

# Fonctions de plusieurs variables complexes

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## ***Fonctions d'une variable complexe***

Rami SHAKARCHI. — **Problems and solutions for complex analysis.** — Un vol. broché, 15,5×23,5, de xi, 246 p. — ISBN 0-387-98831-9. — Prix: DM 69.00. — Springer, New York, 1999.

This volume contains all the exercises, and their solutions, for Serge Lang's fourth edition of *Complex Analysis*. The problems in the first 8 chapters are suitable for an introductory course at the undergraduate level and cover the following topics: power series, Cauchy's theorem, Laurent series, singularities and meromorphic functions, the calculus of residues, conformal mappings, and harmonic functions. The material in chapters 9 to 16 is more advanced. The reader will find problems on Schwartz reflection, analytic continuation, Jensen's formula, the Phragmén-Lindelöf theorem, entire functions, Weierstrass products, meromorphic functions, the Gamma function, and the Zeta function.

## ***Fonctions de plusieurs variables complexes***

Christina BIRKENHAKE, Herbert LANGE. — **Complex tori.** — Progress in mathematics, vol. 177. — Un vol. relié, 16×24, de xv, 251 p. — ISBN 0-8176-4103-3. — Prix: SFr. 98.00. — Birkhäuser, Boston, 1999.

This work is at the crossroads of a number of mathematical areas, including algebraic geometry, several complex variables, differential geometry, and representation theory. The authors, both expert mathematicians in the area of complex manifolds and representation theory, focus on complex tori, which are interesting for their own sake being the simplest of complex manifolds, and important in the theory of algebraic cycles via intermediate Jacobians. Although special complex tori, namely abelian varieties, have been investigated for nearly 200 years, not much is known about arbitrary complex tori. There are very few papers on the subject and no book to date.

Seán DINEEN. — **Complex analysis on infinite dimensional spaces.** — Springer monographs in mathematics. — Un vol. relié, 17×24, de xv, 543 p. — ISBN 1-85233-158-5. — Prix: DM 179.00. — Springer, London, 2000.

The first two chapters of this book are a self-contained study of polynomials and highlight the interplay between polynomial estimates and the geometry of Banach spaces. The third chapter covers the basic theory of holomorphic functions and illustrates intrinsic properties of the infinite dimensional theory. The  $(BB)$ -property, which originated in the theory of topological tensor products, and the  $(DN)$ -property, which occupies an important place in the modern structural theory of Fréchet spaces, are shown, in chapter four, to play key roles in uncovering key relationships between the three main topologies considered. The Levi problem for Riemann domains over Fréchet spaces with the bounded approximation property is solved in chapter five while holomorphic extensions, of different kinds, are the unifying theme which draws together, in the final chapter, many of the ideas discussed in earlier chapters.

Gen KOMATSU, Masatake KURANISHI, (Editors). — **Analysis and geometry in several complex variables.** — Proceedings of the 40<sup>th</sup> Taniguchi Symposium. — Trends in mathematics. — Un vol. relié, 16,5×24, de x, 314 p. — ISBN 0-8176-4067-3. — Prix: SFr. 158.00. — Birkhäuser, Boston, 1999.

Since the inhomogeneous Cauchy-Riemann equation was introduced in the study of complex analysis of several variables, there has been strong interaction between complex analysis and real analysis, in particular, the theory of partial differential equations. This volume is an outgrowth of the 40<sup>th</sup> Taniguchi Symposium held in Katata, Japan. Highlighted are the

most recent developments in complex analysis related to PDE techniques and differential geometry. CR structures and the Bergman kernel are discussed in several articles. Some authors pursue the implications of these and other topics in diverse fields, ranging from algebraic geometry to theoretical physics.

Michael SCHNEIDER, Yum-Tong SIU, (Editors). — **Several complex variables.** — Mathematical Sciences Research Institute Publications, vol. 37. — Un vol. relié,  $16,5 \times 24$ , de XII, 564 p. — ISBN 0-521-77086-6. — Prix: £40.00. — Cambridge University Press, Cambridge, 1999.

Several complex variables is a central area of mathematics with strong interactions with partial differential equations, algebraic geometry, number theory, and differential geometry. The 1995-96 MSRI program on several complex variables emphasized these interactions and concentrated on developments and problems of current interest that capitalize on this interplay of ideas and techniques. The collection provides a remarkably clear and complete picture of the status of research in these overlapping areas and will provide a basis for significant continued contributions from researchers. Several of the articles are expository or have extensive expository sections, making this an excellent introduction for students to the use of techniques from these other areas in several complex variables.

### *Equations différentielles ordinaires*

Ravi P. AGARWAL, Donal O'REGAN and Patricia J.Y. WONG. — **Positive solutions of differential, difference and integral equations.** — Un vol. relié,  $16,5 \times 24,5$ , de XI, 416 p. — ISBN 0-7923-5510-5. — Prix: Dfl. 350.00. — Kluwer Academic Publishers, Dordrecht, 1999.

In analysing nonlinear phenomena many mathematical models give rise to problems for which only nonnegative solutions make sense. In the last few years this discipline has grown dramatically. This state-of-art volume offers the authors' recent work, reflecting some of the major advances in the field as well as the diversity of the subject. This volume will be of interest to graduate students and researchers in mathematical analysis and its applications, whose work involves ordinary differential equations, finite differences and integral equations.

S. ALBEVERIO and P. KURASOV. — **Singular perturbations of differential operators: solvable Schrödinger type operators.** — London Mathematical Society lecture note series, vol. 271. — Un vol. broché,  $15 \times 23$ , de XIV, 429 p. — ISBN 0-521-77912-X. — Prix: £29.95. — Cambridge University Press, Cambridge, 2000.

Differential (and more general self-adjoint) operators involving singular interactions arise naturally in a range of topics such as classical and quantum physics, chemistry and electronics. This book presents a systematic mathematical study of these operators, with particular emphasis on spectral and scattering problems. Suitable for researchers in analysis or mathematical physics, this book could also be used as a text for an advanced course on the applications of analysis.

### *Equations aux dérivées partielles*

Demetrios CHRISTODOULOU. — **The action principle and partial differential equations.** — Annals of mathematics studies, vol. 146. — Un vol. broché,  $15 \times 23,5$ , de VIII, 319 p. — ISBN 0-691-04967-2. — Prix: US\$24.00, (relié: US\$89.50). — Princeton University Press, Princeton N.J., 2000.

This book introduces new methods in the theory of partial differential equations derivable from a Lagrangian. These methods constitute, in part, an extension to partial differential