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Mesure et intégration

E. PAP, (Editor). — **Handbook of measure theory**. — Deux vol. reliés, 17×25, de XI, 1607 p. — ISBN 0-444-50263-7 (vol. 1+2). — Prix: €260.00. — Elsevier, Amsterdam, 2002.

The main goal of this handbook is to survey measure theory with its many different branches and its relations with other areas of mathematics. Mostly aggregating many classical branches of measure theory, the aim of the handbook is also to cover new fields, approaches and applications which support the idea of “measure” in a wider sense, e.g. the ninth part of the handbook. Although chapters are written of surveys in the various areas, they contain many special topics and challenging problems valuable for experts and rich sources of inspiration. Mathematicians from other areas as well as physicists, computer scientists, engineers and econometrists will find useful results and powerful methods for their research. The reader may find in the handbook many close relations to other mathematical areas: real analysis, probability theory, statistics, ergodic theory, functional analysis, potential theory, topology, set theory, geometry, differential equations, optimization, variational analysis, decision making and others. The handbook is a rich source of relevant references to articles, books and lecture notes and it contains for the reader’s convenience an extensive subject and author index. — *Contents*: Classical measure theory. — Vector measures. — Integration theory. — Topological aspects of measure theory. — Order and measure theory. — Geometric measure theory. — Relation to transformation and duality. — Relation to the foundations of mathematics. — Non-additive measures.

Fonctions d’une variable complexe

R. KÜHNAU, (Editor). — **Handbook of complex analysis, vol. 1: Geometric function theory**. — Un vol. relié, 17×24,5, de XII, 536 p. — ISBN 0-444-82845-1. — Prix: €135.00. — Elsevier, Amsterdam, 2002.

Geometric function theory is a central part of complex analysis (one complex variable). The *Geometric Function Theory* volume deals with this field and its many ramifications and relations to other areas of mathematics and physics. The theory of conformal and quasiconformal mappings plays a central role in this handbook, for example a priori estimates for these mappings which arise from solving extremal problems, and constructive methods are considered. As a new field the theory of circle packings which goes back to P. Koebe is included. The handbook should be useful for experts as well as for mathematicians working in other areas, as well as for physicists and engineers.

Terry SHEIL-SMALL. — **Complex polynomials**. — Cambridge studies in advanced mathematics, vol. 75. — Un vol. relié, 16×24, de XVIII, 428 p. — ISBN 0-521-40068-6. — Prix: £65.00. — Cambridge University Press, Cambridge, 2002.

This book studies the geometric theory of polynomials and rational functions in the plane. Any theory in the plane should make full use of the complex numbers and thus the early chapters build the foundations of complex variable theory, melding together ideas from algebra, topology and analysis. In fact, throughout the book, the author introduces a variety of ideas and constructs theories around them, incorporating much of the classical theory of polynomials as he proceeds. These ideas are used to study a number of unsolved problems, bearing in mind that such problems indicate the current limitations of our knowledge and present challenges for the