

# Logique et fondements

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Elements in the West. This volume contains the first complete English translation of the Nine Chapters, together with two commentaries written in the 3<sup>rd</sup> century (by Liu Hui) and 7<sup>th</sup> century AD, and a further commentary by the translators. The Nine Chapters contains 246 problems and their solutions which fall into nine categories that are firmly based on practical needs. There are methods for solving problems in areas such as land measurement, construction, agriculture, commerce, and taxation.

## *Logique et fondements*

Marat M. ARSLANOV, Steffen LEMPP, (Editors). — **Recursion theory and complexity.** — Proceedings of the Kazan '97 Workshop, Kazan, Russia, July 14-19, 1997. — De Gruyter series in logic and its applications, vol. 2. — Un vol. relié, 17,5×24,5, de VIII, 239 p. — ISBN 3-11-016587-2. — Prix: DM 228.00. — Walter de Gruyter, Berlin, 1999.

Recursion theory, the study of computability, is an area of mathematical logic that has traditionally been particularly strong in the United States and the former Soviet Union. This was the first workshop ever to bring together about 50 international experts in the field from these two countries and Western Europe. The volume features 14 research papers by participants on topics discussed at the workshop as well as a list of the open problems presented at the workshop. Many of the papers focus particularly on applications of recursion theory to other areas of mathematics, such as algebra, analysis, model theory, and proof theory.

Samuel R. BUS, Peter HÁJEK, Pavel PUDLÁK, (Editors). — **Logic colloquium.** — Proceedings of the Annual European Meeting of the Association for Symbolic Logic, held in Prague, Czech Republic, August 9-15, 1998. — Lecture notes in logic, No. 13. — Un vol. relié, 17×25, de xv, 541 p. — ISBN 1-56881-113-6. — Prix: US\$85.00 — A.K. Peters, Natick, Massachusetts, 2000.

This volume contains the proceedings of the meeting with papers covering current research from all areas of mathematical logic, including proof theory, set theory, model theory, computability theory and philosophy. Logic Colloquium '98 includes twelve articles on proof theory; a survey of fuzzy logic; nine articles on set theory; four articles on computability theory, including a historical article based on H. Rogers' 1965 agenda for recursive function theory; four articles on model theory; and two articles on belief theories. A number of these articles deal with theoretical computer science.

Edward R. GRIFFOR, (Editor). — **Handbook of computability theory.** — Studies in logic and the foundations of mathematics, vol. 140. — Un vol. relié, 15,5×23, de XII, 727 p. — ISBN 0-444-89822-4. — Prix: Dfl. 295.00. — Elsevier, Amsterdam, 1999.

The chapters of this volume all have their own level of presentation. The topics have been chosen based on the active research interest associated with them. Since the interest in some topics is older than that in others, some presentations contain fundamental definitions and basic results while others relate very little of the elementary theory behind them and aim directly toward an exposition of advanced results. Presentations of the latter sort are in some cases restricted to a short survey of recent results (due to the complexity of the methods and proofs themselves). Hence the variation in level of presentation from chapter to chapter only reflects the conceptual situation itself. One example of this is the collective efforts to develop an acceptable theory of computation on the real numbers. The last two decades has seen at least two new definitions of effective operations on the real numbers.

Michael HUTH, Mark RYAN. — **Logic in computer science: modelling and reasoning about systems.** — Un vol. broché, 17×25, de xviii, 387 p. — ISBN 0-521-65602-8. — Prix: £60.00. — Cambridge University Press, Cambridge, 2000.

Recent years have seen the development of powerful tools for verifying hardware and software systems. Students need a basic formal training that allows them to gain sufficient proficiency in using logic-based verification methods. This book addresses these needs by providing a sound basis in logic and an introduction to the logical frameworks used in modelling, specifying and verifying computer systems. It provides a simple and clear presentation, covering propositional and predicate logic and some specialized logics used for reasoning about the correctness of computer systems. The authors introduce a carefully chosen core of essential terminology: further technicalities are introduced only where they are required by the applications.

W. Hugh WOODIN. — **The axiom of determinacy, forcing axioms, and the nonstationary ideal.** — De Gruyter series in logic and its applications, vol. 1. — Un vol. relié, 18×24,5, de vi, 934 p. — ISBN 3-11-015708-X. — Prix: DM 298.00. — Walter de Gruyter, Berlin, 1999.

This volume presents a detailed account of a new method for obtaining models of set theory, using models of determinacy. The primary application is the identification of a canonical model of set theory in which the continuum hypothesis is false. Such models have been sought for in the 35 years since Cohen's discovery of the method of forcing. The new model belongs to a large class of similarly obtained models. The basic machinery for the analysis of these models is developed in some detail through the study of the canonical model of several of the related models. A number of applications in combinatorial set theory are discussed. This is a research monograph, the results being presented have not been published elsewhere.

## ***Théorie des ensembles***

András HAJNAL, Peter HAMBURGER. — **Set theory.** — Translated by Attila Máté. — London Mathematical Society student texts, vol. 48. — Un vol. broché, 15×23, de viii, 316 p. — ISBN 0-521-59667-X. — Prix: £16.95 (relié: £45.00). — Cambridge University Press, Cambridge, 1999.

This is a classic introduction to set theory in three segments. The first part gives a general introduction to set theory, suitable for undergraduates; complete proofs are given and no background in logic is required. Exercises are included, and the more difficult ones are supplied with hints. An appendix to the first part gives a more formal foundation to axiomatic set theory, supplementing the intuitive introduction given in the first part. The final part gives an introduction to modern tools of combinatorial set theory. This part contains enough material for a graduate course of one or two semesters. The subjects discussed include stationary sets, ( $\Delta$ -systems, partition relations, set mappings, measurable and real-valued measurable cardinals. Two sections give an introduction to modern results on exponentiation of singular cardinals, and certain deeper aspects of the topics are developed in advanced problems.

M. HOLZ, K. STEFFENS, E. WEITZ. — **Introduction to cardinal arithmetic.** — Birkhäuser advanced texts. Basler Lehrbücher. — Un vol. relié, 17×24, de vi, 304 p. — ISBN 3-7643-6124-7. — Prix: SFr. 88.00. — Birkhäuser, Basel, 1999.

This book is an introduction to modern cardinal arithmetic in the frame of the axioms of Zermelo-Fraenkel set theory together with the axiom of choice. A first part describes the