 p. — ISBN 0-471-43809-X. — Prix: £ 40.95. — John Wiley, New York, 2002.

From the preface: This book teaches students in the mathematical sciences how to reason and model combinatorially. It seeks to develop proficiency in basic discrete math problem solving in the way that a calculus textbook develops proficiency in basic analysis problem solving.

The three principal aspects of combinatorial reasoning emphasized in this book are: the systematic analysis of different possibilities, the exploration of the logical structure of a problem (e. g., finding manageable subpieces or first solving the problem with three objects instead of n), and ingenuity. Although important uses of combinatorics in computer science, operation research, and finite probability are mentioned, these applications are often used solely for motivation. Numerical examples involving the same concepts use more interesting settings such as poker probabilities or logical games.

Théorie des nombres

Nicholas M. KATZ. — **Twisted L -functions and monodromy.** — Annals of mathematics studies, No. 150. — Un vol. broché, $15,5 \times 23,5$, de VIII, 249 p. — ISBN 0-691-09151-X. — Prix: £25.95. — Princeton University Press, Princeton, N.J., distributed by J. Wiley, Chichester, 2002.

The past century has seen huge progress in the study of elliptic curves, from Mordell's theorem in 1922 to the work of Wiles and Taylor-Wiles in 1994. This book explores two of the remaining fundamental questions: What is the average rank of elliptic curves, and how does the rank vary in various kinds of families of elliptic curves? The author answers these questions for families of "big" twists of objects of all sorts, not just of elliptic curves in the function field case. The book explains various advanced topics ranging from recent results in finite group theory to the machinery of 1-adic cohomology and monodromy.

Igor R. SHAFAREVICH. — **Discourses on algebra.** — Universitext. — Un vol. broché, $15,5 \times 23,5$, de X, 276 p. — ISBN 3-540-42253-6. — Prix: €29.95. — Springer, Berlin, 2002.

The classic geometry of Euclid has attracted many for its beauty, elegance, and logical cohesion. In this book, the Russian algebraist I.R. Shafarevich argues with examples that algebra is no less beautiful, elegant, and logically cohesive than geometry. It contains an exposition of some rudiments of algebra, number theory, set theory and probability presupposing very limited knowledge of mathematics. The author is known to be one of the leading mathematicians of the 20th century, as well as one of the best mathematical writers.

Victor P. SNAITH. — **Algebraic K -groups as Galois modules.** — Progress in mathematics, vol. 206. — Un vol. relié, 16×24 , de X, 309 p. — ISBN 3-7643-6717-2. — Prix: SFr. 146.00. — Birkhäuser, Basel, 2002.

Throughout number theory and arithmetic-algebraic geometry one encounters objects endowed with a natural action by a Galois group. In particular this applies to algebraic K -groups and étale cohomology groups. This volume is concerned with the construction of algebraic invariants from such Galois actions. Typically these invariants lie in low-dimensional algebraic K -groups of the integral group-ring of the Galois group. A central theme, predictable from the Lichtenbaum conjecture, is the evaluation of these invariants in terms of special values of the associated L -functions at a negative integer depending on the algebraic K -theory dimension. In addition, the "Wiles unit conjecture" is introduced and shown to lead both to an evaluation of the Galois invariants and to explanation of the Brumer-Coates-Sinnott conjecture.

Gisbert WÜSTHOLZ, (Editor). — **A panorama in number theory or the view from Baker's garden.** — Un vol. relié, $15,5 \times 23,5$ de XV, 356 p. — ISBN 0-521-80799-9. — Prix: £55.00. — Cambridge University Press, Cambridge, 2002.

Alan Baker's 60th birthday in August 1999 offered an ideal opportunity to organize a conference at ETH Zürich with the goal of presenting the state of the art in number theory and