

Logique et fondements

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Ian TWEDDLE. — **Simson on porisms: an annotated translation of Robert Simson's posthumous treatise on porisms and other items on this subject.** — Sources in the history of mathematics and physical sciences. — Un vol. relié, 16×24, de x, 274 p. — ISBN 1-85233-306-5. — Springer, London, 2000.

In this book, Ian Tweddle, a recognised authority on 18th century Scottish mathematics, presents for the first time a full and accessible translation of Simson's work. Based on Simson's early paper of 1723, the treatise *Tractatus de porismatibus*, and various extracts from Simson's notebooks and correspondence, this book provides a fascinating insight into the work of an often-neglected figure. Supplemented by historical and mathematical notes and comments, this book is a valuable addition to the literature for anyone with an interest in mathematical history or geometry.

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André DELESSERT. — **Gödel: une révolution en mathématiques: essai sur les conséquences scientifiques et philosophiques des théorèmes gödéliens.** — Un vol. broché, 16×24, de XVIII, 268 p. — ISBN 2-88074-449-0. — Prix: SFr. 79.50. — Presses polytechniques et universitaires romandes, Lausanne, 2000.

Ce livre, à la fois œuvre de documentation historique et de réflexion philosophique, se propose de décrire l'avant et l'après Gödel en retraçant l'histoire de la notion de nombre depuis Platon et Aristote jusqu'au renversement révolutionnaire des fondements mathématiques induit par les théorèmes de Gödel. Les notions mathématiques nécessaires pour aborder le principe des démonstrations de Gödel sont données et commentées par l'auteur, permettant ainsi à cet ouvrage inédit de s'adresser à un large public de mathématiciens, de logiciens, d'historiens et de philosophes des sciences.

Sy D. FRIEDMAN. — **Fine structure and class forcing.** — De Gruyter studies in logic and its applications, vol. 3. — Un vol. relié, 17×24, de x, 221 p. — ISBN 3-11-016777-8. — Prix: DM 178.00. — Walter de Gruyter, Berlin, 2000.

This book is intended for the student familiar with the basics of axiomatic set theory, including an introduction to Gödel's theory of constructibility. It presents a thorough analysis of the first two approximations to the set-theoretic universe, given by the universes L and $L[0\#]$. Gödel's constructible universe L provides the setting in which the most thorough understanding of set theory can be achieved, through use of the fine structure theory. The book's further applications of class forcing to genericity, admissibility, descriptive set theory and set-theoretic definability are sure to be of interest to a wide community of set theorists.

Deirdre HASKELL, Anand PILLAY, Charles STEINHORN, (Editors). — **Model theory, algebra, and geometry.** — Mathematical Sciences Research Institute publications, vol. 39. — Un vol. relié, 16×24, de VII, 227 p. — ISBN 0-521-78068-3. — Prix: £30.00. — Cambridge University Press, Cambridge, 2000.

This book gives the necessary background for understanding both the model theory and the mathematics behind the applications. Aimed at graduate students and researchers, it is unique in that it contains introductory surveys by leading experts covering the whole spectrum of contemporary model theory (stability, simplicity, o-minimality and variations), and introducing and discussing the diverse areas of geometry (algebraic, diophantine, real analytic, p -adic and rigid) to which the model theory is applied. The book begins with an introduction to model theory by David Marker. It then broadens into three components: pure model theory (Bradd Hart, Dugald Macpherson), geometry (Barry Mazur, Ed Bierstone and Pierre Milman, Jan Denef), and the model theory fields (Marker, Lou van den Dries, Zoe Chatzidakis).

Harold SIMMONS. — **Derivation and computation: taking the Curry-Howard correspondence seriously.** — Cambridge tracts in theoretical computer science, vol. 51. — Un vol. relié, 15,5×23,5, de xxv, 384 p. — ISBN 0-521-77173-0. — Prix: £42.50. — Cambridge University Press, Cambridge, 2000.

Mathematics is about proofs, that is the derivation of correct statements; and calculation, that is the production of results according to well-defined sets of rules. The two notions are intimately related. Proofs can involve calculations, and the algorithm underlying a calculation should be proved correct. The aim of the author is to explore this relationship. The book itself forms an introduction to simple type theory. Starting from the familiar propositional calculus the author develops the central idea of an applied lambda-calculus. This is illustrated by an account of Gödel's T, a system which codifies number-theoretic function hierarchies. Each of the book's fifty-two sections ends with a set of exercises, some two hundred in total.

Analyse combinatoire

John M. HARRIS, Jeffry M. HIRST, Michael J. MOSSINGHOFF. — **Combinatorics and graph theory.** — Undergraduate texts in mathematics. — Un vol. relié, 16×24, de xiii, 225 p. — ISBN 0-387-98736-3. — Prix: DM 69.00. — Springer, New York, 2000.

This book evolved from several courses in combinatorics and graph theory given at Appalachian State University and UCLA. Chapter 1 focuses on finite graph theory, including trees, planarity, coloring, matchings, and Ramsey theory. Chapter 2 studies combinatorics, including the principle of inclusion and exclusion, generating functions, recurrence relations, Pólya theory, the stable marriage problem, and several important classes of numbers. Chapter 3 presents infinite pigeonhole principles, König's lemma, and Ramsey's theorem, and discusses their connections to axiomatic set theory.

Wilfried IMRICH, Sandi KLAUZAR. — **Product graphs: structure and recognition.** — Wiley Interscience series in discrete mathematics optimization. — Un vol. relié, 16×24, de xv, 358 p. — ISBN 0-471-37039-8. — Prix: £54.95. — John Wiley, New York, 2000.

Written by two leading experts, the book compiles and consolidates a wealth of information previously scattered throughout the literature, providing researchers in the field with ready access to numerous recent results as well as several new recognition algorithms and proofs. Coverage includes: the basic algebraic and combinatorial properties of product graphs; hypercubes, median graphs, Hamming graphs, triangle-free graphs, and vertex-transitive graphs; colorings, automorphisms, homomorphisms, domination, and the capacity of products of graphs; sample applications, including novel applications to chemical graph theory; proofs and algorithms presented at varying levels of difficulty; clear connections to other areas of graph theory; figures, exercises, and hundreds of references.

Svante JANSON, Tomasz ŁUCZAK, Andrzej RUCIŃSKI. — **Random graphs.** — Wiley-Interscience series in discrete mathematics and optimization. — Un vol. relié, 16×24, de xi, 333 p. — ISBN 0-471-17541-2. — Prix: £48.50. — John Wiley, New York, 2000.

Written by three highly respected members of the discrete mathematics community, the book incorporates many disparate results from across the literature, including results obtained by the authors and some completely new results. Special features include: a focus on the fundamental theory as well as basic models of random graphs; a detailed description of the phase transition phenomenon; easy-to-apply exponential inequalities for large deviation bounds; an extensive study of the problem of containing small subgraphs; results by Bollobas and others on the