

Zeitschrift: L'Enseignement Mathématique
Herausgeber: Commission Internationale de l'Enseignement Mathématique
Band: 27 (1981)

Rubrik: BULLETIN BIBLIOGRAPHIQUE

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 14.04.2026

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

BULLETIN BIBLIOGRAPHIQUE

Johannes BÖHM, Eike HERTEL. — **Polyedergeometrie in n-dimensionalen Räumen konstanter Krümmung.** — Lehrbücher und Monographien aus dem Gebiete der exakten Wissenschaften: mathematische Reihe, vol. 70. — Un vol. relié, 17 × 24,5, de 301 p. — Prix: FS 68.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1981.

Polyeder in Räumen konstanter Krümmung: Räume konstanter Krümmung. Modelle für Räume konstanter Krümmung. Euklidische Polyeder. Sphärisch-elliptische Polyeder. Hyperbolische Polyeder. — *Polyederzerlegung und Zerlegungsgleichheit*: Elementargeometrische Addition und Zerlegung. Relationen auf der Menge der Polyeder. Zerlegungsstrukturen. Zerlegungsgleichheit von Polyedern. — *Elementarer Inhalt*: Inhalt-funktional im R_n . Lösung des elementaren Inhaltsproblems im R_2 . Inhaltsgleichheit und Zerlegungsgleichheit. — *Kombinatorisch-topologische und metrische Beschreibung von Simplexen*: Keilwinkel und Simplexverband. Orthoscheme. Elliptische Orthoscheme. Charakterisierung von Orthoschemen. Bezeichnung der Orthoschem-Elemente. Rechtwinklige Dreiecke. Pentagrammafigur und Kreisbogenfünfeck bezüglich eines rechtwinkligen Dreiecks. Orthoscheme beliebiger Dimension. — *Simplexinhalt*: Die Schläflische Differentialform. Simplexinhalt bei gerader Dimension. Algebraische Summen von Neben- und Nachbarorthoscheminhalten. Die Polylogarithmusfunktion und ihre Verallgemeinerung. Der Hauptparameter eines Orthoschems. Das System der Orthoschemparameter. Die erweiterte Schläflische Differentialform. Integration der erweiterten Schläflischen Differentialform. — *Reguläre Simplexe in Räumen konstanter Krümmung*: Definition und Eigenschaften eines regulären Simplexes. Zusammenhang zwischen regulären Simplexen und Orthoschemen. Realisierungsbedingungen für reguläre Simplexe. Winkelbeziehungen bei regulären Simplexen. Inhalt eines regulären Simplexes.

Jacques DIXMIER. — **Topologie générale.** — Collection « Mathématiques ». — Un vol. broché, 15 × 21,5, de 164 p. — Presses universitaires de France, Paris, 1981.

Espaces topologiques: Ensembles ouverts, ensembles fermés dans un espace métrique. Espaces topologiques. Voisinages. Intérieur, extérieur, frontière. Adhérence. Espaces topologiques séparés. — *Limites. Continuité*: Filtres. Limites suivant une base de filtre. Applications continues en un point. Applications continues. Homéomorphismes. Valeurs d'adhérence suivant une base de filtre. — *Constructions d'espaces topologiques*: Sous-espaces topologiques. Produits finis d'espaces topologiques. Produits infinis d'espaces topologiques. Espaces quotients. — *Espaces compacts*: Définition des espaces compacts. Propriétés des espaces compacts. Complément: produits infinis d'espaces compacts. La

droite achevée. Espaces localement compacts. — *Espaces métriques*: Continuité de la distance. Emploi des suites de points dans les espaces métriques. Fonctions uniformément continues. Ensembles équicontinus de fonctions. Espaces métriques complets. Espaces complets et espaces compacts. Méthode des approximations successives. — *Limites de fonctions*: Convergence uniforme. Convergence simple. Théorème d'Ascoli. — *Fonctions numériques*: Bornes d'une fonction numérique. Limite d'une fonction numérique croissante. Limites supérieure et inférieure d'une fonction numérique. Fonctions semi-continues. Théorème de Stone-Weierstrass. — *Espaces normés*: Définition des espaces normés. Applications linéaires continues. Applications linéaires bicontinues. Espaces préhilbertiens. Espaces préhilbertiens séparés. Espaces de Banach. Espaces hilbertiens. Sous-espaces vectoriels d'un espace normé. Théorème de Riesz. — *Sommes infinies*: Familles sommables. Associativité, commutativité. Séries. Familles sommables de nombres réels ou complexes. Certaines familles sommables dans les espaces hilbertiens. — *Espaces connexes*: Espaces connexes. Espaces connexes par arcs. Composantes connexes.

T. A. SPRINGER. — **Linear algebraic groups**. — Progress in mathematics, vol. 9. — Un vol. relié, 15,5 × 23,5 de x 304 p. — Prix: FS 38.00. — Birkhäuser, Boston/Basel/Stuttgart, 1981.

Introduction. — *Some algebraic geometry*: The Zariski topology. Irreducibility of topological spaces. Affine k -algebras. Regular functions, ringed spaces. Products. Pre-varieties and varieties. Projective space. Dimension. Some results on morphisms. — *Linear algebraic groups, first properties*: Algebraic groups. Elementary properties of algebraic groups. G -spaces. Jordan decomposition. Diagonalizable groups and tori. One-dimensional groups. — *Derivations, differentials, Lie algebras*: Derivations and tangent spaces. Differentials, separability. The Lie algebra of a linear algebraic group. Jordan decomposition. — *Further study of morphisms, applications*: General properties of morphisms of varieties. Finite morphisms. Applications to algebraic groups. Semi-simple automorphisms. — *Quotients*: Chevalley's theorem. Construction of quotients. — *Solvable groups*. — *Complete varieties. Borel subgroups, parabolic subgroups and their properties*: Complete varieties. Parabolic subgroups and Borel subgroups of a linear algebraic group. Further properties of Borel subgroups. — *Linear action of a torus on a projective variety, applications*: Fixed points. Groups of rank 1. — *Roots, the Weyl group*: Roots. Relative position of two roots. Borel groups and systems of positive roots, the unipotent radical. Semi-simple groups. — *Further properties of reductive groups*: Borel groups and systems of positive roots. Bruhat's lemma. Parabolic subgroups. — *The uniqueness theorem*: Root systems of rank 2. The structure constants. G as an abstract group. The isomorphism theorem. — *The existence theorem*.

Séminaire de théorie des nombres, Paris 1979-80. — Séminaire Delange-Pisot-Poitou. — Edité par Marie-José Bertin. — Progress in mathematics, vol. 12. — Un vol. relié, 15,5 × 23,5 de ix, 394 p. — Prix: FS 44.00. — Birkhäuser, Boston/Basel/Stuttgart, 1981.

D. Bernardi: Hauteur p -adique sur les courbes elliptiques. — *D. Bertrand*: Variétés abéliennes et formes linéaires d'intégrales elliptiques. — *G.V. Chudnovsky*: Singular points on complex hypersurfaces and multidimensional Schwarz lemma. — *P. Erdős*: On some problems in number theory. — *M. Mendès-France*: Principe de la symétrie perturbée. — *R. Gillard*: Unités elliptiques et fonctions L p -adiques. — *R. Heath-Brown*: Mean value theorems for the Riemann zeta-function. — *G. Henniart*: Lois de réciprocité explicites. — *H. Iwaniec*: Sieving limits. — *Chen J.-R.*: On some problems in prime number theory. —

N.M. Katz : Monodromy of families of curves: applications of some results of Davenport-Lewis. — *H. Koch* : On the local Langlands conjecture. — *D.W. Masser* : Small values of the quadratic part of the Néron-Tate height. — *J. Neukirch* : Extensions of number fields with solvable Galois groups. — *B. Perrin-Riou* : Groupe de Selmer à 2 variables des courbes elliptiques à multiplication complexe. — *J. Queyrut* : Structure galoisienne des anneaux d'entiers d'extensions sauvagement ramifiées I. — *G. Rauzy* : Itération des endomorphismes d'un intervalle. — *K.A. Ribet* : Endomorphism algebras of abelian varieties attached to newforms of weight 2. — *W. Sinnott* : On the Stickelberger ideal and the circular units of an abelian field. — *V.G. Sprindzuk* : Reducibility of polynomials and rational points on algebraic curves. — *M.J. Taylor* : Structure galoisienne des anneaux d'entiers. — *R. Tijdeman* : On the discrepancy of a sequence in $(0,1)$. — *M.-F. Vigneras* : Valeur au centre de symétrie des fonctions L associées aux formes modulaires. — *J.L. Waldspurger* : Correspondance de Shimura. — *D. Zagier* : Sur la conjecture de Saito-Kurokawa (d'après H. Maass).

Singularities in boundary value problems. — Proceedings of the NATO Advanced Study Institute held at Maratea, Italy, September 22-October 3, 1980. — Edited by H.G. Garnir. — Nato advanced study institute series, series C, Mathematical and physical sciences, vol. 65. — Un vol. relié, $16,5 \times 24,5$ de xvi, 377 p. — Prix: Dfl. 95.00. — D. Reidel Publishing Company, Dordrecht/Boston/London, 1981.

J. Chazarain : Sur le comportement semi classique du spectre et de l'amplitude de diffusion d'un Hamiltonien quantique. — *G. Eskin* : General initial-boundary problems for second order hyper-bolic equations. — *F.G. Friedlander* : Note on a singular initial-boundary value problem. — *L. Hörmander* : Pseudo-differential operators of principal type. — *M. Ikawa* : Mixed problems for the wave equation. — *K. Kataoka* : Microlocal analysis of boundary value problems with applications to diffraction. — *R. B. Melrose* : Transformation methods for boundary value problems. — *J.V. Ralston* : Propagation of singularities and the scattering matrix. — *P. Schapira* : Propagation at the boundary of analytic singularities. — *Y. Shibata* : Lower bounds at infinity for solutions of differential equations with constant coefficients in unbounded domains. — *J. Sjöstrand* : Analytic singularities of solutions of boundary value problems. — *M.E. Taylor* : Diffraction effects in the scattering of waves. — *M. Tsuji* : Singularities of elementary solutions of hyperbolic equations with constant coefficients. — *S. Wakabayashi* : The mixed problem for hyperbolic systems.

Recent results in stochastic programming. — Proceedings, Oberwolfach January 28-February 3, 1979. — Edited by P. Kall and A. Prekopa. — Lecture notes in economics and mathematical systems, vol. 179. — Un vol. broché, $16,5 \times 24$, de ix, 237 p. — Prix: DM 34.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1980.

B. Bereanu : Stochastic-parametric linear programs II. — *G. Bol* : A necessary condition for continuity in parametric linear programming. — *B. Brosowski* : On parametric linear optimization IV. Differentiable parameter functions. — *L. Groenewegen and J. Wessels* : Conditions for optimality in multi-stage stochastic programming problems. — *W.-R. Heilmann* : A note on sequential minimax rules for stochastic linear programs. — *W.K. Klein Haneveld* : A dual of a dynamic inventory control model: the deterministic and stochastic case. — *Y. Rinott* : Convexity and optimization in certain problems in statistics. — *I. Deak* : Computation of multiple normal probabilities. — *J. Dupacova* : Water resources system modelling using stochastic programming with recourse. — *P. Kall* : Solving com-

plete fixed recourse problems by successive discretization — extended abstract —. — *J.G. Kallberg and W.T. Ziemba*: An extended Frank-Wolfe algorithm with application to portfolio selection problems. — *H. F. Karreman*: Duality in stochastic programming applied to the design and operation of reservoirs. — *P. Kelle*: Chance constrained inventory model for an asphalt mixing problem. — *K. Marti*: Solving stochastic linear programs by semi-stochastic approximation algorithms. — *A. Prekopa*: Network planning using two-stage programming under uncertainty.

Bernard KOLMAN. — **Calculus for the management, life, and social sciences.** — Un vol. relié, 19,5 × 24, de XIII, 514 p. — Prix: \$19.95. — Academic Press, New York/London/Toronto/Sydney/San Francisco, 1981.

Optional review of algebra: Diagnostic test. The real numbers. The real number line. Linear equations and inequalities. Exponents and radicals. Polynomials and rational expressions. Quadratic equations and inequalities. Common algebraic mistakes. — *Functions*: Rectangular coordinate system. Functions. The straight line and linear functions. Applications of the straight line (optional). Intersections of graphs. — *Limits, continuity, and rates of change*: Limits. Continuity. Average and instantaneous rates of change. — *The derivative*: Definition of the derivative. Techniques of differentiation. Applications in business and economics. The chain rule. Implicit differentiation (optional). — *Applications of the derivative*: Increasing and decreasing functions. Extreme values. The second derivative. Curve sketching. Applied optimization problems. Tangent line approximations and the differential. — *The exponential and logarithmic functions*: The exponential function. The logarithmic function. The derivatives of the exponential and logarithmic functions. Applications of the exponential function. — *Antidifferentiation*: Antiderivatives. Integration by substitution. Integration by parts. Tables of integrals. Differential equations. — *The definite integral*: The area under a curve. Properties of the definite integral. Applications of integration. Improper integrals. Riemann sums (optional). — *Functions of several variables*: Functions of several variables. Partial derivatives. Extreme values. Lagrange multipliers. — *The trigonometric functions*: The trigonometric functions. Derivatives of trigonometric functions. Integration of trigonometric functions.

L. ASIMOW, A. J. ELLIS. — **Convexity theory and its applications in functional analysis.** — London mathematical society monographs, vol. 16. — Un vol. relié, 16 × 23,5, de x, 266 p. — Prix: £23.20. — Academic Press, London/New York/Toronto/Sydney/San Francisco, 1980.

Preliminaries: Separation and polar calculus. Krein-Smulyan theorem and corollaries. Gauge lemma and completeness. Subspaces of $C(X)$ and affine functions. Representing measures. Maximal measures and the Choquet-Bishop-de Leeuw theorem. Bishop-Phelps theorems. — *Duality in ordered Banach spaces*: Positive generation and normality. Order unit and base norm spaces. Directedness and additivity. Homogeneous functionals on cones and the decomposition property. Banach lattices and the Riesz interpolation property. Abstract L and M spaces. Choquet simplexes. Decomposition of dual cones. Stability of split sets and the characterization of complemented subcones. Application to $A(K)$. The Riesz norm. — *Simplex spaces*: The facial topology for K and the centre of $A(K)$. Facial characterization of simplexes. Ideals in simplex spaces. Stone-Weierstrass theorems for simplex spaces. Prime simplexes and anti-lattices. Topological characterization of the extreme boundary of a compact simplex. Poulsen's simplex — its uniqueness and universality. Non-compact simplexes and convex sets. — *Complex function spaces*:

The complex state space. Complex representing measures. Interpolation sets. Gauge dominated extensions and complex state space. Peak sets and M -sets. Dominated interpolation. Decomposability and exact interpolation. M -hulls and function algebras. Facial topologies and decompositions. Lindenstrauss spaces. — *Convexity theory for C^* -algebras*: The structure topology and primitive ideas in $A(K)$. The ideal structure of a unital C^* -algebra and the facial structure of its state space. Commutativity and order in C^* -algebras. The centre of a C^* -algebra, weakly central algebras, prime algebras. Unit trace for C^* -algebras. The state spaces of Jordan operator algebras and of C^* -algebras.

Wiktor ECKHAUS, Aart van HARTEN. — **The inverse scattering transformation and the theory of solitons: an introduction.** — North-Holland mathematics studies, vol. 50. — Un vol. broché, $16,5 \times 24$, de XI, 222 p. — Prix: \$31.75. — North-Holland Publishing Company, Amsterdam/New York/Oxford, 1981.

The Korteweg-De Vries equation: Historical introduction. Elementary properties. The soliton behaviour. The initial value problem. Existence and uniqueness of solutions. Miura's transformation and the modified K.d.V. equation. — *Solution by the method of Gardner-Green-Kruskal-Miura. The inverse scattering transformation*: The scattering problem for the Schrödinger equation on the line. Invariance of the spectrum for potentials satisfying the K.d.V. equation. Evolution of the scattering data. Summary and discussion of the method of solution by the inverse scattering transformation. The pure N -soliton solution. The pure 2-soliton solution: an exercise. Relation between soliton speed and eigenvalues. The emergence of solitons from arbitrary initial conditions. — *Isospectral potentials. The Lax approach*: The invariance of discrete eigenvalues by an elementary approach. The invariance of the spectrum. Isospectral potentials for the Schrödinger equation. Isospectral potentials for more general selfadjoint operators. An alternative approach. — *Direct and inverse scattering for the Schrödinger equation*: Solutions and scattering data of Schrödinger's equation. Properties of solutions. The spectrum. Fourier transform of the solutions. Inverse scattering. Concluding remarks. — *Direct and inverse scattering for the generalized Zakharov-Shabat system*: Solutions and scattering coefficients of the generalized Zakharov-Shabat system. Properties of solutions. The spectrum. Fourier transform of solutions. Inverse scattering. — *Applications of the inverse scattering transformation*: The nonlinear Schrödinger equation. Isospectral potentials for non-degenerate first order systems using an alternative approach. Some evolution equations for isospectral potentials by ad hoc procedures. The general AKNS evolution equations. Degenerate first order scattering systems and the Sine-Gordon equation. Higher order scattering systems. — *Perturbations*: Introduction and general formulation. Evolution of the scattering data in the case of the Schrödinger equation. Evolution of the scattering data in the case of the generalized Zakharov-Shabat problem. Perturbation analysis.

Augustin Louis CAUCHY. — **Equations différentielles ordinaires: cours inédit, fragment.** Ordinary differential equations: unpublished course, fragment. — Introduction de Christian Gilain, préface de Jean Dieudonné. — Un vol. relié, $16,5 \times 24,5$, de LVI, 146 p. — Editions Etudes Vivantes, Paris, 1981. (Publié avec le concours du Centre National de la Recherche Scientifique).

Résumé des leçons données à l'Ecole Royale Polytechnique: Suite du calcul infinitésimal.
 1^{re} leçon: Intégration des équations différentielles du premier ordre. 2^e leçon: Intégrales de l'équation linéaire et de l'équation homogène du premier ordre. 3^e leçon: Sur les équations différentielles du premier ordre, que l'on intègre en substituant à la fonction inconnue y la

dérivée de cette même fonction. 4^e leçon : Sur les divers facteurs à l'aide desquels on peut rendre intégrable une équation différentielle du premier ordre. 5^e leçon : Recherche d'une équation différentielle dont l'intégrale générale est connue. Méthode par laquelle on peut déduire certaines intégrales singulières de l'intégrale générale. 6^e leçon : Détermination de la constante arbitraire que renferme l'intégrale générale d'une équation différentielle du premier ordre entre les variables x et y , dans le cas où l'on connaît la valeur particulière de y qui répond à une valeur donnée de x . 7^e leçon : Exposition d'une méthode à l'aide de laquelle on peut intégrer par approximation un grand nombre d'équations différentielles du premier ordre. 8^e leçon : Application de la méthode exposée dans la septième leçon à l'intégration d'une équation différentielle quelconque du premier ordre entre deux variables x, y . 9^e leçon : Limite des erreurs que l'on peut commettre en se servant de la méthode exposée dans la septième leçon pour le calcul numérique des valeurs particulières de la variable y , considérée comme fonction de x , et déterminée par une équation différentielle du premier ordre. 10^e leçon : Revue de toutes les intégrales particulières ou singulières qui peuvent appartenir à une équation différentielle du premier ordre. Propriétés de quelques-unes de ces intégrales. 11^e leçon : Sur les caractères distinctifs des intégrales singulières d'une équation différentielle du premier ordre. 12^e leçon : Méthodes diverses qui peuvent être employées au calcul numérique des valeurs particulières de la variable y considérée comme fonction de x , et déterminée par une équation différentielle du premier ordre. 13^e leçon : Exposition d'une méthode à l'aide de laquelle on peut intégrer par approximation des équations différentielles simultanées du premier ordre entre plusieurs variables x, y, z, \dots — Errata. — Annexes : Programmes de l'enseignement de l'Ecole royale polytechnique arrêtés par le Conseil de perfectionnement.

M. N. DAS, N. C. GIRI. — **Design and analysis of experiments.** — Un vol. relié, 15 × 23, de vii. 295 p. — Prix: £4.50. — Wiley Eastern Limited, New Delhi/Bangalore/Bombay/Calcutta, 1979.

Concepts of experiments : design and analysis : Design of experiments and collection of data. Experiments and their designs. Methodology for making inferences. Three principles of designs of experiments. Experimental error and interpretation of data. Contrasts and analysis of variance. Models and analysis of variance. Two-way classified data. Assumptions of analysis of variance. — *Complete block designs* : Completely randomized designs. Randomized block designs. Latin square designs. Missing observations in randomized block designs. An illustration. — *Factorial experiments* : Characterization of experiments. Factorial experiments. Factorial experiments with factors at two levels. Finite fields and designs of experiments. Grouping for interaction contracts. Confounding. Confounding in more than two blocks. Experiments with factors at three levels each. A general method of construction of confounded factorials. Maximum number of factors to save interactions up to a given order for a given block size. Analysis of factorial experiments. Fractional factorials. — *Asymmetrical factorial and split-plot designs* : Asymmetrical factorial designs. Confounded asymmetrical factorials. Construction of balanced confounded asymmetrical factorial. Construction of confounded asymmetrical factorial $v \times 2^2$ in $2v$ plot blocks. Analysis of balanced confounded asymmetrical factorials. Split-plot designs. Analysis. — *Incomplete block designs* : Varietal trials. Incomplete block designs. Balanced incomplete block designs. Construction of B.I.B. designs. Analysis. Analysis with recovery of inter-block information. Youden squares. Lattice designs. Partially balanced incomplete block designs. Analysis of P.B.I.B. designs. Analysis with recovery of inter-block information. Optimality of designs. — *Orthogonal Latin squares* : Orthogonal Latin squares. Maximum number of orthogonal Latin squares. Construction of orthogonal Latin squares. Construction of orthogonal Latin squares by using pairwise balanced designs. — *Designs for bioassays and response*

surfaces : Bio-assays. Direct assays. Indirect bio-assays. Parallel line assays. Incomplete block designs for bio-assays. Slope ratio assays. Response surface designs. — *Analysis of covariance and transformation* : Analysis of covariance. Analysis of covariance for randomized block designs. Analysis of covariance of completely randomized and Latin square designs. Analysis of covariance of non-orthogonal data and designs in two-way classification. Analysis of covariance with two ancillary variates. Covariance and analysis of experiments with missing observations. Transformations. — *Weighing designs* : Introduction. Definition. Method of estimation. Incomplete block designs as weighing designs. Two pan weighing designs from B.I.B. designs. Two associate P.B.I.B. designs as one pan weighing designs. Weighing designs from truncated incomplete B.I.B. designs. Efficiency.

18th Scandinavian congress of mathematicians. — Proceedings, 1980. — Erik Balslev, editor. — Progress in mathematics, vol. 11. — Un vol. relié, 15,5 × 23,5, de ix, 515 p. — Prix: FS 58.00. — Birkhäuser, Boston/Basel/Stuttgart, 1981.

Lennart Carlson : BMO — 10 years' development. — *Bent Fuglede* : Fine topology and finely holomorphic functions. — *William Fulton* : On the fundamental group of the complement of a plane curve. — *Lars Hörmander* : Symbolic calculus and differential equations. — *Ib Madsen* : Spherical space forms: a survey. — *Arto Salomaa* : Formal power series in noncommuting variables. — *Irving Segal* : Quantization, stability, and scattering. — *Erling Stormer* : Recent developments in C^* -algebras. — *Henning Haahr Andersen* : Representations of algebraic groups via cohomology of line bundles. — *Michael C. Blad* : A generic description of the evolution of a disequilibrium economy by exchange of stability. — *Jan-Erik Björk* : Rings of differential operators. — *Ola Bratteli* : On C^* -dynamical systems and equilibrium states. — *Yngve Domar* : On the existence of non-trivial or non-standard translation invariant subspaces in weighted l^p and L^p . — *Halldor E. E. Eliasson* : A geometric approach to nonlinear elasticity and continuum dynamics. — *G. Ellingsrud, D. Laksov* : The normal bundle of elliptic space curves of degree 5. — *M. Essen, D. F. Shea* : Some recent results on conjugate functions in the unit disk. — *Karsten Grove* : The geometric and topological significance of curvature and diameter. — *Gerd Grubb* : A resolvent construction for pseudo-differential boundary value problems, with applications. — *Uffe Haagerup* : The reduced C^* -algebra of the free group on two generators. — *Johan P. Hansen* : Connectedness theorems in algebraic geometry. — *Audun Holme* : Classification in projective algebraic geometry. — *Matti Jutila* : Distribution of primes in intervals and arithmetic progressions. — *Steven L. Kleiman* : Concerning the dual variety. — *Erkki Laitinen* : Burnside ring and Segal's conjecture. — *Asvald Lima* : Geometry of Banach spaces and intersection properties of balls. — *Olli Martio* : New methods in injectivity theorems connected with Schwarzian derivative. — *Lothar Reichel* : The determination of boundary collocation points for solving some problems for the Laplace operator. — *Seppo Rickmann* : Value distribution of quasi-regular mappings. — *Jan-Erik Roos* : Homology of loop spaces and of local rings. — *Johannes Sjöstrand* : Analytic singularities of solutions of boundary value problem. — *Stein Arild Strømme, Jose Mesequer, Ignatio Sols* : Compactification of a family of vector bundles on P^3 . — *Bengt Winzell* : The directional derivative problem.

Chuan-Chih HSIUNG. — **A first course in differential geometry.** — Pure and applied mathematics. — Un vol. relié, 16 × 23,5, de xvi, 343 p. — Prix: £19.05. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1981.

Euclidean spaces : Point sets. Differentiation and integration. Vectors. Mappings. Linear groups. Differential forms. The calculus of variations. — *Curves* : General local theory. Plane curves. Global theorems for spaces curves. — *Local theory of surfaces* :

Parametrizations. Functions and fundamental forms. Form of a surface in a neighborhood of a point. Principal curvatures, asymptotic curves, and conjugate directions. Mappings of surfaces. Triply orthogonal systems, and the theorems of Dupin and Liouville. Fundamental equations. Ruled surfaces and minimal surfaces. Levi-Civita parallelism. Geodesics. — *Global theory of surfaces*: Orientation of surfaces. Surfaces of constant Gaussian curvature. The Gauss-Bonnet formula. Exterior differential forms and a uniqueness theorem for surfaces. Rigidity of convex surfaces and Minkowski's formulas. Some translation and symmetry theorems. Uniqueness theorems for Minkowski's and Christoffel's problems. Complete surfaces. — *Appendices*: Proof of theorems.

Point processes and queuing problems. — Colloquium held at the University of Debrecen (Hungary) in 1978. — Edited by P. Bartfai, J. Tomko. — *Colloquia mathematica societatis, Janos Bolyai*, vol. 24. — Un vol. relié, 18 × 24, de 426 p. — Prix: Dfl 130.00. — North-Holland Publishing Company, Amsterdam/Oxford/New York, 1981.

Yu. R. Dashyan: The local limit theorem for a class of marked point fields and the problem of equivalence of ensembles in quantum statistical mechanics. — *D. A. Dawson*: Limit theorems for interaction free geostochastic systems. — *K. Fleischmann*: Continuity properties of clustered stochastic point processes and applications to spatially homogeneous branching processes. — *E. Glözl*: Gibbsian description of point processes. — *B. V. Gnedenko*: On some problems in queueing theory. — *B. Gyires*: Stochastic processes with increments defined on a Markov chain. — *Z. Ignatov*: Point processes generated by order statistics and their applications. — *E. Jolivet*: Central limit theorem and convergence of empirical processes for stationary point processes. — *V.V. Kalashnikov*: Estimations of convergence rate and stability for regenerative processes. — *D. König, V. Schmidt*: Relationships between time- and customer-stationary characteristics of service systems. — *K. Krickeberg*: Moment analysis of stationary point processes in R^d . — *I. Kun*: The mathematical model of a terminal system. — *P. Lansky, T. Radil-Weiss, K. Hrubant, M. Indra*: A note to the selective interaction models of single neuron firing trains. — *A. J. Lawrance*: Some autoregressive models for point processes. — *Gy. Lippner*: First order stochastic dynamics of one-dimensional infinite point systems. — *J. Loris-Teghem*: Hysteretic control of an $M/G/1$ queueing system with two service time distributions and removable server. — *J. P. Rasson*: Some geometrical aspects of the entropy of line-processes. — *B. Rauchenschwandtner, A. Wakolbinger*: Some aspects of the Papangelou kernel. — *S. I. Rosenlund*: Passage times in the finite $M/M/1$ queue. — *W. Schlee-Kössler*: A single server queue with two types of customers and alternating service in pieces of l_1 and l_2 . — *H. C. Tijms*: A unified steady-state analysis for controlled Markov drift processes in inventory, queueing and replacement problems. — *J. Tomko*: Semi Markov analysis of an $E_k/G/1$ queue with finite waiting room. — *A. M. Zaharin*: Models for the operation of strongly regenerative systems with gain and loss. — *M. Zalcman*: Analysis of queueing systems operating at discrete times.

Jean COURBON. — **Introduction au calcul matriciel.** — Dunod université: ouvrages de base. — Un vol. broché, 13,5 × 21 de 107 p. — Dunod, Paris, 1971.

Ensembles: Notations. Définition des ensembles. Relations entre deux éléments d'un ensemble. Applications d'un ensemble E dans un ensemble F . Lois de composition internes. Loi de composition externe. Lois de composition internes sur $\mathcal{P}(E)$. — *Les structures fondamentales de l'algèbre*: Groupes. Anneaux. Corps. Espaces vectoriels sur un corps. Applications linéaires. — *Espaces vectoriels de dimension finie. Matrices*: Dimension et

base d'un espace vectoriel. Forme linéaire. Déterminants. Matrices rectangulaires sur un corps. Matrices carrées. Matrices régulières. Théorie du rang. Matrices équivalentes. Matrices semblables. Formes quadratiques. Matrices congruentes. Espace euclidien réel. Diagonalisation des matrices symétriques dans l'espace euclidien réel. — *Equations linéaires*: Etude théorique. Méthodes directes. Méthodes d'itération. Méthodes de relaxation.

Ch.-E. PICARD. — **Œuvres de Ch.-E. Picard, tome IV.** — Un vol. relié, 16 × 24,5, de XII, 627 p. — Prix: FF 165.00. — Editions du Centre national de la recherche scientifique, Paris, 1981.

Intégrales abéliennes et surfaces algébriques: Quelques remarques sur les périodes des intégrales doubles et la transformation des surfaces algébriques. Sur les intégrales doubles de fonctions rationnelles dont tous les résidus sont nuls. Sur quelques points fondamentaux dans la théorie des fonctions algébriques de deux variables. Sur une propriété curieuse d'une classe de surfaces algébriques. Sur l'impossibilité de certaines séries de groupes de points sur une surface algébrique. Sur certaines surfaces algébriques pour lesquelles les intégrales de différentielles totales se ramènent à des combinaisons algébrico-logarithmiques. Sur certaines surfaces algébriques dont les intégrales de différentielles totales sont algébrico-logarithmiques. Sur les relations entre la théorie des intégrales doubles de 2^e espèce et celle des intégrales de différentielles totales. Sur les périodes des intégrales doubles et leurs rapports avec la théorie des intégrales doubles de 2^e espèce. Sur quelques points de la théorie des fonctions algébriques de deux variables et de leurs intégrales. Sur un théorème général concernant les surfaces algébriques de connexion linéaire supérieure à l'unité. Sur la formule générale donnant le nombre des intégrales doubles de 2^e espèce dans la théorie des surfaces algébriques. Sur quelques théorèmes relatifs aux surfaces algébriques de connexion linéaire supérieure à l'unité. Sur la formule générale donnant le nombre des intégrales doubles distinctes de 2^e espèces relatives à une surface algébrique. Sur quelques questions se rattachant à la connexion linéaire dans la théorie des fonctions algébriques de deux variables indépendantes. Sur la dépendance entre les intégrales de différentielles totales de 1^{re} et de 2^e espèce d'une surface algébrique. Sur une inégalité relative à la connexion linéaire et sur le calcul du genre numérique d'une surface algébrique. De l'influence des points multiples isolés sur le nombre des intégrales doubles de 2^e espèce d'une surface algébrique. Sur les intégrales abéliennes de 2^e espèce et sur leur périodicité. Sur la nature algébrico-logarithmique des intégrales de différentielles totales relatives aux surfaces algébriques régulières. — *Travaux divers d'analyse*: Sur le nombre des racines communes à plusieurs équations simultanées. Sur la représentation approchée des fonctions. Sur le nombre des racines communes à plusieurs équations simultanées. Sur la recherche du nombre des racines communes à plusieurs équations simultanées. Du nombre des racines communes à plusieurs équations simultanées. Sur le nombre des racines communes à plusieurs équations simultanées. Note sur les intégrales multiples. Sur une formule de Weierstrass. Sur une équation fonctionnelle. Sur quelques problèmes de physique mathématique se rattachant à l'équation de M. Fredholm. Sur quelques applications de l'équation fonctionnelle de M. Fredholm. Sur le problème généralisé de Dirichlet et l'équation de M. Fredholm. Sur une formule relative au potentiel de simple couche et son application à la recherche de fonctions harmoniques satisfaisant à certaines conditions. Sur la solution du problème généralisé de Dirichlet, relatif à une équation linéaire du type elliptique, au moyen de l'équation de Fredholm. Sur la détermination des intégrales de certaines équations aux dérivées partielles par les valeurs des dérivées normales sur un contour. Sur une équation fonctionnelle se présentant

dans la théorie de certaines équations aux dérivées partielles. Sur deux applications de l'équation de Fredholm à des problèmes de physique mathématique et, sous un titre plus précis: Sur la distribution de l'électricité avec la loi de Neumann et sur le pouvoir refroidissant d'un courant fluide. Quelques remarques sur les équations intégrales de 1^{re} espèce et sur certains problèmes de physique mathématique. Sur les équations intégrales de 1^{re} espèce. Sur une classe de développements en séries de fonctions fondamentales se rattachant à certaines équations fonctionnelles. Sur un théorème général relatif aux équations intégrales de 1^{re} espèce et sur quelques problèmes de physique mathématique. Un théorème général sur certaines équations intégrales de 3^e espèce. Sur une équation fonctionnelle singulière du type de l'équation de Fredholm. Sur une équation intégrale singulière. Sur un exemple simple d'une équation singulière de Fredholm où la nature analytique de la solution dépend du 2^e membre. Un théorème général sur certaines équations intégrales de 3^e espèce. Sur les équations intégrales de 3^e espèce. Un complément sur un théorème relatif aux équations intégrales de 3^e espèce. Sur les solutions continues des équations intégrales de 3^e espèce. Sur les développements de Cauchy en séries d'exponentielles et sur la transformation de M. André Léauté. Application de la théorie des équations intégrales à certains problèmes de la théorie analytique de la chaleur, dans l'hypothèse d'un saut brusque de température à la surface de séparation des corps en contact. Sur la distribution de l'électricité avec la loi de Neumann et sur la théorie analytique de la chaleur dans le cas d'un saut brusque de température. Remarque au sujet d'une équation intégrale considérée par M. Charlier. Sur une équation fonctionnelle se présentant dans la théorie de la distribution de l'électricité avec la loi de Neumann. Sur quelques équations intégrales singulières. — *Géométrie*: Sur les surfaces réglées dont les génératrices font partie d'un complexe linéaire. Application de la théorie des complexes linéaires à l'étude des surfaces et ses courbes gauches. Sur une classe de surfaces algébriques. Sur les surfaces algébriques dont toutes les sections planes sont unicursales. Sur les systèmes linéaires de genre zéro. Deux leçons sur certaines équations fonctionnelles et la géométrie non euclidienne. — *Mécanique*: Sur la rotation d'un système déformable. Sur deux théorèmes classiques de cinématique. Quelques réflexions sur certains résultats de H. Poincaré concernant la mécanique analytique. A propos du paradoxe hydrodynamique de d'Alembert. Sur la détermination de l'axe de rotation et de la vitesse de rotation d'un corps solide. Homogénéité et similitude en mécanique. Remarques sur l'homogénéité en mécanique.

E. B. DAVIES. — **One-parameter semigroups.** — London mathematical society monographs, vol. 15. — Un vol. relié, 16 × 24, de VIII, 230 p. — Prix: £19.80. — Academic Press, London/New York/Toronto/Sydney/San Francisco, 1980.

Semigroups and their generators: Basic properties. Other continuity conditions for semigroups. Norm continuity. Semigroups on dual spaces. Differentiable and analytic vectors. — *Resolvents*: Elementary properties. Spectral theory. Classification of generators. Subordinated semigroups. Bounded holomorphic semigroups. — *Perturbations of generators*: Relatively bounded perturbations. Relatively compact perturbations. Convergence of generators. The product formula. — *Self-adjoint operators*: Elementary results. Quadratic forms. Relatively bounded perturbations. Convergence of self-adjoint operators. The product formula. — *Asymptotic analysis*: Mean ergodic theorem. First order results. Second order results with ergodic condition. Unrestricted second order results. Uniform time limits. — *Contraction semigroups on Hilbert space*: Classification of generators. Completely non-unitary semigroups. The dilation theorem. Structure of the minimal dilation. Square-integrable vectors. — *Positive semigroups*: Positivity and irreducibility. Criteria for positivity and irreducibility. Introduction to Markov semi-

groups. Peripheral point spectrum. — *Groups of isometries*: Some examples. Spectral subspaces. The spectral theorems. Bounded Hermitian operators.

H. P. BARENDREGT. — **The lambda calculus: its syntax and semantics.** — Studies in logic and the foundations of mathematics, vol. 103. — Un vol. relié, 16 × 23, de xiv, 615 p. — Prix: Dfl. 225.00. — North-Holland Publishing Company, Amsterdam/New York/Oxford, 1981.

TOWARDS THE THEORY: *Introduction*: Aspects of the lambda calculus. Complete partial orders and the Scott topology. — *Conversion*: Lambda terms and conversion. Some variants of the theory. — *Reduction*: Notions of reduction. Beta reduction. Eta reduction. — *Theories*: Lambda theories. — *Models*: Combinatory algebras. Lambda algebras and models. Homomorphisms, interiors and term models. First order descriptions. — CONVERSION: *Classical lambda calculus*: Fixed point combinators. Standard combinators. Lambda definability. Numeral systems. More about fixed points. Gödel numbers. Undecidability results. Self-referential sentences and the recursion theorem. — *The theory of combinators*: Combinatory logic. Reduction for CL. The relation between CL and λ . — *Classical lambda calculus (continued)*: Bases and enumeration. Uniformity; infinite sequences. Solvability; head normal forms. Definability of partial functions. — *The λ -calculus*: Generalities. Definability. Combinators. Solvability. — *Böhm trees*: Basics. Comparing Böhm trees; the tree topology on Λ . The Böhm out technique. Separability of terms. Separability in the λ -calculus. — REDUCTION: *Fundamental theorems*: The Church-Rosser theorem. The finiteness of developments. The conservation theorem for λ . Standardization. — *Strongly equivalent reductions*: Reduction diagrams. Strong versions of CR and FD! Strong version of standardization. — *Reduction strategies*: Classification of strategies. Effective normalizing and cofinal strategies. A recursive CR strategy. An effective perpetual strategy. Optimal strategies. — *Labelled reduction*: Strong normalization. Applications. Continuity. Sequentiality and stability. — *Other notions of reduction*: BH-reduction. BH Ω -reduction. Delta reduction. — THEORIES: *Sensible theories*: The theory \mathcal{H} . The theory \mathcal{H}^* . 2^{\aleph_0} sensible theories. The theory \mathcal{B} . — *Other lambda theories*: Semi-sensible and recursively enumerable theories. Omega theories. Partial validity of the ω -rule in $\lambda\eta$. The ω -rule and $\mathcal{H}\eta$. — MODELS: *Construction of models*: General construction. The graph model $P\omega$. The models $D\infty$. The Model \mathcal{B} . — *Local structure of models*: Local structure of $P\omega$. Local structure of $D\infty$. Continuous λ -models. — *Global structure of models*: Extensionality. The range property. Non-definability results. Local versus global representability. The tree topology on models. — *Combinatory groups*: Combinatory semigroups. Characterization of invertibility. The groups $G(\lambda\eta)$ and $G(\mathcal{H}^*)$. — APPENDICES: *Typed lambda calculus*: The pure typed lambda calculus. Primitive recursive functionals. Formulae as types. — *Illative combinatory logic*. — *Variables*.

J. OBALA. — **Exercices et problèmes de mécanique des milieux continus.** — Préface de P. Germain. — Un vol. broché, 16 × 24, de xii, 211 p. — Masson, Paris/New York/Barcelone/Milan/Mexico/Rio de Janeiro, 1981.

Notions fondamentales de la mécanique des milieux continus: Cinématique des milieux continus. Déformations. Contraintes dans un milieu continu. — *Introduction à la théorie de l'élasticité*: Problèmes généraux d'élasticité. Théorèmes de l'énergie. Milieux curvilignes élastiques (fils, barres, poutres). — *Introduction à la mécanique des fluides*: Ecoulements de fluides parfaits compressibles ou incompressibles. Ecoulements plans irrotationnels et stationnaires de fluides parfaits incompressibles. Ecoulements de fluides visqueux incompressibles.

C. F. GARDINER. — **Modern algebra: a natural approach, with applications.** — Ellis Horwood series in mathematics and its applications. — Un vol. relié, $16 \times 23,5$, de 288 p. — Prix: £12.50 (broché: £5.90). — Ellis Horwood limited, Chichester, Halsted press: a division of J. Wiley and Sons, New York/Chichester/Brisbane/Toronto, 1981.

The presentation of mathematics: Introduction. Classical logic. Formal proof. Godel's results. — *Sets, functions and relations*: Sets. Subsets. The power set. Intersection and union. Index set. Venn diagrams. Rules for manipulating \cap and \cup . Complements. Functions. Special functions. Composition of functions. Inverses. Relations. Equivalence relations. Order relations. Cardinal number of a set. — *Numbers and induction*: Axioms for rings. The principle of induction. Construction of the rationals. Construction of the reals. The complex numbers. The hierarchy of numbers. Representations; modulus, argument and conjugate. Curves and regions on the Argand diagram. Roots of polynomials with real coefficients. Extraction of square roots. De Moivre's theorem. Roots of unity. Roots of an arbitrary complex number. Factorisation of polynomials into real factors. — *Matrices, determinants, vectors and linear transformations*: Matrices. Determinants. Permutations. Definition and properties of $n \times n$ determinant. Minors and cofactors. The inverse of a matrix. Solution of equations. Vectors and vector spaces. Subspaces. The rank of a matrix. Elementary operations on vectors. Determinantal rank. The solution of linear equations. Linear transformations. Representation of a linear transformation by a matrix. Representation of abstract system by F^n , F^m and a matrix A . Change of bases. — *Lines, planes, spheres, and coordinate transformations*: Introduction. Equation of a line. Planes. Lines again. Spheres. Coordinate transformations. — *Quadrics and quadratic forms*: Introduction. Eigenvalues and eigenvectors. Classification of the quadrics. Rank, signature, and Sylvester's law of inertia. Simultaneous reduction of two quadratic forms; normal coordinates. — *Factorisation and Euclidean domains*: Introduction. Euclidean domains. The ring of Gaussian integers. Application to number theory. — Exercices à la fin de chaque chapitre et solutions.

B. D. HASSARD, N. D. KAZARINOFF and Y.-H. WAN. — **Theory and applications of Hopf bifurcation.** — London mathematical society lecture note series, vol. 41. — Un vol. broché, $15,5 \times 23$, de vi, 311 p. — Prix: £15.00. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1981.

The Hopf bifurcation theorem: Introduction. The Hopf bifurcation theorem. Existence of periodic solutions and Poincaré normal form. Stability criteria. Reduction of two-dimensional systems to Poincaré normal form. Restriction to the center manifold. — *Applications: ordinary differential equations (by hand)*: Introduction and a recipe-summary. Examples: the mass-spring-belt system, van der Pol's equation, bulk oscillations of the Lefever-Prigogine system (the brusselator). Langford's system (including an elementary bifurcation to tori). — *Numerical evaluation of Hopf bifurcation formulae*: Introduction. Location of the critical value of the bifurcation parameter and the corresponding equilibrium solution. Evaluation of the coefficient $c_1(0)$ of the Poincaré normal form. Right and left eigenvectors of A . Normalization of v_1 and u_1 . Numerical differencing for second partial derivatives. Evaluation of g_{20} , g_{11} , g_{02} , h_{20} , and h_{11} . Solution for the coefficient vectors w_{11} , w_{20} , in the expansion of the slice $v = v_c$ of the center manifold. Numerical differencing for G_{21} . Computation of $c_1(0)$. Evaluation of $\alpha'(0)$, $\omega'(0)$, μ_2 , τ_2 , and β_2 . Error estimation. Sample applications: the mass-spring-belt system. The centrifugal governor. The Lorenz system. The Hodgkin-Huxley current clamped system. The brusselator with fixed boundary conditions. A panel flutter problem. — *Applications: differential-difference and integro-differential equations (by*

hand) : Introduction. Theory and algorithm for differential-difference equations. The Hutchinson-Wright equation and related examples. An example with two distinct lags. Unbounded delays. A three-trophic-level model. — *Applications: partial differential equations (by hand)* : Introduction. Semiflows. Hopf bifurcation and associated stability computations for local semiflows. The brusselator with diffusion and no flux boundary condition on an interval or a disk. The brusselator with diffusion and fixed boundary conditions. — *Appendices* : The center manifold theorem. Summary of results on continuous semigroups. A regularity theorem for maps of Sobolev spaces. Truncation error, roundoff error and numerical differencing. The code BIFOR2 for numerical evaluation of Hopf bifurcation formulae. A sample program using BIFOR2. Contents of microfiche.

Shelemyahu ZACKS. — **Parametric statistical inference: basic theory and modern approaches.** — International series in nonlinear mathematics: theory, methods and applications, vol. 4. — Un vol. relié, 18 × 26, de xvi, 387 p. — Prix: £20.00. — Pergamon Press, Oxford/New York/Toronto/Sydney/Paris/Frankfurt, 1981.

General review : Introduction. Statistical models, distribution functions and the essence of statistical inference. The information in samples and sufficient statistics. Testing statistical hypotheses. Estimation theory. The efficiency of estimators. Confidence and tolerance intervals. Decision theoretic and Bayesian approach in testing and estimation. — *Basic theory of statistical distributions* : Introductory remarks. Elementary properties of distribution functions. Some families of discrete distributions. Some families of continuous distributions. Expectations, moments and generating functions. Joint distributions, conditional distributions and independence. Moments and covariances of linear functions. Discrete multivariate distributions. Multinormal distributions. Distribution of symmetric quadratic forms of normal variables. Independence of linear and quadratic forms of normal variables. The order statistics. The t-distributions. The F-distributions. The distribution of the sample correlation. Limit theorems. Problems. — *Sufficient statistics and the information in samples* : Introduction. Definitions and characterization of sufficient statistics. Likelihood functions and minimal sufficient statistics. Sufficient statistics and exponential type families. Sufficiency and completeness. Information functions and sufficiency. Problems. — *Testing statistical hypotheses* : The general framework. The Neyman-Pearson fundamental lemma. Testing one-sided composite hypotheses in MLR models. Testing two-sided hypotheses in one-parameter exponential families. Testing composite hypotheses with nuisance parameters — unbiased tests. Likelihood ratio tests. The analysis of contingency tables. Sequential testing of hypotheses. Problems. — *Estimation theory* : General discussion. Unbiased estimators. Best linear unbiased and least squares estimator. Stabilizing the least squares estimators: ridge regression. Maximum likelihood estimation. Equivariant estimators. Moment-equations estimators. Pre-test estimators. Robust estimators. Problems. — *The efficiency of estimators* : General introduction. The Cramer-Rao lower bound in regular one-parameter cases. Extension of the Cramer-Rao inequality to multiparameter cases. General inequalities of the Cramer-Rao type. The efficiency of estimators in small samples. Asymptotic properties of estimators. Second-order asymptotic efficiency. Maximum probability estimators. Problems. — *Confidence and tolerance intervals* : General introduction. The construction of confidence intervals. Optimal confidence intervals. Large sample approximations. Tolerance intervals. Distribution-free confidence and tolerance intervals. Simultaneous confidence intervals. Two-stage and sequential sampling for fixed-width confidence intervals. Problems. — *Decision theoretic and Bayesian approach in testing and estimation* : The Bayesian framework. Bayesian testing of hypotheses.

Bayesian confidence intervals. Bayes and minimax estimators. Minimax risk and Bayes equivariant, formal Bayes and structural estimators. Empirical Bayes estimators. The admissibility of estimators. Problems.

Ergodic theory and dynamical systems I. — Proceedings special year, Maryland 1979-80. — A. Katok, editor. — Progress in mathematics, vol. 10. — Un vol. relié, 15,5 × 23,5, de xi, 333 p. — Prix: FS 42.00. — Birkhäuser, Boston/Basel/Stuttgart, 1981.

Daniel J. Rudolph: A characterization of those processes finitarily isomorphic to a Bernoulli shift. — *D. S. Lind*: Finitarily splitting skew products. — *Andres del Junco*: Disjointness of measure-preserving transformations, minimal self-joinings and category — *A. del Junco, M. Keane, B. Kitchens, B. Marcus, and L. Swanson*: Continuous homomorphisms of Bernoulli schemes. — *William A. Veech*: Projective Swiss cheeses and uniquely ergodic interval exchange transformations. — *Yitzhak Katznelson and Benjamin Weiss*: When all points are recurrent/generic. — *Robert L. Devaney*: Singularities in classical mechanical systems.

Alain HARAUX. — **Nonlinear evolution equations: global behavior of solutions.** — Lecture Notes in Mathematics, vol. 841. — Un vol. broché, 16,5 × 24, de xii, 313 p. — Prix: DM 34.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

The Cauchy problem: Generalities and local theory. The global existence problem. Theory of monotone operators and applications. Smoothing effect for some nonlinear evolution equations. Schrödinger and wave equations with a logarithmic nonlinearity. — *The quasi-autonomous periodic problem*: The linear case: Hilbertian theory and applications. Some nonlinear monotone cases. Some nonlinear, non monotone cases. — *Asymptotic behavior*: Autonomous dissipative systems. General results for quasi-autonomous periodic systems. — *More specialized topics*: More on asymptotic behavior for solutions of the nonlinear dissipative forced wave equation. Boundedness of trajectories for quasi-autonomous dissipative systems. Almost-periodic quasi-autonomous dissipative systems in a Hilbert space. — Bibliographie à la fin de chaque chapitre.

Functional analysis, holomorphy, and approximation theory. — Proceedings of the Seminario de análise funcional, holomorfia e teoria de aproximação, Universidade federal do Rio de Janeiro, Brazil, August 7-11, 1978. — Edited by Silvio Machado. — Lecture notes in mathematics, vol. 843. — Un vol. broché, 16,5 × 24, de vi, 636 p. — Prix: DM 64.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

J. M. Ansemil and S. Ponte: An example of a quasi-normable Fréchet space which is not a Schwartz space. — *A. Bayoumi*: The Levi problem and the radius of convergence of holomorphic functions on metric vector spaces. — *E. Beckenstein and L. Narici*: Extending nonarchimedean norms on algebras. — *E. Behrends*: M -structure in tensor products of Banach spaces. — *M. Bianchini*: Silva-holomorphy types, Borel transforms and partial differential operators. — *K.-D. Bierstedt*: The approximation-theoretic localization of Schwartz's approximation property for weighted locally convex function spaces and some examples. — *B. Brosowski*: An application of Korovkin's theorem to certain partial differential equations. — *J. F. Colombeau and B. Perrot*: The Fourier-Borel transform in infinitely many dimensions and applications. — *J. F. Colombeau, B. Perrot and T. A. W. Dwyer, III*: On the solvability of differential equations of infinite order in non-metrizable spaces. — *J. F. Colombeau and R. Meise*: C^∞ -functions on

locally convex and on bornological vector spaces. — *J. B. Cooper and W. Schachermayer* : Uniform measures and Cosaks spaces. — *S. Dineen* : Holomorphic germs on compact subsets of locally convex spaces. — *G. G. Emch* : Some mathematical problems in non-equilibrium statistical mechanics. — *B. Fuchssteiner* : Generalized Hewitt-Nachbin spaces arising in state-space completions. — *L. Kaup* : On the topology of compact complex surfaces. — *W. Kaup* : Jordan algebras and holomorphy. — *C. O. Kiselman* : How to recognize supports from the growth of functional transforms in real and complex analysis. — *P. Krée* : Linear differential operators on vector spaces. — *B. Lascar* : Solutions faibles et solutions fortes du problème $\bar{\partial}u = f$ où f est une fonction à croissance polynomiale sur un espace de Hilbert. — *M. C. Matos and L. Nachbin* : Silva-holomorphy types. — *L. A. Moraes* : Envelopes for types of holomorphy. — *J. Mujica* : Domains of holomorphy in (DFC)-spaces. — *O. Nicodemi* : Homomorphisms of algebras of germs of holomorphic functions. — *J. B. Prolla* : On the spectra of non-archimedean function algebras. — *J. Schmets* : An example of the barrelled space associated to $C(X;E)$. — *M. Valdivia* : On suprabarrelled spaces. — *M. C. F. Zaine* : Envelopes of Silva-holomorphy. — *G. Zapata* : Dense subalgebras in topological algebras of differentiable functions.

Groupe de Brauer. — Séminaire, Les Plans-sur-Bex, Suisse 1980. — Edité par M. Kervaire et M. Ojanguren. — Lecture Notes in Mathematics, vol. 844. — Un vol. broché, 16,5 × 24, de vii, 274 p. — Prix: DM 29.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

J.-P. Tignol : Corps à involution neutralisés par une extension abélienne élémentaire. — *S. Rosset* : The Goldie rank of virtually polycyclic groups. — *B. Fein and M. Schacher* : Brauer groups of rational function fields over global fields. — *S. Bloch* : Torsion algebraic cycles, K_2 , and Brauer groups of function fields. — *A. Tannenbaum* : The Brauer group and unirationality: an example of Artin-Mumford. — *O. Gabber* : Some theorems on Azumaya algebras. — *M. A. Knus and M. Ojanguren* : Cohomologie étale et groupe de Brauer. — *W. Hürliman* : Sur le groupe de Brauer d'un anneau de polynômes en caractéristique p et la théorie des invariants.

Allen TANNENBAUM. — **Invariance and system theory: algebraic and geometric aspects.** Un vol. broché, 16,5 × 24, de ix, 161 p. — Prix: DM 21.50. — Lecture Notes in Mathematics, vol. 845. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Some basic algebraic geometry : Affine geometry. Projective geometry. Regular mappings. The constructibility theorem of Chevalley. Sheaves and vector bundles. The Grassman variety. Some remarks on algebraic geometry over a non-algebraically closed field. — *Some basic system theory* : Dynamical systems. Controllability and reachability. Constructibility and observability. State variables. Transfer functions. — *Invariant theory and orbit space problems* : Algebraic groups. On the moduli of endomorphisms. Quotients. Reductive groups and Hilbert's 14th problem. Richardson's criterion. — *Global moduli of linear time-invariant dynamical systems* : Complete reachability and pre-stability. Construction of the quotient space of completely reachable pairs. Moduli of linear time-invariant dynamical systems. The geometric structure of the moduli space. The global moduli of completely reachable matrix triples. Some open problems. — *Local moduli of linear time-invariant dynamical systems* : Versal deformations of matrix pairs. The control canonical form. On the construction of holomorphic canonical forms. Versal deformations of matrix triples. — *Algebraic realization theory* : Input/output maps and abstract realization theory. Hankel matrices. Realizations of rational matrices.

Partial realizations. Systems over rings. Polynomial systems. — *On the geometry of rational transfer functions*: Cauchy indices and the connected components of $\text{Rat}(n)$. Complex transfer functions. The topology of $\text{Rat}(n)$. Partial realizations. — *Feedback and stabilization of systems with parameter uncertainty*: Classical stability theory. Kronecker indices and state feedback. Coefficient and pole assignability. Blending and output feedback. Interpolation in the unit disc. Feedback stabilization of plants with uncertainty in the gain factor.

Ordinary and partial differential equations. — Proceedings of the 6th conference held at Dundee, Scotland, March 31 — April 4, 1980. — Edited by W. N. Everitt and B. D. Sleeman. — Lecture Notes in Mathematics, vol. 846. — Un vol. broché, $16,5 \times 24$, de xiv, 384 p. — Prix: DM 39.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

35 exposés par: C. D. Ahlbrandt. — C. D. Ahlbrandt, D. B. Hinton and R. T. Lewis. — F. M. Arscott. — J. V. Baxley. — H. Begehr and G. Hsiao. — A. P. Brédimas. — A. C. Bryan, C. R. Haines, and A. E. G. Stuart. — L. Collatz. — M. S. P. Eastham and C. G. M. Grudniewicz. — W. D. Evans. — M. Faierman and I. Knowles. — J. Fleckinger. — R. P. Gilbert. — B. J. Harris. — R. Ibrahim and B. D. Sleeman. — A. Jeffrey. — G. D. Jones. — R. I. I. A. Karim. — K. Kreith. — R. Kress. — M. K. Kwong and A. Zettl. — A. J. B. Lopes-Pinto. — P. Nelson and K. E. Wiggins. — G. Pagan and P. J. Richards. — K. J. Palmer. — M. Parrott. — M. Rasche. — T. T. Read. — A. Schneider. — I. Stakgold. — R. Stangar. — A. Vanderbauwhede. — E. J. M. Veling. — J. Walter. — M. Willem.

Ulrich KOSCHORKE. — **Vector fields and other vector bundle morphisms: a singularity approach.** — Lecture Notes in Mathematics, vol. 847. — Un vol. broché, $16,5 \times 24$, de iv, 304 p. — Prix: DM 34.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Existence and homotopy classification: Non-degenerate singularities and their structure. Singularity invariants. Existence of $(k+1)$ -morphisms. Homotopy and concordance classification of $(k+1)$ -morphisms. Connections with classical obstructions, and with some classical results concerning the homotopy of Stiefel manifolds. — *Bordism classification*: Fine bordism groups of vector bundle morphisms, and their stability properties. The exact singularity sequence. Rational bordism of framefields and of k -mersions. Calculation of low-dimensional normal bordism groups. Bordism of immersions. An example of odd torsion: calculation of π_3^S . Bordism of framefields. — *Framefields*: The complete obstructions $\omega_\kappa(M)$ and $\omega'_\kappa(M)$. Existence of two or three independent vector fields. Four linearly independent vector fields. Indices of framefields with finite singularities. Torsion questions. Counting homotopy classes of framefields. The invariants χ , χ' and χ'' , and a spectral sequence involving bordism groups of framefields. Stable versus unstable framefields.

Algebra, Carbondale, 1980: Lie algebras, group theory, and partially ordered algebraic structures. — Proceedings of the Southern Illinois algebra conference, Carbondale, April 18 and 19, 1980. — Edited by R. K. Amayo. — Lecture Notes in Mathematics, vol. 848. — Un vol. broché, $16,5 \times 24$, de vi, 298 p. — Prix: DM 34.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

LIE ALGEBRAS: *Robert Lee Wilson*: A "new" proof of Kaplansky's theorem on simple Lie algebras of rank one. — *Robert Lee Wilson*: The classification problem for simple Lie

algebras of characteristic p . — *George B. Seligman* : Representations of certain classical Lie algebras. — *David J. Winter* : A combinatorial theory of symmetry and applications to Lie algebras. — *Dragomir Z. Djokovic* : Closures of conjugacy classes in classical real linear Lie groups. — *Mary J. Anderson* : Explicit expressions for the generators of the center of the enveloping algebra of real Lie algebras and for the bivariant operators on the group. — *Victor G. Kac* : Simple Lie groups and the Legendre Symbol. — GROUP THEORY: *James A. Green* : Polynomial representations of GL_n . — *Roger W. Richardson* : An application of the Serre conjecture to semisimple algebraic groups. — *Bhama Srinivasan* : The blocks of the general linear group $GL(n, q)$. — *Martyn Dixon* : A conjugacy theorem for Carter subgroups in groups with $\min p$ for all p . — *K. W. Johnson* : Transversals, S -rings and centraliser rings of groups. — *Derek J. S. Robinson* : Recent results on finite complete groups. — PARTIALLY ORDERED ALGEBRAIC STRUCTURES: *Paul Conrad* : K -radical classes of lattice ordered groups. — *Richard N. Ball* : The distinguished completion of a lattice ordered group. — *Andrew M. W. Glass* : Elementary types of automorphisms of linearly ordered sets: a survey. — *Akbar H. Rhemtulla* : Polycyclic right-ordered groups. — *John Dauns* : Generalized semigroup rings. — *John Zeleznikow* : The natural partial order on semirings. — *Stephen Semmes and Franklin Haimo* : Some complete antinormal subgroups of infinite symmetric groups. — *Stuart A. Steinberg* : Special elements in semiprime rings. — *Isidore Fleischer* : The Hahn embedding theorem: analysis, refinements, proof.

Péter MAJOR. — **Multiple Wiener-Itô integrals: with applications to limit theorems.** — Lecture Notes in Mathematics, vol. 849. — Un vol. broché, $16,5 \times 24$, de vii, 127 p. — Prix: DM 18.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

On a limit problem. — Wick polynomials. — Random spectral measures. — Multiple Wiener-Itô integrals. — The proof of Itô's formula. — The diagram formula and some of its consequences. — Subordinated fields, construction of self-similar fields. — On the original Wiener-Itô integral. — Non-central limit theorems. — History of the problems. — Comments.

Séminaire de probabilités XV, 1979/80. — Avec table générale des exposés de 1966/67 à 1978/79. — Edité par J. Azéma et M. Yor. — Lecture Notes in Mathematics, vol. 850. — Un vol. broché, $16,5 \times 24$, de iv, 704 p. — Prix: DM 69.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

X. Fernique : Sur les lois de certaines intégrales associées à des mouvements browniens. — *X. Fernique* : Sur le théorème de Kantorovitch-Rubinstein dans les espaces polonais. — *M. Ledoux* : La loi du logarithme itéré bornée dans les espaces de Banach. — *P. Nobelis* : Fonctions aléatoires lipschitziennes. — *P. A. Meyer* : Géométrie stochastique sans larmes. — *P. A. Meyer* : Flot d'une équation différentielle stochastique. — *H. Kunita* : Some extensions of Ito's formula. — *H. Föllmer* : Calcul d'Ito sans probabilités. — *P. A. Meyer* : Une question de théorie des processus. — *P. A. Meyer* : Retour sur la théorie de Littlewood-Paley. — *N. Bouleau* : Propriétés d'invariance du domaine du générateur infinitésimal étendu d'un processus de Markov. — *M. T. Barlow* : On Brownian local time. — *B. Maisonneuve* : On Levy's downcrossing theorem and various extensions. — *P. McGill* : A direct proof of the Ray-Knight theorem. — *T. Jeulin, M. Yor* : Sur les distributions de certaines fonctionnelles du mouvement brownien. — *L. C. G. Rogers* : William's characterisation of the Brownian excursion law: proof and applications. — *J. Pitman* : A note on L_2 maximal inequalities. — *B. Bru, H. Heinrich, J. C. Lootgieter* :

Autour de la dualité (H_1 , BMO). — *M. Emery* : Le théorème de Garnett-Jones, d'après Varopoulos. — *C. S. Chou* : Une inégalité de martingales avec poids. — *R. V. Chacon*, *Y. Le Jan*, *J. B. Walsh* : Spatial trajectories. — *Y. Le Jan* : Tribus markoviennes et prédiction. — *D. J. Aldous*, *M. T. Barlow* : On countable dense random sets. — *C. Dellacherie*, *E. Lenglart* : Sur des problèmes de régularisation, de recollement et d'interpolation en théorie des martingales. — *B. Maisonneuve* : Surmartingales-mesures. — *C. Dellacherie* : Mesurabilité des débuts et théorème de section. — *C. Dellacherie* : Sur les noyaux σ — finis. — *J. Spiliotis* : Sur les travaux de Krylov en théorie de l'intégrale stochastique. — *Ch. Yoeurp* : Sur la dérivation stochastique au sens de Davis. — *L. Schwartz* : Les semimartingales formelles. — *C. Stricker* : Sur deux questions posées par Schwartz. — *C. Stricker* : Quasi-martingales et variations. — *C. Stricker* : Quelques remarques sur la topologie des semi-martingales, applications aux intégrales stochastiques. — *C. Stricker* : Sur la caractérisation des semi-martingales. — *M. Yor* : Sur certains commutateurs d'une filtration. — *J. Jacod*, *J. Memin* : Sur un type de convergence intermédiaire entre la convergence en loi et la convergence en probabilité. — *J. Jacod* : Convergence en loi de semi-martingales et variation quadratique. — *J. Pellaumail* : Solutions faibles et semimartingales. — *M. Emery* : Non confluence des solutions d'une équation stochastique lipschitzienne. — *D. W. Stroock*, *M. Yor* : Some remarkable martingales. — *D. Lepingle*, *P. A. Meyer*, *M. Yor* : Extrémalité et remplissage de tribus pour certaines martingales purement discontinues. — *M. Itmi* : Processus ponctuels marqués stochastiques, représentation des martingales et filtration naturelle quasicontinue à gauche. — *J. G. Wang* : Some remarks on processes with independent increments. — *R. Sidibe* : Mesures à accroissements indépendants et P.A.I. non homogènes. — *J. Auerhan*, *D. Lepingle* : Les filtrations de certaines martingales du mouvement brownien dans \mathbb{R}^n (II). — *D. Lepingle* : Une remarque sur les lois de certains temps d'atteinte. — *D. Bakry* : Une remarque sur les semi-martingales à deux indices. — *G. Maziotto*, *J. Szpirglas* : Un exemple de processus à deux indices sans l'hypothèse $F.4$.

Stochastic integrals. — Proceedings of the LMS Durham symposium, July 7-17, 1980. — Edited by D. Williams. — Lecture Notes in Mathematics, vol. 851. — Un vol. broché, $16,5 \times 24$ de ix, 540 p. — Prix: DM 53.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

David Williams : "To begin at the beginning:..." — *L. C. G. Rogers* : Stochastic integrals: basic theory. — *Robert J. Elliott* : Stochastic integration and discontinuous martingales. — *S. Albeverio*, *R. Høegh-Krohn* : Some Markov processes and Markov fields in quantum theory, group theory, hydrodynamics, and C^* -algebras. — *J.-M. Bismut* : Martingales, the Malliavin calculus, and Hörmander's theorem. — *M. Fukushima* : On a representation of local martingale additive functionals of symmetric diffusions. — *B. Hajek and E. Wong* : Set-parametered martingales and multiple stochastic integration. — *R. Holley and D. Stroock* : Generalised Ornstein-Uhlenbeck processes as limits of interacting systems. — *J. Jacod*, *J. Memin* : Weak and strong solutions of stochastic differential equations: existence and stability. — *H. Kunita* : On the decomposition of solutions of stochastic differential equations. — *P. A. Meyer* : A differential geometric formalism for the Itô calculus. — *M. A. Pinsky* : Homogenization and stochastic parallel displacement. — *J. Pitman and M. Yor* : Bessel processes and infinitely divisible laws. — *R. F. Streater* : Euclidean quantum mechanics and stochastic integrals. — *D. W. Stroock* : The Malliavin calculus and its applications. — *Y. Takahashi and S. Watanabe* : The probability functionals (Onsager-Machlup functions) of diffusion processes. — *A. Al-Hussaini*, *R. J. Elliott* : Itô and Girsanov formulae for two parameter processes. —

L. Chevalier : L^p -inequalities for two-parameter martingales. — *H. Föllmer* : Dirichlet processes. — *W. S. Kendall* : Brownian motion, negative curvature, and harmonic maps. — *P. Kotelenetz* : Local behaviour of Hilbert space valued stochastic integrals, and the continuity of mild solutions of stochastic evolution equations.

Laurent SCHWARTZ. — **Geometry and probability in Banach spaces.** — Notes by Paul R. Chernoff. — Lecture Notes in Mathematics, vol. 852. — Un vol. broché, 16,5 × 24, de x, 101 p. — Prix: DM 18.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Introduction : Type and cotype for a Banach space p -summing maps. Pietsch factorization theorem. Completely summing maps. Hilbert-Schmidt and nuclear maps. p -integral maps. — *Cylindrical probabilities and radonifying maps* : Completely summing maps: 6 equivalent properties. p -radonifying maps. Radonification theorem. p -Gauss laws. Proof of the Pietsch conjecture. p -Pietsch spaces. Application: Brownian motion. More on cylindrical measures and stochastic processes. — *Types and cotypes* : Kahane inequality. The case of L^p . Z -type. Kahane contraction principle. p -Gauss type. The Gauss type interval is open. — *Ultrapowers and superproperties* : Finite representability of F in E . Superproperties. The "spectrum" of a Banach space. q -factorization, Maurey's theorem. Grothendieck factorization theorem. Equivalent properties, summing versus factorization. Non-existence of $(2+\varepsilon)$ -Pietsch spaces. Ultrapowers. The Pietsch interval. The weakest non-trivial superproperty. Cotypes, Rademacher versus Gauss. Gauss-summing maps. Grothendieck factorization theorem. *TLC* and *ILL*. Super-reflexive spaces. Modulus of convexity, q -convexity. "Trees" and Kelly-Chatterji theorem. Enflo theorem. Modulus of smoothness, p -smoothness. Properties equivalent to super-reflexivity. Martingale type and cotype. Results of Pisier. Twelve properties equivalent to super-reflexivity. Type for subspaces of L^p (Rosenthal theorem). A new result of Pisier.

Nicu BOBOC, Gheorghe BUCUR, Aurel CORNEA. — **Order and convexity in potential theory: H -cones.** — In collaboration with Herbert Höllein. — Lecture Notes in Mathematics vol. 853. — Un vol. broché, 16,5 × 24, de iv, 285 p. — Prix: DM 29.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Resolvents : Excessive functions with respect to a resolvent. Resolvents in duality and energy form. — *H -cones* : Definition and first results. H -morphisms. Dual and bidual of an H -cone. — *H -cones of functions* : Definition and first results. Balayages. Thinness and base. Harmonic carrier on an H -cone of functions. — *Standard H -cones* : Weak units, continuous and universally continuous elements. Standard H -cones, natural topology on the dual. Standard H -cones of functions. Standard H -cones of excessive functions. The natural topology. — *Potential theory on standard H -cones of functions* : Localization. Balayages on standard H -cones of functions. Thinness, essential base and fine topology. Negligible and polar sets. Carrier theory on standard H -cones of functions. Convergence properties and sheaf properties for standard H -cones. — *Markov processes associated with a standard H -cone of functions* : Sub-Markovian semigroups and Ray semigroups. Ray semigroups and standard H -cones. — *H -cones on Dirichlet spaces* : Coercive operators and projection theorems. Potentials in Dirichlet spaces. Balayages operators in Dirichlet spaces. Autodual H -cones and symmetric Dirichlet spaces. Exercices à la fin des chapitres.

Algebraic K-theory Evanston 1980. — Proceedings of the Conference held at Northwestern university Evanston, March 24-27, 1980. — Edited by E. M. Friedlander and M. R. Stein. — Lecture Notes in Mathematics, vol. 854. — Un vol. broché, 16,5 × 24,

de v, 517 p. — Prix: DM 53.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

S. Bloch: The dilogarithm and extensions of Lie algebras. — *B. H. Dayton, C. A. Weibel*: A spectral sequence for the K -theory of affine glued schemes. — *B. H. Dayton, L. G. Roberts*: Seminormality of unions of planes. — *B. H. Dayton*: Seminormality implies the Chinese remainder theorem. — *E. M. Friedlander, B. Parshall*: Etale cohomology of reductive groups. — *H. Gillet*: Comparison of K -theory spectral sequences, with applications. — *D. R. Grayson*: Dilogarithm computations for K_3 . — *D. Guin-Waléry, J. L. Loday*: Obstruction à l'excision en K -théorie algébrique. — *W. van der Kallen*: Stability for K_2 of Dedekind rings of arithmetic type. — *C. Kassel*: K -théorie relative d'un idéal bilatère de carré nul: étude homologique en basse dimension. — *J. L. Loday*: On the boundary map $K_3(\Lambda/I) \rightarrow K_2(\Lambda, I)$. — *R. J. Milgram*: Odd index subgroups of units in cyclotomic fields and applications. — *R. Oliver*: SK_1 for finite group rings: III. — *S. Priddy*: On a conjecture concerning $K_*(\mathbb{Z}/p^2)$. — *C. Sherman*: K' -theory of Noetherian schemes. — *C. Soulé*: On higher p -adic regulators. — *C. Soulé*: Rational K -theory of the dual numbers of a ring of algebraic integers. — *J. Stienstra*: On K_2 and K_3 of truncated polynomial rings. — *L. N. Vaserstein*: On the normal subgroups of GL_n over a ring. — *C. A. Weibel*: Mayer-Vietoris sequences and module structures on NK_* . — *C. A. Weibel*: A survey of products in algebraic K -theory.

Semigroups. — Proceedings of a conference held at Oberwolfach, Germany, December 16-21, 1978. — Edited by H. Jürgensen, M. Petrich, and H. J. Weinert. — Lecture Notes in Mathematics, vol. 855. — Un vol. broché, 16,5 × 24, de v, 221 p. — Prix: DM 25.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

A. Batbedat: γ -demi-groupes, demi-modules, produits demi-directs. — *M. Kunze*: Die Halbgruppe der Grössenklassen eines geordneten lokalen Rings. — *S. Lajos*: (m, n) -ideal characterizations of certain classes of semigroups. — *E. S. Ljapin*: Partielle Operationen in der Theorie der Halbgruppen. — *J. K. Luedeman*: Completely cyclic projective S -systems. — *L. Márki, R. Wiegandt*: On semisimple classes of semi-groups with zero. — *Th. Merlier*: Quelques propriétés des idéaux d'un demi-groupe. — *D. Perrin, J.-F. Perrot*: A propos des groupes dans certains monoïdes syntactiques. — *J. Sakarovitch*: Description des monoïdes de type fini. — *J. C. Spehner*: Les présentations des sous-monoïdes de rang 3 d'un monoïde libre. — *M. B. Szendrei*: On closed sets of term functions on bands. — *G. Thierrin*: Decomposition of some classes of subsets in a semigroup. — *L. C. A. van Leeuwen*: Compositions of a finite band with respect to an idempotent. — *H. J. Weinert*: On special right quotient filters on semigroups.

Richard LASCAR. — **Propagation des singularités des solutions d'équations pseudo-différentielles à caractéristiques de multiplicités variables.** — Lecture Notes in Mathematics, vol. 856. — Un vol. broché, 16,5 × 24, de VIII, 237 p. — Prix: DM 25.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Propagation des singularités pour des opérateurs pseudo-différentiels à caractéristiques de multiplicité variable. — Paramétrices microlocales pour un problème de Cauchy hyperbolique à caractéristiques de multiplicité variable. — Paramétrices micro-locales de problèmes aux limites pour une classe d'équations pseudo-différentielles à caractéristiques de multiplicité variable. — Une relation entre la propagation des singularités et la propagation du support pour des opérateurs hyperboliques.

Masayoshi MIYANISHI. — **Non-complete algebraic surfaces.** — Lecture Notes in Mathematics, vol. 857. — Un vol. broché, 16,5 × 24, de xviii, 244 p. — Prix: DM 29.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Non-complete algebraic surfaces with logarithmic Kodaira dimension $-\infty$: Logarithmic Kodaira dimension. Algebraic surfaces containing cylinderlike open sets. Fujita's theory of pseudo-effective divisors. Regular subrings of a polynomial ring. Examples of non-complete algebraic surfaces with logarithmic Kodaira dimension $-\infty$. Normal affine surfaces containing cylinderlike open sets. — *Non complete algebraic surfaces with logarithmic Kodaira dimension 0 or 1*: The Zariski decomposition of a pseudo-effective divisor $D + K_V$. The structure theorem for relatively minimal non-complete algebraic surfaces with logarithmic Kodaira dimension 0 or 1. The proof of the structure theorems. Affine algebraic surfaces with logarithmic Kodaira dimension 0 or 1. — *Non-complete algebraic surfaces with logarithmic Kodaira dimension 2*: The structure theorem for non-complete algebraic surfaces with logarithmic Kodaira dimension 2. Curves contractible by the pluri-quasicanonical morphisms. The pluri-quasicanonical ring and the quasi-canonical model.

Earl A. CODDINGTON, Hendrik S. V. de SNOO. — **Regular boundary value problems associated with pairs of ordinary differential expressions.** — Lecture Notes in Mathematics, vol. 858. — Un vol. broché, 16,5 × 24, de v, 225 p. — Prix: DM 25.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Introduction. — Selfadjoint extensions of M_0 . — Forms generated by selfadjoint extensions of M_0 . — Hilbert spaces generated by positive selfadjoint extensions of M_0 . — Minimal and maximal subspaces for the pair L, M . Intermediate subspaces. Spectra and eigenvalues. Resolvents. Eigenfunction expansions for selfadjoint subspaces. — Semibounded intermediate subspaces. — Some special cases.

Logic year 1979-80, the University of Connecticut, U.S.A. — Edited by M. Lerman, J. H. Schmerl, and R. I. Soare. — Lecture Notes in Mathematics, vol. 859. — Un vol. broché, 16,5 × 24, de viii, 326 p. — Prix: DM 34.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

John T. Baldwin: Definability and the hierarchy of stable theories. — *C. Berline, G. Cherlin*: QE rings in characteristic p . — *R. L. Epstein, R. Haas, R. L. Kramer*: Hierarchies of sets and degrees below O' . — *P. A. Fejer, R. I. Soare*: The plus-cupping theorem for the recursively enumerable degrees. — *S. D. Friedman*: Natural α -RE degrees. — *A. M. W. Glass, Y. Gurevich, C. W. Holland and M. Jambu-Giraudet*: Elementary theory of automorphism groups of doubly homogeneous chains. — *C. G. Jockusch, Jr.*: Three easy constructions of recursively enumerable sets. — *M. Kaufmann*: On existence of Σ_n end extensions. — *P. G. Kolaitis*: Model theoretic characterizations in generalized recursion theory. — *D. Kueker*: $L\infty\omega_1$ — elementarily equivalent models of power ω_1 . — *M. Lerman*: On recursive linear orderings. — *A. Macintyre*: The complexity of types in field theory. — *M. Makkai*: The topos of types. — *A. B. Manaster, J. B. Remmel*: Some decision problems for subtheories of two-dimensional partial orderings. — *T. Millar*: Counter-examples via model completions. — *D. P. Miller*: High recursively enumerable degrees and the anti-cupping property. — *Y. N. Moschovakis*: On the Grilliot-Harrington-MacQueen theorem. — *J. H. Schmerl*: Recursively saturated, rather classless models

of Peano arithmetic. — *R. A. Shore*: The degrees of unsolvability: global results. — *R. L. Smith*: Two theorems on autostability in p -groups. — *R. Watnick*: Constructive and recursive scattered order types.

Probability in Banach spaces III. — Proceedings of the third International conference on probability in Banach spaces, held at Tufts university, Medford, U.S.A., August 4-16, 1980. — Edited by A. Beck. — Lecture Notes in Mathematics, vol. 860. — Un vol. broché, 16,5 × 24, de vi, 329 p. — Prix: DM 34.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

24 exposés par: A. Antoniadis. — A. Bellow. — A. T. Bharucha-Reid. — D. L. Burkholder. — S. Chevet. — Bong Dae Choi and L. Sucheston. — Peter Z. Daffer. — R. M. Dudley. — X. Fernique. — E. Giné. — V. Goodman. — M. G. Hahn and P. Hahn. — M. G. Hahn and M. J. Klass. — J. O. Howell and R. L. Taylor. — J. Howell, R. L. Taylor and W. A. Woyczinski. — N. C. Jain and D. Monrad. — Z. J. Jurek. — J. Kuelbs. — R. LePage. — V. Mandrekar. — J. D. Mason, and W. N. Hudson. — H. Sato. — J. Szulga and W. A. Woyczinski. — J. Zinn.

Analytical methods in probability theory. — Proceedings of the conference held at Oberwolfach, Germany, June 9-14, 1980. — Edited by D. Dugué, E. Lukacs, and V. K. Rohatgi. — Lecture Notes in Mathematics, vol. 861. — Un vol. broché, 16,5 × 24, de x, 183 p. — Prix: DM 21.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

H. Bergström: Reduction of weak limit problems by transformations. — *E. M. J. Bertin, R. Theodorescu*: Characterizations of unimodal distribution functions. — *J. R. Blum, R. A. Boyles*: Random sampling from a continuous time stochastic process. — *M. Csörgö*: On a test for goodness-of-fit based on the empirical probability measure of Foutz and testing for exponentiality. — *P. L. Davies*: A theorem of Deny with applications to characterization problems. — *P. Deheuvels*: Multivariate tests for independence. — *L. De Haan and S. I. Resnick*: Local limit theorem for sample extremes. — *R. R. Hall and I. Vincze*: On a simultaneous characterization of the Poisson law and the gamma distribution. — *K. Van Harn, F. W. Steutel, and W. Verwaat*: Self-decomposable discrete distributions and branching processes. — *H. Heyer*: An application of the method of moments to the central limit theorem on hyperbolic spaces. — *P. Jacob*: Convergences stochastiques des processus ponctuels composés à signe. — *R. G. Laha and V. K. Rohatgi*: Decomposition of probability measures on locally compact Abelian groups. — *G. Letac*: Problèmes classiques de probabilité sur un couple de Gelfand. — *E. Lukacs*: Construction of characterization theorems. — *P. Révész*: Local time and invariance. — *V. K. Rohatgi*: On the rate of convergence in the central limit theorem. — *H. Teicher*: Almost certain behaviour of row sums of double arrays. — *Y. H. Wang*: Extensions of Lukacs' characterization of the gamma distribution. — *St. J. Wolfe*: On the unimodality of infinitely divisible distribution functions II.

György TARGONSKI. — **Topics in iteration theory.** — Studia mathematica, Skript, vol. 6. — Un vol. broché, 15,5 × 23,5, de 292 p. — Prix: DM 45.00. — Vandenhoeck und Ruprecht, Göttingen/Zürich, 1981.

Introduction. — *Orbits*: Orbits and their basic properties. Abel's functional equation. The Isaacs operations: contraction and curtailment. The standard interpretation of

iteration. Finite mappings: the mapping matrix. Periodicity. Orbit homomorphism. Attractive and repulsive fixed points. — *Iterative roots*: Arbitrary mappings. Strictly monotonic real functions. Complex polynomials. Cebyšev polynomials. An unsolved problem. — *Problems of "continuous" iteration: the translation equation*: The translation equation. The functional equations of Abel and of Schröder. Some questions concerning continuous iteration. Continuous iteration in the plane. — *The "Pilgerschritt" transformation*: The Liedl transformation in $GL(n, R)$. The general definition of the Liedl transformation. Solution in the entire group. Local solutions. Generalizations. — *Applications of continuous iteration to functional analysis*: Endomorphisms in L^p spaces. Semigroups of substitution operators in L^p . Generators of substitution semigroups in L^p . Generators and co-generators of substitution operators in $C(a, b)$. — *Analytic iteration*: Analytic iteration: a functional differential equation. Formally biholomorphic mappings. Linearization and differential equations. — *Splinters and limit sets*: Discrete limit sets. Compact orbits and periodicity. Hat functions. — *Entropy, cycles chaos*: Topological entropy. The theorem of Sarkovskii. Chaos: the theorem of Li and Yorke. "Period $\neq 2$ implies chaos". Topological entropy of real functions. — *Dependence of iterative behaviour on the mapping: "Bifurcation"*: Sets of chaotic functions in $C(I, I)$. Entropy on $C(I, I)$. Iteration of the quadratic function. "Experimental mathematics". — *Applications: Ecology: a single species. Ecology: two species. Epidemiology. Turbulence*. — *Functions represented by automata and their iteration*: Automata defining self-mappings of the open unit interval: A -automata. Remarks on the code α . Some properties of functions determined by an automaton A . Construction of automata from a "classically given" function: B -automata. Iteration of functions represented by A -automata. Generalizations.

J.-P. BENZECRI et collaborateurs. — **Pratique de l'analyse des données. Vol. 3: Linguistique et lexicologie.** — Travaux du Laboratoire de statistique de l'Université Pierre-et-Marie Curie et de l'E.R.A. 772 du CNRS. — Un vol. broché, $15,5 \times 24$, de x, 565 p. — Editions Dunod/Paris, 1981 (Publié avec le concours du Centre national de la recherche scientifique).

Introductions: Analyse statistique des données linguistiques. Linguistique générale. Introduction à l'analyse des correspondances et à la classification automatique. — *Tableaux de contingence*: Le livre d'Isaïe et l'analyse critique des sources textuelles. Le champ lexical de l'esclavage chez les orateurs attiques. Le vocabulaire des évangiles; analyse des similitudes entre chapitres de Jean. Le thème de la joie en ancien français: analyse des cooccurrences de 30 vocables dans 15 romans. Signalement et inventaire lexical: textes politiques français de 1793. Analyse de quelques données statistiques phonétiques sur les langues de l'Inde. Recherche sur les profils sonores des textes poétiques. Analyse des fréquences d'emploi des parties du discours en allemand et en français. Analyse statistique des emplois de mots en langue russe: cas des noms et rection des verbes. Les emplois par mode, temps et personne de cent verbes, les plus fréquents dans un corpus de textes littéraires français. — *Présence-absence*: Les feuilletons du Petit Journal de 1890 à 1894: contenu des présentations et typologie des personnages. La recherche du sens. L'analyse factorielle au service de l'édition des textes anciens: application à un texte grec du nouveau testament, l'épître de Jacques. Classification des états d'un texte: mathématique et informatique. Contribution à la taxinomie des langues chamito-sémitiques: analyse des données rassemblées par M. Cohen dans son essai comparatif sur le vocabulaire et la phonétique du chamito-sémitique. L'Atlas linguistique et ethnographique de la Bretagne romane, de l'Anjou et du Maine. — *Questionnaires*: Introduction à l'analyse des questionnaires d'après un exemple de données linguistiques.

Sens et valeur des réponses à un questionnaire clos. Actif et moyen dans le verbe: questionnaire sur le contenu d'une opposition linguistique. L'usage de l'opposition modale en espagnol; analyse d'une enquête. Vers l'analyse automatique des textes: le traitement des réponses libres aux questions ouvertes d'une enquête. Typologie syntaxique des phrases de trois textes anglais scientifiques de niveaux différents. Typologie des titres des éditoriaux de la presse britannique. — *Séquences*: Analyse du tableau des monosyllabes chinois. Le parallélisme dans les distiques chinois: recherche inductive de la syntaxe et du sens. L'analyse statistique des partitions de musique. Un dialogue de gestes: les combats d'épinoches.

Frank A. HAIGHT. — **Applied probability**. — Mathematical concepts and methods in science and engineering, vol. 23. — Un vol. relié, 16 × 24 de xi, 290 p. — Prix: \$35.00. — Plenum Press, New York/London, 1981.

Discrete probability: Applied probability. Sample spaces. Probability distributions and parameters. The connection between distributions and sample points: random variables. Events and indicators. Mean and variance. Calculation of the mean and variance. The distribution function. The gamma function and the beta function. The negative binomial distribution. The probability generating function. The Catalan distribution. More about the p.g.f.; the equation $s = \phi(s)$. — *Conditional probability*: Introduction. An example. Conditional probability and Bayes' theorem. Conditioning. Independence and Bernoulli trials. Moments, distribution functions, and generating functions. Convolutions and sums of random variables. Computing convolutions: examples. Diagonal distributions. — *Markov chains*: Introduction: random walk. Definitions. Matrix and vector. The transition matrix and initial vector. The higher-order transition matrix: regularity. Reducible chains. Periodic chains. Classification of states. Ergodic chains. Finding equilibrium distributions — the random walk revisited. A queueing model. The Ehrenfest chain. Branching chains. Probability of extinction. The gambler's ruin. Probability of ruin as probability of extinction. First-passage times. — *Continuous probability distributions*: Examples. Probability density functions. Change of variables. Convolutions of density functions. The incomplete gamma function. The beta distribution and the incomplete beta function. Parameter mixing. Distribution functions. Stieltjes integration. The Laplace transform. Properties of the Laplace transform. Laplace inversion. Random sums. — *Continuous time processes*: Introduction and notation. Renewal processes. The Poisson process. Two-state processes. Markov processes. Equilibrium. The method of marks. The Markov infinitesimal matrix. The renewal function. The gap surrounding an arbitrary point. Counting distributions. The Erlang process. Displaced gaps. Divergent birth processes. — *The theory of queues*: Introduction and classification. The $M_\lambda/M_\mu/1$ queue: general solution, oversaturation, equilibrium. The $M_\lambda/M_\mu/n$ queue in equilibrium: loss formula. The $M_\lambda/G_\mu/1$ queue and the imbedded Markov chain. The Pollaczek-Khintchine formula. Waiting time. Virtual queueing time. The equation $y = xe^{-y}$. Busy period: Borel's method. The busy period treated as a branching process: the $M/G/1$ queue. The continuous busy period and the $M/G/1$ queue. Generalized busy periods. The $G/M/1$ queue. Balking. Priority service. Reverse-order service (*LIFO*). — Problèmes à la fin de chaque chapitre.

William H. RUCKLE. — **Sequence spaces**. — Research notes in mathematics, vol. 49. — Un vol. broché, 17 × 24, de vi, 198 p. — Prix: £8.50. — Pitman advanced publishing program, Boston/London/Melbourne, 1981.

Introduction, basic properties : Orientation, classification of typical problems. Examples of sequence spaces. Algebraic and combinatorial structures. Galois duality theory with respect to product and convolution. Methods of generating sequence spaces. — *Köthe sequence spaces* : Introduction. The normal topology on Köthe spaces. Schwartz and nuclear sequence spaces. Mackey and strong topologies. Representation of function spaces. — *Topologies on sequence spaces* : A generalization of the Köthe-Tœplitz duality theory. The Zeller theory of *FK*-spaces. ϕ -duality theory. Comparison of the generalized Köthe-Tœplitz theory with the ϕ -duality theory. Sum spaces. Lattices of locally convex *K*-spaces. Further lattice properties of locally convex *K*-spaces. Abelian and Tauberian theorems. — *Mappings between sequence spaces* : Matrix mappings between certain spaces, continuity. The preimage of a matrix, *ZK*-spaces. Mappings into *m*, *c*, *c*₀, *bs* and *cs*. Mappings from *l*¹, *bv*₀, *bv*. Mappings from *l*² into *l*². Diagonals of matrix mappings. The multiplier algebra of a sequence space. The multiplier algebra *m*. Mappings from *l*⁸ into *l*⁹ (*p* > *q*); a theorem of Pitt. The shift operator and convolution. Some results on (*S* → *T*) and *M*^{*} (*S*), an application to difference equations. Matrix mappings of Köthe spaces. — *Topics from summability theory* : Some problems of summability theory. Nörlund and Cesàro means. Hausdorff means. Topological properties of *c*_{*A*}. The extent of *c*_{*A*}. The bounded consistency theorem.

Paul M. COHN. — **Universal algebra.** — Revised edition. — Mathematics and its applications, vol. 6. — Un vol. broché, 15 × 22,5, de xv, 412 p. — Prix: Dfl. 37,50. — D. Reidel publishing company, Dordrecht/Boston/London, 1981.

Sets and mappings : The axioms of set theory. Correspondences. Mappings and quotient sets. Ordered sets. Cardinals and ordinals. Categories and functors. — *Algebraic structures* : Closure systems. Ω -algebras. The isomorphism theorems. Lattices. The lattice of subalgebras. The lattice of congruences. Local and residual properties. The lattice of categories of Ω -algebras. — Free algebras: Universal functors. Ω -word algebras. Clones of operations. Representations in categories of Ω -algebras. Free algebras in categories of Ω -algebras. Free and direct composition of Ω -algebras. Derived operators. Presentations of Ω -algebras. The word problem. — *Varieties* : Definition and basic properties. Free groups and free rings. The generation of varieties. Representations in varieties of algebras. — *Relational structures and models* : Relational structures over a predicate domain. Boolean algebras. Derived predicates. Closed sentence classes and axiomatic model classes. Ultraproducts and the compactness theorem. The model space. — *Axiomatic model classes* : Reducts and enlargements. The local determination of classes. Elementary extensions. *p*-closed classes and quasivarieties. Classes admitting homomorphic images. The characterization of axiomatic model classes. — *Applications* : The natural numbers. Abstract dependence relations. The division problem for semigroups and rings. The division problem for groupoids. Linear algebras. Lie algebras. Jordan algebras. — *Category theory and universal algebra* : The principle of duality. Adjoint pairs of functors. Monads. Algebraic theories. — *Model theory and universal algebra* : Inductive theories. Complete theories and model complete theories. Model completions. The forcing companion. The model companion. Examples. — *Miscellaneous further results* : Subdirect products and pullbacks. The reduction to binary operations. Invariance of the rank of free algebras. The diamond lemma for rings. The embedding of rings in skew fields. — *Algebra and language theory* : Introduction. Grammars. Machines. Transductions. Monoids. Power series. Transformational grammars.

Geometry — von Staudt's point of view. — Proceedings of the NATO advanced study institute held at Bad Windsheim, West Germany, July 21-August 1, 1980. — Edited by

Peter Plaumann and Karl Strambach. — NATO advanced study institutes series, series C: mathematical and physical sciences, vol. 70. — Un vol. relié, $16,5 \times 24,5$, de XI, 430 p. — Prix: Dfl. 110.00. — D. Reidel publishing company, Dordrecht/Boston/London, 1981.

GENERAL THEORY: *G. Pickert*: Projectivities in projective planes. — *H. Karzel and H.-J. Kroll*: Perspectivities in circle geometries. — *J. C. Ferrar*: Cross-ratios in projective and affine planes. — *W. Benz, H.-J. Samaga and H. Schaeffer*: Cross ratios and a unifying treatment of von Staudt's notion of reeller Zug. — *A. Barlotti*: Projectivities in free-like geometries. — *O. H. Kegel*: Existentially closed projective planes. — PROJECTIVITIES AND CONICS: *T. G. Ostrom*: Conicoids: conic-like figures in non-Pappian planes. — *H. Mäurer*: Symmetries of quadrics. — PROJECTIVITIES IN SPECIAL GEOMETRIES: *H. Lüneburg*: Some new results on groups of projectivities. — *A. Wagner*: Theorems about Reidemeister conditions. — *E. E. Shult*: Permutation groups with few fixed points. — *H. Salzmann*: Projectivities and the topology of lines. — *R. Löwen*: Projectivities and the geometric structure of topological planes. — *A. Herzer*: Semimodular locally projective lattices of rank 4 from von Staudt's point of view. — APPENDIX: *H. Freudenthal*: The impact of Von Staudt's foundations of geometry.

Harold DAVENPORT. — **Multiplicative number theory.** — Second edition, revised by Hugh L. Montgomery. — Graduate texts in mathematics, vol. 74. — Un vol. relié, 16×24 , de XIII, 177 p. — Prix: DM 37.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1980.

Primes in arithmetic progression. Gauss'sum. Cyclotomy. Primes in arithmetic progression: the general modulus. Primitive characters. Dirichlet's class number formula. The distribution of the primes. Riemann's memoir. The functional equation of the L functions. Properties of the Γ function. Integral functions of order 1. The infinite products for $\xi(s)$ and $\xi(s, \chi)$. A zero-free region for $\xi(s)$. Zero-free regions for $L(s, \chi)$. The number $N(T)$. The number $N(T, \chi)$. The explicit formula for $\psi(x)$. The prime number theorem. The explicit formula for $\psi(x, \chi)$. The prime number theorem for arithmetic progressions I. Siegel's theorem. The prime number theorem for arithmetic progressions II. The Polya-Vinogradov inequality. Further prime number sums. An exponential sum formed with primes. Sums of three primes. The large sieve. Bombieri's theorem. An average result.

A. G. RAMM. — **Theory and applications of some new classes of integral equations.** — Un vol. broché, $15 \times 23,5$, de XIII, 343 p. — Prix: DM 37.50. — Springer-Verlag, New York/Heidelberg/Berlin, 1980.

Investigation of a new class of integral equations and applications to estimation problems (filtering, prediction, system identification): Statement of the problems and main results. Investigation of the scalar equations. Investigation of the vector equations. Investigation of the multidimensional equations. Approximate solution of the integral equations in the space of distributions. Asymptotics of the spectrum of the investigated integral equations. General theorems about perturbations preserving the asymptotics of a spectrum. Remarks and examples. — *Investigation of integral equations of the static and quasi-static fields and applications to the scattering from small bodies of arbitrary shape*: Statement of the problems and main results. Investigation of a class of linear operator equations. Integral equations of static field theory for a single body and their applications. Explicit

formulas for the scattering matrix in the problem of wave scattering from a small body of arbitrary shape. Variational principles for calculation of the electrical capacitance and polarizability tensors for bodies of arbitrary shape and two-sided estimates of the tensors. Inverse problem of radiation theory. Wave scattering by a system of small bodies; formulas for the scattering amplitude; and determination of the medium properties from the scattering data. — *Investigation of a class of nonlinear integral equations and applications to nonlinear network theory*: Statement of the problems and main results. Existence, uniqueness and stability of solutions of some nonlinear operator equations and an iterative process to solve the equations. Existence, uniqueness, and stability of the stationary regimes in some nonlinear networks. Stability in the large and convergence in the nonlinear networks. Stationary regime in a nonlinear feedback amplifier. — *Integral equations arising in the open system theory*: Calculation of the complex poles of Green's function in scattering and diffraction problems. Calculation of diffraction losses in some open resonators. Some spectral properties of nonselfadjoint integral operators of diffraction theory. — *Investigation of some integral equations arising in antenna synthesis*: A method for stable solution of an equation of the first kind. Some results concerning the general antenna synthesis problem. Formula for approximation by entire functions. Nonlinear synthesis problems. Inverse diffraction problems. Optimal solution to the antenna synthesis problem. — *Appendices*: Stable solution of the integral equation of the inverse problem of potential theory. Iterative processes for solving boundary value problems. Electromagnetic wave scattering by small bodies. Two-sided estimates of the scattering amplitude for low energies. Variational principles for eigenvalues of compact nonselfadjoint operators. Boundary-value problems with discontinuous boundary conditions. Poles of Green's function. A uniqueness theorem for Schrödinger equation. Stable solution of integral equations of the first kind with logarithmic kernels. Nonselfadjoint operators in diffraction and scattering. On the basis property for the root vectors of some nonselfadjoint operators. — Enoncés de problèmes à la fin de chaque chapitre.

Herman H. GOLDSTINE. — **A history of the calculus of variations from the 17th through the 19th century.** — Studies in the history of mathematics and physical sciences, vol. 5. — Un vol. relié, 16,5 × 24, de XVIII, 420 p. — Prix: DM 88.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1980.

Fermat, Newton, Leibniz, and the Bernoullis: Fermat's principle of least time. Newton's problem of motion in a resisting medium. The brachistochrone problem. The problem itself. Newton's solution of the brachistochrone problem. Leibniz's solution of the brachistochrone problem. John Bernoulli's first published solution and some related work. James Bernoulli's solution. James Bernoulli's challenge to his brother. James Bernoulli's method. John Bernoulli's 1718 paper. — *Euler*: Introduction. The simplest problems. More general problems. Invariance questions. Isoperimetric problems. Isoperimetric problems, continuation. The principle of least action. Maupertuis on least action. — *Lagrange and Legendre*: Lagrange's first letter to Euler. Lagrange's first paper. Lagrange's second paper. Legendre's analysis of the second variation. Excursus. The Euler-Lagrange multiplier rule. — *Jacobi and his school*: Excursus. Jacobi's paper of 1836. Excursus on planetary motion. V.-A. Lebesgue's proof. Hamilton-Jacobi theory. Hesse's commentary. — *Weierstrass*: Weierstrass's lectures. The formulation of the parametric problem. The second variation. Conjugate points. Necessary conditions and sufficient conditions. Geometrical considerations of conjugate points. The Weierstrass condition. Sufficiency arguments. The isoperimetric problem. Sufficient conditions. Scheeffer's results. Schwarz's proof of the Jacobi condition. Osgood's summary. — *Clebsch, Mayer, and others*: Introduction. Clebsch's treatment of the second variation. Clebsch,

continuation. Mayer's contributions. Lagrange's multiplier rule. Excursus on the fundamental lemma and on isoperimetric problems. The problem of Mayer. — *Hilbert, Kneser, and others*: Hilbert's invariant integral. Existence of a field. Hilbert, continuation. Mayer families of extremals. Kneser's methods. Kneser on focal points and transversality. Bliss's work on problems in three space. Boundary-value methods. Hilbert's existence theorem. Bolza and the problem of Bolza. Carathéodory's method. Hahn on abnormality.

Cyril F. GARDINER. — **A first course in group theory.** — Universitext. — Un vol. broché, $15,5 \times 23,5$, de IX, 227 p. — Prix: DM 28.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1980.

First ideas. — Multiplication table, generators, relations, isomorphism. — Subgroups, Lagrange's theorem, cyclic groups. — Factor groups, permutation representations, finite point groups. — Finitely generated Abelian groups. — The Sylow theorems. — Groups of orders 1 to 15. — Epilogue. — Outline solutions to the exercises.

Ola BRATTELI, Derek W. ROBINSON. — **Operator algebras and quantum statistical mechanics II: equilibrium states, models in quantum statistical mechanics.** — Texts and monographs in physics. — Un vol. relié, $16,5 \times 24$, de XI, 505 p. — Prix: DM 86.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

STATES IN QUANTUM STATISTICAL MECHANICS: *Introduction.* — *Continuous quantum systems I*: The CAR and CCR relations. The CAR and CCR algebras. States and representations. The ideal Fermi gas. The ideal Bose gas. — *KMS states*: The KMS condition. The set of KMS states. The set of ground states. — *Stability and equilibrium*: Stability of KMS states. Stability and the KMS condition. Gauge groups and the chemical potential. Passive systems. — MODELS OF QUANTUM STATISTICAL MECHANICS: *Introduction.* — *Quantum spin systems*: Kinematical and dynamical descriptions. The Gibbs condition for equilibrium. The maximum entropy principle. Translationally invariant states. Uniqueness of KMS states. Nonuniqueness of KMS states. Ground states. — *Continuous quantum systems II*: The local Hamiltonians. The Wiener integral. The thermodynamic limit: the reduced density matrices, states and Green's functions. — Conclusion.

Fritz JOHN. — **Plane waves and spherical means: applied to partial differential equations.** — Reprint. — Un vol. broché, $15 \times 23,5$, de VIII, 172 p. — Prix: 42.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

Decomposition of an arbitrary function into plane waves. — The initial value problem for hyperbolic homogeneous equations with constant coefficients. — The fundamental solution of a linear elliptic differential equation with analytical coefficients. — Identities for spherical means. — The theorems of Asgeirsson and Howard. — Determination of a function from its integrals over spheres of a fixed radius. — Differentiability properties of solutions of elliptic systems. — Regularity properties for integrals of solutions over time-like lines.

Ivan SINGER. — **Bases in Banach spaces II.** — Un vol. relié, $17 \times 23,5$, de VIII, 880 p. — Prix: DM 148.00. — Springer-Verlag, Berlin/Heidelberg/New York, et Editura Academiei Republicii Socialiste România, Bucuresti, 1981.

GENERALIZATIONS OF THE NOTION OF A BASIS: Banach spaces which do not have the approximation property. — *Countable generalizations of bases*: Basic sequences. Bibasic systems. Deficient basic sequences. Images and inverse images of bases by continuous linear mappings. Complete sequences. Bases with respect to a class of sequences of indices. Pseudo bases. Semi-bases. Minimal sequences. $\{\lambda_i\}$ -linearly independent sequences. Complete minimal sequences. Maximal biorthogonal systems. Generalized bases. M -bases. Strong M -bases. Series summable M -bases. Approximative bases. Quasi-bases. Finite dimensional expansions of the identity. Commuting approximative bases. Operational bases. Generalized summation bases. T -bases (summation bases). Strongly series summable M -bases. γ -bases. Π -bases. π -bases. π_1^∞ -bases. The universal complements C_p . Dual π -bases. Commuting π -bases. Bases with parentheses. Finite-dimensional decompositions. Duality theorems. Further universal complement properties of the spaces C_p . Decompositions (bases of subspaces). Schauder decompositions. Resolutions of the identity. Integral bases. — *Generalizations of bases, without assuming countability*: ER -sets. Extended unconditional bases. Transfinite bases. Strongly unconditional integral bases. Extended approximative bases. Extended Π -bases. Extended resolutions of the identity. Transfinite decompositions. Transfinite Schauder decompositions. Ordinal resolutions of the identity. Extended biorthogonal systems. Extended M -bases.

Ulf GRENANDER. — **Regular structures: Lectures in pattern theory, volume III.** — Applied mathematical sciences, vol. 33. — Un vol. broché, 15 × 23, de viii, 569 p. — Prix: DM 53.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

Patterns : from chaos to order : The search for regularity. Some regular structures. The mathematical study of regularity. — *A pattern formalism* : The principle of atomism. The combinatory principle. The principle of observability. The principle of realism. — *Algebra of regular structures* : Generator coordinates. Configuration coordinates. Connectors. Configuration homomorphisms. Configuration categories. Set operations in $\mathcal{C}(\mathcal{R})$. Operations on images. Homomorphisms for given global regularity. Representations by image isomorphisms. — *Some topology of image algebras* : A topology for configurations. A topology for images. Some examples. — *Metric pattern theory* : Regularity controlled probabilities. Conditioning by regularity. Frozen patterns: finite G and n . Frozen patterns: infinite G and finite n . Quadratic energy function. Frozen patterns: infinite G and n . Asymptotically minimum energy. Asymptotics for large configurations. Spectral density matrix for $\Sigma = \text{LINEAR}(\gamma)$. Factorization of the spectral density matrix. Representation of the random configurations. Spectral density matrix for $\Sigma = \text{LATTICE}(\gamma)$. Factorization of the spectral density matrix in two dimensions. Representations of the random configurations in the two dimensional case. Laws of large numbers in pattern theory. Random dynamics for configurations. — *Patterns of scientific hypotheses* : Hypotheses as regular structures. Patterns of statistical hypotheses. Generators for statistical hypotheses. Examples of configurations. Hypotheses as images. Image algebras of hypotheses. Conclusions. — *Synthesis of social patterns of domination* : Patterns in mathematical sociology. Domination regularity. Configuration dynamics. System in equilibrium. Large configurations: simulation results. Large configurations: analytical results. Further problems and extensions. — *Taxonomic patterns* : A logic for taxonomic patterns. Logic of taxonomic affinity patterns. Synthesis of taxonomic affinity patterns. Analysis of affinity patterns. — *Patterns in mathematical semantics* : Introduction. Introducing mathematical semantics. Formalization through regular structures. Two special image algebras. The choice of language type for the study. Semantic maps. Special semantic maps. Learning maps. Abduction of semantic maps.

S. R. S. VARADHAN. — **Lectures on diffusion problems and partial differential equations.** — Notes by Pl. Muthuramalingam and Tara R. Nanda. — Tata institute of fundamental research lectures on mathematics and physics, vol. 64. — Un vol. broché, $18 \times 24,5$, de iv, 315 p. — Prix: DM 18.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1980.

The heat equation. Kolmogorov's theorem. The one-dimensional random walk. Construction of Wiener measure. Generalised Brownian motion. Markov properties of Brownian motion. Reflection principle. Blumenthal's zero-one law. Properties of Brownian motion in one dimension. Dirichlet problem and Brownian motion. Stochastic integration. Change of variable formula. Extension to vector-valued Ito processes. Brownian motion as a Gaussian process. Equivalent form of Ito process. Ito's formula. Solution of Poisson's equations. The Feynman-Kac formula. An application of the Feynman-Kac formula (the arc sine law). Brownian motion with drift. Integral equations. Large deviations. Stochastic integral for a wider class of functions. Explosions. Construction of a diffusion process. Uniqueness of diffusion process. On Lipschitz square roots. Random time changes. Cameron-Martin-Girsanov formula. Behaviour of diffusions for large times. Invariant probability distributions. Ergodic theorem. Application of stochastic integral. — Appendix: Language of probability. Kolmogorov theorem. Martingales. Uniform integrability. Up-crossings and down-crossings.

R. GLOWINSKI. — **Lectures on numerical methods for non-linear variational problems.** — Notes by G. Vijayasundaram Adimurthi. — Tata institute of fundamental research lectures on mathematics and physics, vol. 65. — Un vol. broché, $18 \times 24,5$, de xi, 240 p. — Prix: DM 18.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1980.

Generalities on elliptic variational inequalities and on their approximations: Functional context. Existence and uniqueness results for *EVI* of first kind. Existence and uniqueness results for *EVI* of second kind. Internal approximation of *EVI* of first kind. Internal approximation of *EVI* of second kind. — *Application of the finite element method to the approximation of some second order EVI*: An example of *EVI* of the first kind: the obstacle problem. A second example of *EVI* of the first kind: the elasto-plastic torsion problem. A third example of *EVI* of the first kind: a simplified Signorini problem. An example of *EVI* of the second kind: a simplified friction problem. A second example of *EVI* of the second kind: the flow of a viscous, plastic fluid in a pipe. — *On the approximation of parabolic variational inequalities*: Formulation and statements of the main results. Numerical schemes for parabolic linear equations. Approximation of *PVI* of the first kind. Approximation of *PVI* of the second kind. Application to a specific example: time dependent flow of a Bingham fluid in a cylindrical pipe. — *Applications of elliptic variational inequality methods to the solution of some nonlinear elliptic equations*: Theoretical and numerical analysis of some mildly nonlinear elliptic equations. A subsonic flow problem. — *Decomposition-coordination methods by augmented Lagrangians. Applications*: Properties of (P) and of the saddle-points of \mathcal{L} and \mathcal{L}_r . Description of the algorithms Convergence of *ALG 1*. Convergence of *ALG 2*. Applications. General comments. — *On the computation of transonic flows*: Generalities. Mathematical model for the transonic flow problem. Reduction to an optimal control problem. Approximation. Iterative solution of the approximate problems. A numerical experiment. Comments. Conclusion.

J. KEVORKIAN, and J. D. COLE. — **Perturbation methods in applied mathematics.** — Applied mathematical sciences, volume 34. — Un vol. relié, 17×24 , de x, 558 p. — Prix: DM 88.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

Introduction: Ordering. Asymptotic sequences and expansions. Limit process expansions, matching, general asymptotic expansions. — *Limit process expansions applied to ordinary differential equations*: Linear oscillator: regular perturbation. Linear oscillator: singular problem. Linear singular perturbation problems with variable coefficients. Theorem of Erdelyi, rigorous results. Model nonlinear example for singular perturbations. Relaxation oscillations of the van der Pol oscillator Singular boundary problems. Higher-order example: beam string. — *Multiple-variable expansion procedures*: Method of strained coordinates (Lindstedt's method) for periodic solutions. Two-variable expansion procedure, weakly nonlinear autonomous systems of second order. Second order equations with variable coefficients. Applications to satellite problems. Higher order problems. Strongly nonlinear oscillations, the method of Kuzmak-Luke. Summary of other solution techniques. — *Applications to partial differential equations*: Limit-process expansions for second-order partial differential equations. Boundary-layer theory in viscous incompressible flow. Singular boundary-value problems. Multiple-variable expansions for second-order partial differential equations. — *Examples from fluid mechanics*: Weakly nonlinear one-dimensional acoustics. Small amplitude waves on shallow water. Expansion procedures of thin airfoil theory at various mach numbers.

The Chern symposium 1979. — Proceedings of the International symposium on differential geometry in honor of S.-S. Chern, held in Berkeley, California, June 1979. — Edited by W.-Y. Hsiang, S. Kobayashi, I. M. Singer, A. Weinstein, J. Wolf, H.-H. Wu. — Un vol. relié, 17,5 × 25. de vii, 259 p. — Prix: DM 56.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1980.

M. F. Atiyah: Real and complex geometry in four dimensions. — *Raoul Bott*: Equivariant Morse theory and the Yang-Mills equation on Riemann surfaces. — *Eugenio Calabi*: Isometric families of Kähler structures. — *Mark Green and Phillip Griffiths*: Two applications of algebraic geometry to entire holomorphic mappings. — *F. Hirzebruch*: The canonical map for certain Hilbert modular surfaces. — *Nicolaas H. Kuiper*: Tight embeddings and maps. Submanifolds of geometrical class three in E^N . — *J. Moser*: Geometry of quadrics and spectral theory. — *Robert Osserman*: Minimal surfaces, Gauss maps, total curvature, eigenvalue estimates, and stability. — *Louis Nirenberg*: Remarks on nonlinear problems. — *Wu Wen-Tsün*: de Rham-Sullivan measure of spaces and its calculability. — *Chen Ning Yang*: Fibre bundles and the physics of the magnetic monopole. — *Shing Tung Yau*: The total mass and the topology of an asymptotically flat spacetime.

W. K. BÜHLER. — **Gauss: a biographical study.** — Un vol. relié, 16,5 × 24, de viii, 208 p. — Prix: DM 39.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Childhood and youth, 1777-1795. The contemporary political and social situation. Student years in Göttingen, 1795-1798. The organization of Gauss's collected works. The number-theoretical work. The influence of Gauss's arithmetical work. The return to Brunswick. Dissertation. The Ceres orbit. Marriage. Later Brunswick years. The political scene in Germany, 1789-1848. Family life. The move to Göttingen. Death of Johanna and second marriage. The first years as Professor in Göttingen. Section VII of "Disqu. Arithm.". Gauss's style. The astronomical work. Elliptic functions. Modular forms. The hypergeometric function. Geodesy and geometry. The call to Berlin and Gauss's social role. The end of the second marriage. Physics. Gauss's personal interests after his second

wife's death. The Göttingen seven. The method of least squares. Numerical work. Dioptrics. The years 1838-1855. Gauss's death. Appendices: The organization of Gauss's collected works, a survey of the secondary literature, an index of Gauss's works.

LOO Keng HUA, Yuan WANG. — **Applications of number theory to numerical analysis.** — Un vol. relié, $17 \times 24,5$, de IX, 241 p. — Prix: DM 78.00. — Springer-Verlag, Berlin/Heidelberg/New York, et Science press, Beijing, 1981.

Algebraic number fields and rational approximation. — Recurrence relations and rational approximation. — Uniform distribution. — Estimation of discrepancy. — Uniform distribution and numerical integration. — Periodic functions. — Numerical integration of periodic functions. Numerical error for quadrature formula. — Interpolation. — Approximate solution of integral equations and differential equations. — Tables.

MARSTON MORSE. — **Marston Morse: selected papers.** — Edited by Raoul Bott. — Un vol. relié, $18,5 \times 25$, de XLVI, 882 p. — Prix: DM 68.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

*Marston Morse and his mathematical works, by Raoul Bott. — Selected papers of Marston Morse: A one-to-one representation of geodesics on a surface of negative curvature. Recurrent geodesics on a surface of negative curvature. A fundamental class of geodesics on any closed surface of genus greater than one. Relations between the critical points of a real function of n independent variables. The foundations of a theory in the calculus of variations in the large. The foundations of the calculus of variations in the large in m -space. Closed extremals. A generalization of the Sturm separation and comparison theorems in n -space. The problems of Lagrange and Mayer with variable end points (with Summer Myers). Closed extremals. The foundations of a theory of the calculus of variations in the large in m -space (second paper). Does instability imply transitivity? On certain invariant of closed extremals (with Everett Pitcher). Instability and transitivity. Abstract critical sets (with George B. Van Schaack). A special parameterization of curves. Functional topology and abstract variational theory. The index theorem in the calculus of variations. Symbolic dynamics (with Gustav A. Hedlund). La dynamique symbolique. Rank and span in functional topology. The first variation in minimal surface theory. Unstable minimal surfaces of higher topological types (with C. B. Tompkins). Minimal surfaces not of minimum type by a new mode of approximation (with C. Tompkins). Unending Chess, symbolic dynamics and a problem in semi-groups (with Gustav A. Hedlund). Deformation classes of meromorphic functions and their extensions to interior transformations (with Maurice Heins). Functionals F bilinear over the product $A \times B$ of two p -normed vector spaces (with William Transue): the representation of F , admissible spaces A . Mathematics and the arts. The existence of pseudoconjugates on Riemann surfaces (with J. Jenkins). C -bimeasures Λ and their integral extensions (with William Transue). Errata to "The existence of polar non-degenerate functions on differentiable manifolds". The existence of polar non-degenerate functions on differentiable manifolds. A reduction of the Schoenflies extension problem. Schoenflies problems. Bowls of a non-degenerate function on a compact differentiable manifold. Fréchet numbers and geodesics on surfaces (with Stewart S. Cairns). — *Bibliography of the publications of Marston Morse.**

Christian GOUJET et Claire NICOLAS. — **Mathématiques appliquées: probabilités-initiation à la recherche opérationnelle.** — Un vol. broché, 16 × 24, de 271 p. — Masson, Paris/New York/Barcelone/Milan/Mexico/Rio de Janeiro, 1981.

Calcul des probabilités : axiomes de définition : Définitions préliminaires. Axiomes de définition des probabilités. Théorème des probabilités totales. Exemple d'application. Cas particulier de l'équiprobabilité des événements élémentaires. Probabilité et fréquence observée d'un événement. — *Les probabilités conditionnelles :* Définition. Théorème des probabilités composées. Exemples d'application. Théorème de Bayes (ou probabilité des causes). — *Les variables aléatoires :* Variables aléatoires discrètes. Variables aléatoires continues. — *Lois de probabilités discrètes :* Loi binômiale. Loi de Poisson. — *Loi de Laplace-Gauss ou loi normale :* Définition. Représentation graphique, usage des tables de la loi de Gauss. Importance de la loi normale. — *L'estimation statistique :* Estimation ponctuelle des paramètres. Détermination d'un intervalle de confiance. Applications. — *Notions sur la théorie des graphes :* Définition. Les chemins d'un graphe. Détermination des niveaux des sommets d'un graphe sans circuit. Recherche d'un chemin de longueur maximale. Application de la théorie des graphes à des problèmes de choix multicritères. Programme basic pour l'étude d'un graphe. But de l'ordonnancement. Position du problème. La méthode M.P.M. La méthode P.E.R.T. Thème d'application. Résolution informatique des problèmes d'ordonnancement. — *Les problèmes de flots dans les graphes : algorithme de Ford-Fulkerson :* Définition. Algorithme de Ford-Fulkerson pour la détermination du flot maximal. Problème d'application. Résolution informatique. — *La programmation linéaire, solutions graphiques, programme Dual :* Définition. Résolution graphique. Programme Dual: interprétation. — *La résolution des programmes linéaires par la méthode simplexe (méthode de Dantzig) :* Recherche d'un maximum. Recherche d'un minimum. Résolution informatique des programmes linéaires. — *La gestion des stocks : modèles de gestion en avenir certain :* Les coûts à prendre en compte pour définir une politique de stockage. Les procédures de gestion des stocks. Modèles de gestion en avenir certain. — *La gestion des stocks : modèles de gestion en avenir aléatoire :* Modèle de gestion à période fixe. Modèle de gestion à période variable. — *Tables de la loi de Poisson, table de la loi normale centrée réduite.* — Exercices à la fin de chaque chapitre.

Jerrold E. MARSDEN, Anthony J. TROMBA. — **Vector calculus.** — Second edition. — With the assistance of Michael Hoffman and Joanne Seitz. — Un vol. relié, 17 × 24, de xviii, 591 p. — Prix: £13.95. — W. H. Freeman and company, San Francisco, 1981.

The geometry of Euclidean space : Vectors in three-dimensional space. The inner product. The cross product. Cylindrical and spherical coordinates. n -dimensional Euclidean space. — *Differentiation :* The geometry of real-valued functions. Limits and continuity. Differentiation. Properties of the derivative. Gradients and directional derivatives. Iterated partial derivatives. — *Vector-valued functions :* Paths and velocity. Arc length. Vector fields. Divergence and curl of a vector field. Vector differential calculus. — *Higher-order derivatives, maxima and minima :* Taylor's theorem. Extrema of real-valued functions. Constrained extrema and Lagrange multipliers. The implicit function theorem (optional). Some applications. — *Integration :* Introduction. The double integral over a rectangle. The double integral over more general regions. Changing the order of integration. Improper integrals (optional). The triple integral. The geometry of maps from \mathbf{R}^2 to \mathbf{R}^2 . The change of variables theorem. — *Integrals over paths and surfaces :* The path integral. Line integrals. Parametrized surfaces. Area of a surface. Integrals of scalar functions over surfaces. Surface integrals of vector functions. — *Vector analysis :* Green's theorem. Stokes' theorem. Conservative fields. Gauss' theorem. Applications to physics and

differential equations (optional). Differential forms (optional). — *Appendices*: Some technical differentiation theorems. Some technical integration theorems. Tables: trigonometric functions, derivatives, integrals. Answers to odd-numbered exercises. A few important symbols.

Israel GOHBERG, Seymour GOLDBERG. — **Basic operator theory.** — Un vol. relié. 16 × 23,5, de XIII, 285 p. — Prix: FS 36.00. — Birkhäuser, Boston/Basel/Stuttgart, 1980,

Hilbert spaces: Complex n -space. The Hilbert space l_2 . Definition of Hilbert space and its elementary properties. Distance from a point to a finite dimensional subspace. The Gram determinant. Incompatible systems of equations. Least squares fit. Distance to a convex set and projections onto subspaces. Ortho-normal systems. Legendre polynomials. Orthonormal bases. Fourier series. Completeness of the Legendre polynomials. Bases for the Hilbert space of functions on a square. Stability of orthonormal bases. Separable spaces. Equivalence of Hilbert spaces. Example of a non separable space. — *Bounded linear operators on Hilbert spaces*: Properties of bounded linear operators. Examples. Continuity of a linear operator. Matrix representations. Bounded linear functionals. Operators of finite rank. Invertible operators. Inversion of operators by the iterative method. Infinite systems of linear equations. Integral equations of the second kind. Adjoint operators. Self adjoint operators. Orthogonal projections. Compact operators. Invariant subspaces. — *Spectral theory of compact self adjoint operators*: Example of an infinite dimensional generalization. The problem of existence of eigenvalues and eigenvectors. Theorem of existence of eigenvalues. Spectral theorem. Basic systems of eigenvalues and eigenvectors. Second form of the spectral theorem. Formula for the inverse operator. Minimum-maximum properties of eigenvalues. — *Spectral theory of integral operators*: Hilbert-Schmidt theorem. Mercer's theorem. Trace formula for integral operators. Integral operators as inverses of differential operators. Sturm-Liouville systems. — *Oscillations of an elastic string*: The displacement function. Basic harmonic oscillations. Harmonic oscillations with an external force. — *Operational calculus with applications*: Functions of a compact self adjoint operator. Differential equations in Hilbert space. Infinite systems of differential equations. Integro-differential equations. — *Solving linear equations by iterative methods*: The main theorem. Preliminaries for the proof. Proof of the main theorem. Application to integral equations. — *Further developments of the spectral theorem*: Simultaneous diagonalization. Compact normal operators. Unitary operators. Characterizations of compact operators. — *Banach spaces*: Definitions and examples. Finite dimensional normed linear spaces. Separable Banach spaces and Schauder bases. Conjugate spaces. Hahn-Banach theorem. — *Linear operators on a Banach space*: Description of bounded operators. An approximation scheme. Closed linear operators. Closed graph theorem and its applications. Complemented subspaces and projections. The spectrum of an operator. Volterra integral operator. Analytic operator valued functions. — *Compact operators on Banach spaces*: Examples of compact operators. Decomposition of operators of finite rank. Approximation by operators of finite rank. Fredholm theory of compact operators. Conjugate operators on a Banach space. Spectrum of a compact operator. Applications. — *Non linear operators*: Fixed point theorem. Applications of the contraction mapping theorem. Generalizations. — *Appendices*: Countable sets and separable Hilbert spaces. Lebesgue integration and L_p spaces. Proof of the Hahn-Banach theorem. Proof of the closed graph theorem.

Topics in modern operator theory. — 5th international conference on operator theory, Timisoara and Herculane (Romania), June 2-12, 1980. — Edited by C. Apostol, R. G. Douglas, B. Sz.-Nagy, D. Voiculescu and Gr. Arsene. — Operator theory: advances and

applications, vol. 2. — Un vol. relié, 17 × 24, de 335 p. — Prix: FS 42.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1981.

E. Albrecht: On closed operator algebras generated by analytic functional calculi. — *J. Anderson*: A conjecture concerning the pure states of $B(H)$ and a related theorem. — *C. Apostol, M. Martin*: A C^* -algebra approach to the Cowen-Douglas theory. — *I. Cioranescu*: On periodic distribution groups. — *R. G. Douglas*: On the smoothness of elements of Ext. — *M. Dupré, P. Fillmore*: Triviality theorems for Hilbert modules. — *G. Eckstein*: Exact controllability and spectrum assignment. — *L. Fialkow*: Generalized derivations. — *F. L. Gilfeather, D. R. Larson*: Commutants modulo the compact operators of certain CSL algebras. — *I. Gohberg, M. A. Kaashoek, and F. Van Schagen*: Similarity of operator blocks and canonical forms, II: infinite dimensional case and Wiener-Hopf factorization. — *D. A. Herrero*: Unitary orbits of power partial isometries and approximation by block diagonal nilpotents. — *V. F. R. Jones*: Isomorphisms of the automorphism groups of type II factors. — *B. Nagy*: The spectral residuum for each closed operator. — *N. K. Nikolskii*: Two applications of Hankel operators. — *A. Ocneanu*: A Rohlin type theorem for groups on von Neumann algebras. — *C. Peligrad*: Derivations of C^* -algebras which are invariant under an automorphism group. — *M. Pimsner, S. Popa, and D. Voiculescu*: Remarks on ideals of the Calkin-algebra for certain singular extensions. — *I. Suciu*: Modelling by L^2 -bounded analytic functions. — *N. Suciu, I. Valusescu*: The maximal function of doubly commuting contractions. — *D. Voiculescu*: Remarks on Hilbert-Schmidt perturbations of almost normal operators. — *J. P. Williams*: Derivation ranges: open problems.

Teaching teachers, teaching students: reflections on mathematical education. — ICME IV: the 4th international congress on mathematical education. — Edited by Lynn Arthur Steen, and Donald J. Albers. — Un vol. relié, 16 × 23,5, de x, 136 p. — Prix: FS 26.00. — Birkhäuser, Boston/Basel/Stuttgart, 1981.

PROFILES: Henry Pollak. Hans Freudenthal. Hermina Sinclair. Seymour Papert. Hua LOO-Keng. — ARTICLES: *James T. Fey*: Insights from ICME IV for U.S. mathematics education. — *Ubiratan D'Ambrosio*: Uniting reality and action: a holistic approach to mathematics education. — *Zalman Usiskin*: Decision-making in mathematics education. — *Bienvenedo Nebres*: Major trends from ICME IV: a Southeast Asian perspective. — FEATURES: George Polya. Minicourses: coding theory, Ramsey theory, computer algebra, exploratory data analysis. Round and round at the round table. Historical perspective, by Leon Henkin. — REPORTS: *Donald J. Albers*: Geometry under siege. — *Anthony Barcellos*: Language and mathematics. — *Lynn Arthur Steen*: Computers in the classroom. — *Anthony Barcellos*: Universal primary education. — *Donald J. Albers*: Status of mathematics teachers.

UMAP modules 1977-1979: tools for teaching. — Un vol. relié, 16,5 × 23,5, de xii, 727 p. — Prix: FS 88.00. — Birkhäuser, Boston/Basel/Stuttgart, 1981.

Suggested UMAP modules for mathematics courses. — *Numerical listing of UMAP modules 1977-1979.* — *Paul Calter*: Graphical and numerical solution of differential equations. — *Raymond J. Cannon*: Recognition of problems solved by exponential functions. Exponential growth and decay. Development of the function $Y-Ae^*$. Numerical approximations to $y = e^*$. How to solve problems involving exponential functions. — *Ross L. Finney*: Determining constants of integration. — *Dale T. Hoffman*: Monte

Carlo: the use of random digits to simulate experiments. — *Brindell Horelick, Sinan Koont, and Sheldon F. Gottlieb*: Modeling the nervous system. — *Brindell Horelick and Sinan Koont*: Population growth and the logistic curve. Measuring cardiac output. Prescribing safe and effective dosage. Kinetics of single reactant reactions. π is irrational. The Wallis approximation of π . Buffon's needle experiment. — *Barbara Salert*: Public support for presidents. — *Harry M. Schey*: The distribution of resources. — *Alan H. Schoenfeld*: Integration: getting it all together. Solutions manual. — *Philip M. Tuchinsky*: Mercator's world map and the calculus.

Charles DIXON. — **Advanced calculus**. — Un vol. broché, 16×23 , de ix, 147 p. — Prix: £5.75 (relié: £10.75). — John Wiley & Sons, Chichester/New York/Brisbane/Toronto, 1981.

Calculus of functions from R to R^n : Differentiation of vector functions of one variable. Arc length. Line integrals. — *Calculus of functions from R^n to R* : Partial differentiation. Related "independent" variables. The chain rule. Differentiation of implicit functions. Higher partial derivatives. Taylor series for functions from R^2 to R . Taylor series for functions from R^n to R . — *Extrema of functions from R^n to R* : Stationary points. Classification of stationary points. Maxima and minima subject to constraint. The Lagrange multiplier method. — *Calculus of functions from R^n to R^m* : Differentiable functions. The chain rule. — *Surfaces in space*: Parametric representation. Explicit representation. Implicit representation. Normals to surfaces. — *Curvilinear coordinates*: Plane polar coordinates. Spherical polar coordinates. Cylindrical polar coordinates. General systems. — *Multiple integrals*: Iterated integrals. Double integrals. Triple integrals (volume integrals). Change of variables in multiple integrals. — *Surface integrals*. — Exercices à la fin de chaque chapitre.

Handbook of applicable mathematics, vol. III: numerical methods. — Chief editor: Walter Ledermann, vol. III edited by Robert F. Churchhouse. — A Wiley-interscience publication. — Un vol. relié, $17,5 \times 25$, de xvii, 565 p. — Prix: £32.50. — John Wiley & Sons, Chichester/New York/Brisbane/Toronto, 1981.

Introduction to numerical methods: History. Numerical methods. Errors. Finite differences. Divided differences. Taylor's theorem. Ill-conditioned problems. — *Computation and interpolation of functions*: Introduction. Methods of computation. Interpolation. Extrapolation. — *The solution of systems of linear equations*: Introduction. Systems of linear equations. Direct methods of solution. Indirect methods: the Gauss-Seidel method. Ill-conditioned equations. Comparison of the Gauss and Jordan methods. — *Matrix computations*: Motivation. The Choleski method. Partitioned matrices. Least squares methods. Matrix inversion. Eigenvalues and eigenvectors. Norms for vectors and matrices. Iterative methods for computing eigenvalues and eigenvectors. Methods of computing eigenvalues for tridiagonal matrices. Eigenvalues and eigenvectors of symmetric matrices. Eigenvalues and eigenvectors of real unsymmetric matrices. Miscellaneous methods. — *Non-linear equations*: Introduction. Iterative methods. Two-point iterative methods. One-point methods. The general one-point method. Systems of non-linear equations. — *Curve fitting and approximation of functions*: Introduction. Vector and matrix norms. Approximations using orthogonal functions. Non-polynomial approximation. Splines and Hermite approximations. — *Quadrature*: Introduction. Romberg integration. Gaussian quadrature. Chebyshev methods. Special integrals. Singular integrals. Miscellaneous techniques. The evaluation of multiple integrals. Summary. —

Ordinary differential equations: Introduction: existence of analytic solutions. Numerical solutions. Multistep methods. Extrapolation methods. Methods for special equations. — *Partial differential equations*: Introduction. Hyperbolic equations I: method of characteristics. Hyperbolic equations II: finite difference methods. Parabolic equations: explicit and implicit methods. Elliptic equations. — *Integral equations*: Linear integral equations. Fredholm equations of the second kind. Volterra equations of the second kind. Integral equations of the first kind. Eigenvalue problems. Miscellaneous topics. — *Numerical optimization*: Single variable minimization. Functions of several variables. Gradient methods. — *Appendix of FORTRAN programs*: A collection of programs with listings, description and worked examples for some of the numerical methods described in the book.

David J. BARTHOLOMEW. — **Mathematical methods in social science**. — Handbook of applicable mathematics: guidebook 1. — Un vol. relié, 17 × 24, de ix, 153 p. — Prix: £10.50 (broché: £5.95). — John Wiley & Sons, Chichester/New/York/Brisbane/Toronto, 1981.

Introduction. — *Pattern, variation and inference*: A framework for discussion. Summarization of data. Probability models for variation. Inference about the parameters of distributions. — *Collection of data: design and analysis of surveys*: The background. The literature. Sample designs. The design effect and methods for increasing precision. Choice and allocation of sample size. Response errors. Non-response. Randomized response methods. Inference in sample surveys. — *Multivariate methods in social science*: An overview. The literature of multivariate methods. The general linear model. Classification methods. Structure and dimensionality. — *The dynamics of social systems*: Introduction and literature. Discrete time Markov models for closed systems. Generalizations and extensions of the closed Markov model. Markov systems with gains and losses. Control and optimization of Markov models. Vacancy chains. Continuous time models. Statistical problems of implementation. Renewal theory models. Autoregressive and simultaneous equation models. The diffusion of news, innovations and rumours.

Balmohan Vishnu LIMAYE. — **Functional analysis**. — Un vol. relié, 16,5 × 24, de xii, 376 p. — Prix: £6.50. — Wiley Eastern limited, New Delhi/Bangalore/Bombay/Calcutta, 1981.

Preliminaries. — Fundamentals of normed linear spaces. — Bounded linear maps on Banach spaces. — Spaces of bounded linear functionals. — Compact operators on Banach spaces. — Geometry of Hilbert spaces. — Bounded operators on Hilbert spaces. — Spectral analysis of self-adjoint operators. — Appendices: Fixed points, extreme points, unbounded operators and quantum mechanics, Sturm-Liouville problems.

Studies in algebraic geometry. — Edited by A. Seidenberg. — MAA Studies in mathematics, vol. 20. — Un vol. relié, 14 × 21, de xi, 143 p. — £9.75. — The Mathematical Association of America, distributed by John Wiley & Sons Ltd, Chichester, 1980.

Maxwell Rosenlicht: Initial results in the theory of linear algebraic groups. — *B. L. van der Waerden*: The connectedness theorem and the concept of multiplicity. — *Jack Ohm*: Space curves as ideal-theoretic complete intersections. — *Steven L. Kleiman*: Chasles's enumerative theory of conics: a historical introduction.

Willi HOCK, Klaus SCHITTKOWSKI. — **Test examples for nonlinear programming codes.** — Lecture notes in economics and mathematical systems, vol. 187. — Un vol. broché, 16,5 × 24, de v, 177 p. — Prix: DM 28.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Description of the documentation: Introduction. Computable information about a solution. The classification number. The documentation scheme. — *Usage of the FORTRAN subroutines.* — *Condensed information about the test problems.* — *The test problems.* — *Appendices:* Constant data. Some numerical test results. Restriction function values and Lagrange-multipliers.

Dieter Bös. — **Economic theory of public enterprise.** — Lecture notes in economics and mathematical systems, vol. 188. — Un vol. broché, 16,5 × 24, de vii, 142 p. — Prix: DM 22.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Introduction. — *Theoretical foundations of allocation policy:* Benefit-cost analysis and consumer surplus. Partial versus general microeconomic analysis. The quantitative importance of allocative efficiency. — *Marginal-cost pricing:* Economic interpretation of marginal-cost pricing. Joint production, quality differentiation and peak-load pricing. Zerotariffs as a special concept for allocation. Regulating marginal-cost prices. Consequences for allocation, distribution and stabilization. — *Welfare maximization under a revenue-cost constraint:* Nonlinear and nonuniform pricing. Uniform pricing à la Ramsey. On the opportunity costs of financing deficits. Regulating Ramsey prices. Economic consequences of Ramsey prices and of two-part tariffs. — *Interdependencies with the private economy:* Interdependencies caused by producers. Interdependencies caused by consumers. — *Non-allocational objectives:* Description of different non-allocative objectives. The fundamental optimization problem. Economic interpretation of the results. Some remarks on other non-allocational objectives. — *Public-good pricing:* Optimal prices for public goods. Some remarks on the applicability of public-good pricing. — *Conclusion: welfare economics, business economics, and political economics:* Business economics of public enterprises. Political economics of public enterprises. — *Appendix:* Obtaining the Ramsey price structure from maximization of consumer surplus.

Ambros P. LUTHI. — **Messung wirtschaftlicher Ungleichheit.** — Lecture notes in economics and mathematical systems, vol. 189. — Un vol. broché, 16,5 × 24, de ix, 287 p. — Prix: DM 40.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Einleitung. — *Zur Problematik der Ungleichheitsmessung.* — *Ungleichheitsmasse.* — *Die Sensitivitaet von Ungleichheitsmassen.* — *Ungleichheitsmasse fuer geschichtete Daten.* — *Interpolation der Lorenzkurve und Schaetzung des Gini-Index.* — *Schaetzung von Ungleichheitsmassen bei geschichteten Daten.* — *Dynamische Ungleichheitsmessung.* — *Anhang: Daten und Programme.*

Organizations: multiple agents with multiple criteria. — Proceedings of the fourth international conference on multiple criteria decision making, University of Delaware, Newark, August 10-15, 1980. — Edited by Joel N. Morse. — Lecture notes in economics and mathematical systems, vol. 190. — Un vol. broché, 16,5 × 24, de vi, 509 p. — Prix: DM 70.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

38 exposés par: J. Arthur, K. Lawrence. — S. Baum, W. Terry and U. Parekh. — D. Bell. — S. Bodily. — L. Chalmet, S. Lawphongpanich. — S. J. Chan, C. Park and P. L. Yu. — E. Duesing. — G. Fandel. — L. Franz, S. Lee. — T. Friesz. — T. Hemming. — M. Henig. — J. Ho. — K. Inque, T. Tanino, H. Nakayama and Y. Sawaragi. — Z. Khairullah, S. Zions. — P. Korhonen, J. Wallenius. — J. Kornbluth. — K. Lawrence, G. Reeves. — A. Lockett, A. Muhlemann, and A. Gear. — S. Lawrence, K. Lawrence and G. Reeves. — A. Masud, P. Byrne. — W. Michalowski. — J. Morse. — P. Nijkamp, J. Spronk. M. Nowakowska. — L. Pun. — S. Ratick, J. Cohon and C. Revelle. — S. Revelle, J. Cohon, and D. Shobrys. — P. Schoemaker. — F. Seo. — J. Spronk, J. Telgen. — R. Stephenson, M. Stephenson. — T. Tanino, H. Nakayama and Y. Sawaragi. — K. Tarvainen, Y. Haimes. — C. Waid, P. Schoemaker. — A. Wierzbicki. — C. Wrather, P. Yu. — S. Zanakis.

Henri R. SNEESSENS. — **Theory and estimation of macroeconomic rationing models.** — Lecture notes in economics and mathematical systems, vol. 191. — Un vol. broché, 16,5 × 24, de VII, 138 p. — Prix: DM 22.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Introduction: The received econometric formulation of 2-market rationing models. Statement of the problem. Contents. — *Theoretical foundations*: The structure of quantity rationing models. Effective demand theory. — *Econometric formulation of a 2-market macroeconomic model*: First generation models. A disequilibrium rationing model. Estimation methods. Proofs. — *A macroeconomic rationing model of the Belgian economy*: A modified Cobb-Douglas model. Labor hoarding. Demand for goods and labor supply. Solvability of the model. The stochastic model and the estimation procedure. Empirical results: the output-employment trade-off. Estimation of the employment equation. Solvability of a *QRM* with labor hoarding. Data, definitions and sources.

Herman J. BIERENS. — **Robust methods and asymptotic theory in nonlinear econometrics.** — Lecture notes in economics and mathematical systems, vol. 192. — Un vol. broché, 16,5 × 24, de IX, 198 p. — Prix: DM 34.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Introduction: Specification and misspecification of the econometric model. The purpose and scope of this study. — *Preliminary mathematics*: Random variables, independence, Borel measurable functions and mathematical expectation. Convergence of random variables and distributions. Uniform convergence of random functions. Characteristic functions, stable distributions and a central limit theorem. Unimodal distributions. — *Nonlinear regression models*: Nonlinear least-squares estimation. A class of nonlinear robust *M*-estimators. Weighted nonlinear robust *M*-estimation. Miscellaneous notes on robust *M*-estimation. — *Nonlinear structural equations*: Nonlinear two-stage least squares. Minimum information estimators: introduction. Minimum information estimators: instrumental variable and scaling parameter. Miscellaneous notes on minimum information estimation. — *Nonlinear models with lagged dependent variables*: Stochastic stability. Limit theorem for stochastically stable processes. Dynamic nonlinear regression models and implicit structural equations. Remarks on the stochastic stability concept. — *Some applications*: Applications of robust *M*-estimation. An application of minimum information estimation.

TOMASZ ROLSKI. — **Stationary random processes associated with point processes.** — Lecture notes in statistics, vol. 5. — Un vol. broché, $16 \times 23,5$, de vi, 139 p. — Prix: DM 25.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

Preliminaries: Introduction. Some notations and conventions. Ergodic theory — discrete parameter. Ergodic theory — continuous parameter. Stationary random elements. Loynes' lemma. Queues. — *Discrete time random process associated with point processes*: Basic concepts. Construction of stationary processes. First and second type relations. Applications in queueing theory. — *Continuous time random process associated with marked point process*: Construction. Ergodic theorems. Relations of the first and second type. A rate conservative principle approach. — *Miscellaneous examples*: Inequalities and identities. Kopocińska's model. Equivalence of distributions of embedded chains in the queue size process. — *Application to single server queues*: Introductory remarks. Single server queue with periodic input. Fagging queueing systems. $G/G/1$ queue with work-conserving normal discipline. Takács relation in $G/G/1$; *FIFO* queues. Takács relation in $GI/GI/1$; *FIFO* queues.

SHANTI S. GUPTA, DENG-YUAN HUANG. — **Multiple statistical decision theory: recent developments.** — Lecture Notes in Statistics, vol. 6. — Un vol. broché, $16 \times 23,5$, de vii, 104 p. — Prix: DM 21.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

Some auxiliary results: monotonicity properties of probability distributions: Ordered families of distributions. Probability integrals of multivariate normal distribution — dependence on correlations. Dependence and association of random variables. Majorization in multivariate distribution. — *Multiple decision theory: a general approach.* — *Modified minimax decision procedures*: The problem of selecting good populations with respect to a control. On the problem of selecting the best population. Essentially complete classes of decision procedures. — *Invariant decision procedures*: Selecting the best population. — *Robust selection procedures: most economical multiple decision rules*: Robust selection rules. — *Multiple decision procedures based on tests*: Conditional confidence approach. Multiple comparison procedures. Multiple range tests. Multistage comparison procedures.

MASAFUMI AKAHIRA, KEI TAKEUCHI. — **Asymptotic efficiency of statistical estimators: concepts and higher order asymptotic efficiency.** — Lecture Notes in Statistics, vol. 7. — Un vol. broché, $16 \times 23,5$, de vii, 242 p. — Prix: DM 32.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

General discussion: The concept of asymptotic efficiency. Multidimensional parameter case. Higher order asymptotic efficiency. The estimators in the classes **C** and **D**. More general cases. — *Consistency of estimators and order of consistency*: Notation and definition. Necessary conditions for consistency of estimators. Consistent estimators with order $\{C_n\}$. Order of convergence of $\{C_n\}$ -consistent estimators for the location parameter case. Bounds for the order of convergence of consistent estimators. Order of convergence of consistent estimators in an autoregressive process. — *Asymptotic efficiency*: Definitions and existence. Asymptotic efficiency in an autoregressive process. Asymptotic efficiency and inefficiency of maximum probability estimators. — *Higher order asymptotic efficiency*: Second order asymptotic efficiency. Third order asymptotic efficiency. Second order asymptotic efficiency of estimators when X_i 's are not independently identically distributed. Second order asymptotic efficiency of estimators in multiparameter cases.

Second order asymptotic efficiency in an autoregressive process. — *Second order and third order asymptotic efficiency of the maximum likelihood estimator and other estimators* : Third order asymptotic efficiency of the maximum likelihood estimator for the multi-parameter exponential case. Third order asymptotic efficiency of maximum likelihood estimators in general cases. Second and third order asymptotic efficiency of the generalized Bayes estimator. Third order asymptotic efficiency of maximum likelihood estimators in multivariate linear regression models. — *Discretized likelihood methods* : Discretized likelihood estimator (*DLE*). Second order asymptotic efficiency of *DLE*. Third order asymptotic efficiency of *DLE*. Maximum log-likelihood estimator. Remarks. — *Higher order asymptotic efficiency and asymptotic completeness* : The concept of asymptotic completeness of an estimator. Second order asymptotic efficiency of unbiased confidence intervals. Concluding remarks.

Pal RÉVÉSZ, Leopold SCHMETTERER, V. M. ZOLOTAREV. — **The first Pannonian symposium on mathematical statistics.** — Lecture Notes in Statistics, vol. 8. — Un vol. broché, 16 × 23,5, de vi, 308 p. — Prix: DM 38.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

J. Anděl : Improvement of extrapolation in multiple time series. — *D. Banjević, Z. Ivković* : Algorithmical definition of finite binary random sequence. — *N.L. Bassily* : Some remarks on the BMO_{Φ} spaces. — *B. Bednarek-Kozek* : On unbiased estimation of a common mean of two normal distributions. — *T. Byszkowski, T. Inglot* : The invariance principle for vector valued random variables with applications to functional random limit theorems. — *E. Csáki* : Iterated logarithm laws for the square integral of a Wiener process. — *A. Földes, L. Rejtő* : Asymptotic properties of the non-parametric survival curve estimators under variable censoring. — *P. Gerl* : A local central limit theorem on some groups. — *E. Glözl, B. Rauchenschwandtner* : On the statistics of Gibbsian processes. — *W. Grossmann* : Efficiency of estimates in nonregular cases. — *B. Gyires* : Linear forms in random variables defined on a homogeneous Markov chain. — *A. Iványi, T. Kátai* : Parallel processing of random sequences with priority. — *A. Kozek, W. Wertz* : On the existence of minimal complete classes of estimators. — *N. Kusolitsch* : Eine Bemerkung zum Vergleich von zweiseitigen Testproblemen. — *J. Mogyoródi* : Duality of the maximal inequality for non-negative submartingales and of the convexity inequality of Burkholder. — *T. Móri* : On a Hoeffding-type problem. — *T. Nemetz* : Run-test discrimination between written Hungarian and random sequences. — *G. Pflug* : recursive estimation in the "almost smooth case". — *P. Révész* : How small are the increments of a Wiener sheet? — *T. Rolski* : An approach to the formula $H=2V$ via the theory of stationary point processes on a space of compact subsets of R^k . — *L. Rutkowski* : Sequential estimates of a regression function by orthonormal series with applications in discrimination. — *K. Sarkadi* : The asymptotic distribution of certain goodness of fit test statistics. — *F. Schipp* : Martingales with directed index set. — *G. J. Székely* : Extensions of partial homomorphisms in probability theory. — *D. Szynal* : A remark on the strong law of large numbers for random indexed sums. — *J. Tomkó* : A limit theorem for Markov renewal processes. — *I. Vincze* : Remark to the derivation of the Cramer-Frechet-Rao inequality in the regular case. — *W. Wertz* : Nonparametric density estimation in abstract and homogeneous spaces. — *K. Winkelbauer* : Non-ergodic stationary information sources.

Rupert G. MILLER, Jr. — **Simultaneous statistical inference.** — Second edition. — Springer series in statistics. — Un vol. relié, 16 × 24, de xvi, 229 p. — Prix: DM 44.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

Introduction: Case of two means. Error rates. Basic techniques. p -mean significance levels. *Families*. — *Normal univariate techniques*: Studentized range (Tukey). F projections (Scheffé). Bonferroni t statistics. Studentized maximum modulus. Many-one t statistics. Multiple range tests (Duncan). Least significant difference test (Fisher). Other techniques. Power. Robustness. — *Regression techniques*: Regression surface confidence bands. Prediction. Discrimination. Other techniques. — *Nonparametric techniques*: Many-one sign statistics (Steel). k -sample sign statistics. Many-one rank statistics (Steel). k -sample rank statistics. Signed-rank statistics. Kruskal-Wallis rank statistics (Nemenyi). Friedman rank statistics (Nemenyi). Other techniques. — *Multivariate techniques*: Single population; covariance scalar unknown. Single population; covariance matrix unknown. k -populations; covariance matrix unknown. Other techniques. — *Miscellaneous techniques*: Outlier detection. Multinomial populations. Equality of variances. Periodogram analysis. Alternative approaches: selection, ranking, slippage. — *Strong law for the expected error rate*. — *Tables*. — *Developments in multiple comparisons 1966-1976*: Introduction. Papers of special interest. References. Bibliography 1966-1976. List of journals scanned. — *Addendum*: New table of the studentized maximum modulus.

Statistical analysis of weather modification experiments. — Edited by Edward J. Wegman and Douglas J. DePriest. — Lecture notes in statistics, vol. 3. — Un vol. broché, 17,5 × 25, de x, 145 p. — Prix: FS 68.00. — Marcel Dekker, Inc., New York/Basel, 1980.

Jerzy Neyman: Developments in probability and mathematical statistics generated by studies in meteorology and weather modification. — *Pierre Saint-Amand*: Some operational considerations in evaluation of weather modification programs: a short excursion into epistemology. — *Ralph A. Bradley, Sushil S. Srivastava and Adolf Lanzdorf*: Some approaches to statistical analysis of a weather modification. — *M. Hanson and L. Barker*: Comparing the testing of hypotheses based on lognormal and gamma distributions. — *Elton Scott*: A multivariate methodology for the analysis of weather modification experiments. — *Robert D. Elliott*: Physically meaningful covariates. — *Oscar Kempthorne*: Some statistical aspects of weather modification studies. — *Arnold Court*: Limitations of statistics in weather modification. — *K. Ruben Gabriel*: Comments on the reanalysis of the Santa Barbara II cloud seeding experiments. — *Jerzy Neyman*: Comments on the discussion at the workshop on the statistical design and analysis of weather modification experiments. — *Ralph A. Bradley*: Response to the discussion.

John K. BEEM, Paul E. EHRLICH. — **Global Lorentzian geometry**. — Monographs and textbooks in pure and applied mathematics, vol. 67. — Un vol. relié, 16,5 × 23,5, de vi, 460 p. — Prix: FS 126.00. — Marcel Dekker, Inc., New York/Basel, 1981.

Introduction: *Riemannian themes in Lorentzian geometry*. — *Lorentzian manifolds and causality*: Lorentzian manifolds and convex normal neighborhoods. Causality theory of spacetimes. Limit curves and the C^0 topology on curves. Two-dimensional space-times. The second fundamental form. Warped products. — *Lorentzian distance*: Basic concepts and definitions. Distance-preserving and homothetic maps. The Lorentzian distance function and causality. — *Examples of space-times*: Minkowski space-time. Schwarzschild and Kerr space-times. Spaces of constant curvature. Robertson-Walker space-times. Bi-invariant Lorentzian metrics on Lie groups. — *Completeness and extendibility*: Existence of maximal geodesic segments. Geodesic completeness. Metric completeness. Ideal boundaries Local extensions. Curvature singularities. — *Stability of Robertson-Walker space-times*: Stable properties of $Lor(M)$ and $Con(M)$. The C^1 topology and geodesic

systems. Stability of geodesic incompleteness. for Robertson-Walker space-times. — *Maximal geodesics and causally disconnected space-times*: Almost maximal curves and maximal geodesics. Nonspacelike geodesic rays in strongly causal space-times. Causally disconnected space-times and nonspacelike geodesic lines. — *The Lorentzian cut locus*: The timelike cut locus. The null cut locus. The nonspacelike cut locus. — *Morse index theory on Lorentzian manifolds*: The timelike Morse index theory. The timelike path space of a globally hyperbolic space-time. The null Morse index theory. — *Some results in global Lorentzian geometry*: The timelike diameter. Lorentzian comparison theorems. Lorentzian Hadamard-Cartan theorems. — *Singularities*: Jacobi tensors. The generic and strong energy conditions. Focal points. The existence of singularities. Smooth boundaries. — *Appendices*: Connections and curvature. The generic condition. The Einstein equations. Jacobi fields and Toponogov's theorem for Lorentzian manifolds by Steven G. Harris.

Proceedings, Gothenburg symposium on teaching statistics edited by Lennart Rade, 1980. — Un vol. broché, 21 × 29, de 100 p. — Prix: \$6.00. — Mathematics Department of the Chalmers University of Technology, and the University of Gothenburg, Gothenburg, 1981.

Peter Holmes: Using project work in teaching statistics to students aged 16-18 in the United Kingdom. — *Peter Holmes*: Why teach statistics and what statistics should be taught to pupils aged 11-16. — *Brian L. Joiner*: How to use minitab effectively in teaching statistics. — *M. N. Murthy*: Some thoughts on teaching of survey sampling. — *G. E. Noether*: An introduction to nonparametrics through estimation. — *J. O. Oyelese*: Some problems of the teaching of statistics in developing countries — the Nigeria example. — *L. Rade*: The Gothenburg students statistical field trip to U.S.A

Catherine BANDLE. — **Isoperimetric inequalities and applications.** — Monographs and studies in mathematics, vol. 7. — Un vol. relié, 16 × 24, de x, 228 p. — Prix: £25.00. — Pitman advanced publishing program, Boston/London/Melbourne, 1980.

Geometrical inequalities: Geometrical inequalities in the Euclidean space. On a class of isoperimetric inequalities in the plane. Isoperimetric inequalities on surfaces. — *Symmetrization*: The Schwarz symmetrization. Applications of the Schwarz symmetrization. The α -symmetrization. Symmetrizations on surfaces. — *Eigenvalue problems*: Introduction. Isoperimetric inequalities for eigenvalue problems. Conformal transplantation. Prescribed level surfaces. Two isoperimetric inequalities for the N -dimensional free membrane problem. The Cheeger inequality and some supplements on the method of symmetrization. The Hopf maximum principle and an isoperimetric inequality for the Stekloff problem. The Barta inequalities. — *Boundary- and initial-value problems*: Linear elliptic boundary value-problems. Non-linear elliptic boundary-value problems. Parabolic equations.

Yu. I. MANIN. — **Mathematics and physics.** — Translated by Ann and Neal Koblitz. — Progress in physics, vol. 3. — Un vol. relié, 15,5 × 23,5, de xii, 99 p. — Prix: FS 22.00. — Birkhäuser, Boston/Basel/Stuttgart, 1981.

A bird's eye view of mathematics: Mathematical truth. Sets. Higher-dimensional space and the idea of linearity. Measurements in a linear space. Nonlinearity and curvature. Some novelties. Sets, formulas, and the divided brain. — *Physical quantities*,

dimensions and constants: the source of numbers in physics: The spectrum of a scalar quantity. Physical law, dimension and similarity. The group of dimensions of Newtonian mechanics. Scale invariance. Planck units and the problem of a unified physical theory. Classification of physical constants. — *A drop of milk: observer, observation, observable and unobservable*: Isolated systems. Principles of quantum description. Phase space. Phase curves. Observation: ovens, filters and quantum jumps. Combination of quantum systems. — *Space-time as a physical system*: The Minkowski world. Curved world. Spinors, twistors and the complex world. Space-time, gravitation and quantum mechanics. — *Action and symmetry*.

Jack CARR. — **Applications of centre manifold theory**. — Applied mathematical sciences, vol. 35. — Un vol. relié, 15,5 × 23,5 de 142 p. — Prix: DM 32.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

Introduction to centre manifold theory. — Proofs of theorems. — Examples. — Bifurcations with two parameters in two space dimensions. — Application to a panel flutter problem. — Infinite dimensional problems.

I. A. IBRAGIMOV, R. Z. HAS'MINSKII. — **Statistical estimation: asymptotic theory**. — Translation by Samuel Klotz. — Applications of mathematics, vol. 16. — Un vol. relié, 16 × 24, de vii, 403 p. — Prix: DM 98.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

The problem of statistical estimation. — Local asymptotic normality of families of distributions. — Properties of estimators in the regular case. — Some applications to nonparametric estimation. — Independent identically distributed observations. Densities with jumps. — Independent identically distributed observations. Classifications of singularities. — Several estimation problems in a Gaussian white noise. — *Appendices*: Some limit theorem of probability theory. Stochastic integrals and absolute continuity of measures.

Paul KELLY, Gordon MATTHEWS. — **The non-Euclidean, hyperbolic plane: its structure and consistency**. — Universitext. — Un vol. broché, 15 × 24, de xiii, 333 p. — Prix: DM 49.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

Some historical background. — Absolute plane geometry. — Hyperbolic plane geometry. — A Euclidean model of the hyperbolic plane. — *Appendix*: Distance geometries.

D. B. ZAGIER — **Zetafunktionen und quadratische Körper: eine Einführung in die Höhere Zahlentheorie**. — Hochschultext. — Un vol. broché, 16,5 × 24,5 de xviii, 144 p. — Prix: DM 28.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Dirichletsche Reihen: Dirichletsche Reihen: analytische Theorie. Dirichletsche Reihen: formale Eigenschaften. Die Gammafunktion. Die Riemannsche Zetafunktion. Charaktere. *L*-Reihen. Werte von Dirichletsche Reihen, insbesondere von *L*-Reihen, an negativen ganzen Stellen. — *Quadratische Körper und ihre Zetafunktionen*: Binäre quadratische Formen. Die Berechnung von $L(l, \chi)$ und die Klassenzahlformeln. Quadratische Formen und quadratische Zahlkörper. Die Zetafunktion eines quadratischen Körpers. Geschlechtertheorie. Reduktionstheorie. Werte von Zetafunktionen bei $s = 0$, Kettenbrüche und Klasse zahlen.

Gerhard P. HOCHSCHILD. — **Basic theory of algebraic groups and Lie algebras.** — Graduate texts in mathematics, vol. 75. — Un vol. relié, 18×24 , de VIII, 267 p. — Prix: DM 59.80. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

Representative functions and Hopf algebras. — Affine algebraic sets and groups. — Derivations and Lie algebras. — Lie algebras and algebraic subgroups. — Semisimplicity and unipotency. — Solvable groups. — Elementary Lie algebra theory. — Structure theory in characteristic 0. — Algebraic varieties. — Morphisms of varieties and dimension. — Local theory. — Coset varieties. — Borel subgroups. — Applications of Galois cohomology. — Algebraic automorphism groups. — The universal enveloping algebra. — Semisimple Lie algebras. — From Lie algebras to groups.

Mathematics tomorrow. — Edited by Lynn Arthur Steen. — Un vol. relié, 16×24 , de VI, 250 p. — Prix DM 39.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

WHAT IS MATHEMATICS?: *Paul R. Halmos*: Applied mathematics is bad mathematics. — *Jerome Spanier*: Solving equations is not solving problems. — *Jerry P. King*: The unexpected art of mathematics. — *Alan Tucker*: Redefining the mathematics major. — *Tim Poston*: Purity in applications. — *William F. Lucas*: Growth and new intuitions: can we meet the challenge? — TEACHING AND LEARNING MATHEMATICS: *Peter J. Hilton*: Avoiding math avoidance. — *Anneli Lax and Giuliana Groat*: Learning mathematics. — *Abe Shenitzer*: Teaching mathematics. — *Harold M. Edwards*: Read the masters! — *Neal Koblitz*: Mathematics as propaganda. — *Walter Kaufmann-Bühler, Alice Peters, and Klaus Peters*: Mathematicians love books. — *Donald J. Albers*: A faculty in limbo. — *George M. Miller*: Junior's all grown up now. — *E. P. Miles, Jr.*: NSF support for mathematics education. — ISSUES OF EQUALITY: *Eileen L. Poiani*: The real energy crisis. — *Alice T. Schafer*: Women and mathematics. — *Marian Boykan Pour-El*: Spatial separation in family life: a mathematician's choice. — MATHEMATICS FOR TOMORROW: *Ross L. Finney*: Applications of undergraduate mathematics. — *Anthony Ralston*: The decline of calculus — the rise of discrete mathematics. — *Paul T. Boggs*: Mathematical software: how to sell mathematics. — *Hartley Rogers, Jr.*: Physics and mathematics. — *Tim Robertson and Robert V. Hogg*: Readin', 'ritin', and statistics. — *Maynard Thompson*: Mathematization in the sciences.

Andrey V. ZELEVINSKY. — **Representations of finite classical groups: a Hopf algebra approach.** — Lecture Notes in Mathematics, vol. 869. — Un vol. broché, $16,5 \times 24$, de IV, 184 p. — Prix: DM 21.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Structural theory of PSH-algebras: Definitions and first results. The decomposition theorem. Universal PSH-algebra: the uniqueness theorem and the Hopf algebra structure. Universal PSH-algebra: irreducible elements. — *First applications*: Symmetric polynomials. Representations of symmetric groups. Representations of wreath products. — *Representations of general linear and affine groups over finite fields*: Functors i_U, Θ and r_U, Θ . The classification of irreducible representations of $GL(n, F_q)$. The P. Hall algebra. The character values of $GL(n, F_q)$ at unipotent elements. Degenerate Gelfand-Graev modules. — *Representations of general affine groups and the branching rule.* — *Appendices*: Elements of the Hopf algebra theory. A combinatorial proposition. The composition of functors r and i .

Shape theory and geometric topology. — Proceedings of a conference held at the Inter-University centre of post-graduate studies, Dubrovnik, Yugoslavia, January 19-30, 1981 — Edited by S. Mardesic and J. Segal. — Lecture Notes in Mathematics, vol. 870. — Un vol. broché, 16,5 × 24, de v, 265 p. — Prix: DM 29.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

SHAPE AND HOMOTOPY DOMINATION: *S. Ferry*: Finitely dominated compacta need not have finite type. — *R. Geoghegan*: Fixed points in finitely dominated compacta: the geometric meaning of a conjecture of H. Bass. — *H. Hastings and A. Heller*: Splitting homotopy idempotents. — GEOMETRIC TOPOLOGY AND DIMENSION THEORY: *D. Coram*: Approximate fibrations, a geometric perspective. — *J. Dydak*: Local n -connectivity of quotient spaces and one-point compactifications. — *S. Ferry*: A simple-homotopy approach to the finiteness obstruction. — *R. Lacher*: Generalized three-manifolds. — *S. Nowak and S. Spiez*: Some properties of deformation dimension. — *J. Walsh*: Dimension, cohomological dimension, and cell-like mappings. — COMPLEMENTS THEOREMS AND EMBEDDINGS UP TO SHAPE: *L. Husch and I. Ivanšić*: Embedding compacta up to shape. — *L. Husch and I. Ivanšić*: On shape concordances. — *R. Sher*: Complement theorems in shape theory. — *G. Venema*: Embeddings in shape theory. — SHAPE AND STRONG SHAPE. STEENROD HOMOLOGY: *F. Bauer*: Under what conditions are shape homology E_* and Steenrod homology sE_* isomorphic? — *F. Cathey*: Strong shape theory. — *S. Mardesic*: Inverse limits and resolutions. — *L. Mdzinarishvili*: Application of the shape theory in the characterization of exact homology theories and the strong shape homotopic theory.

Continuous lattices. — Proceedings of the conference on topological and categorical aspects of continuous lattices (workshop IV), held at the University of Bremen, Germany, November 9-11, 1979. — Edited by B. Banaschewski and R.-E. Hoffmann. — Lecture Notes in Mathematics, vol. 871. — Un vol. broché, 16,5 × 24, de x, 413 p. — Prix: DM 43.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Bernhard Banaschewski: Coherent frames. — *Bernhard Banaschewski*: The duality of distributive δ -continuous lattices. — *Heiko Bauer, Klaus Keimel und Roland Köhler*: Verfeinerungs- und Kürzungssätze für Produkte geordneter topologischer Räume und für Funktionen (-halb-) verbände. — *Marcel Erné*: Completion-invariant extension of the concept of continuous lattices. — *Marcel Erné*: Scott convergence and Scott topology in partially ordered sets, II. — *Gerhard Gierz and Klaus Keimel*: Continuous ideal completions and compactifications. — *Rudolf-E. Hoffmann*: Projective sober spaces. — *Rudolf-E. Hoffmann*: Continuous posets, prime spectra of completely distributive complete lattices, and Hausdorff compactifications. — *Karl H. Hofmann and Michael W. Mislove*: Local compactness and continuous lattices. — *Karl H. Hofmann and Fred Watkins*: The spectrum as a functor. — *J. M. E. Hyland*: Function spaces in the category of locales. — *Peter T. Johnstone*: Scott is not always sober. — *Peter T. Johnstone*: Injective toposes. — *George Markowsky*: A motivation and generalization of Scott's notion of a continuous lattice. — *George Markowsky*: Propaedeutic to chain-complete posets with basis. — *Evelyn Nelson*: \mathbf{Z} -continuous algebras. — *Friedhelm Schwarz*: "Continuity" properties in lattices of topological structures. — *Albert Stralka*: Fundamental congruences on Lawson semilattices. — *A. Tang*: Wadge reducibility and Hausdorff difference hierarchy in P_ω . — *Sibylle Weck*: Scott convergence and Scott topology in partially ordered sets, I. — *Oswald Wyler*: Dedekind complete posets and Scott topologies. — *Oswald Wyler*: Algebraic theories of continuous lattices.

Set theory and model theory. — Proceedings of an informal symposium, held at Bonn, June 1-3, 1979. — Edited by R. B. Jensen and A. Prestel. — Lecture Notes in Mathematics, vol. 872. — Un vol. broché, 16,5 × 24, de v, 174 p. — Prix: DM 21.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Keith J. Devlin: Morass-like constructions of κ_2 -trees in L . — *Hans-Dieter Donder*: Coarse morasses in L . — *H. D. Donder, R. B. Jensen, B. Koppelberg*: Some applications of the core model. — *Sabine Koppelberg*: A lattice structure on the isomorphism types of complete boolean algebras. — *Alexander Prestel*: Pseudo real closed fields. — *Tassilo von der Twer*: Some remarks on the mathematical incompleteness of Peano's arithmetic found by Paris and Harrington.

Constructive mathematics. — Proceedings of the New Mexico State University conference held at Las Cruces, New Mexico, August 11-15, 1980. — Edited by F. Richman. — Lecture Notes in Mathematics, vol. 873. — Un vol. broché, 16,5 × 24, de vii, 347 p. — Prix: DM 39.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Fred Richman: Seidenberg's condition P . — *Wim Ruitenburg*: Field extensions. — *Ray Mines and Fred Richman*: Dedekind domains. — *James H. Davenport*: Effective mathematics, the computer algebra viewpoint. — *Y. K. Chan*: On some open problems in constructive probability theory. — *Andrej Scedrov*: Consistency and independence results in intuitionistic set theory. — *W. A. Howard*: Computability of ordinal recursion of type level two. — *Jonathin P. Seldin*: A constructive approach to classical mathematics. — *David Isles*: On the notion of standard non-isomorphic natural number series. — *Nicolas D. Goodman*: Reflections on Bishop's philosophy of mathematics. — *Michael Beeson*: Formalizing constructive mathematics: why and how? — *J. Lambek and P. J. Scott*: Independence of premisses and the free topos. — *Richard Vesley*: An intuitionistic infinitesimal calculus. — *Newcomb Greenleaf*: Liberal constructive set theory. — *D. S. Bridges, A. Calder, W. Julian, R. Mines, F. Richman*: Locating metric complements in Euclidean space. — *Joan Rand Moschovakis*: A disjunctive decomposition theorem for classical theories. — *Douglas S. Bridges*: Towards a constructive foundation for quantum mechanics. — *A. S. Yessenin-Volpin*: About infinity, finiteness and finitization. — *Michael Gelfond*: A class of theorems with valid constructive counterparts. — *James R. Geiser*: Rational constructive analysis.

Abelian group theory. — Proceedings of the Oberwolfach conference, January 12-17, 1981. — Edited by R. Göbel and E. Walker. — Lecture Notes in Mathematics, vol. 874. — Un vol. broché, 16,5 × 24, de xxi, 447 p. — Prix: DM 48.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

32 exposés par: Laszlo Fuchs. — D. M. Arnold. — H. Bowman and K. M. Rangaswamy. — J. D. Reid. — E. L. Lady. — K. Benabdallah and O. Mutzbauer. — K. Benabdallah and A. Birtz. — L. Salce and P. Zanardo. — G. Sageev and S. Shelah. — P. C. Eklof and M. Huber. — J. Hausen. — A. H. Mekler. — L. Prochazka. — J. Irwin and T. Snabb. — R. Göbel, B. Wald and P. Westphal. — M. Dugas and B. Zimmermann-Huisgen. — R. Göbel, S. V. Richkov and B. Wald. — M. Huber and R. B. Warfield, Jr. — B. Franzen. — R. Mines. — A. Mader. — P. Plaumann. — K. Faltings. — L. Fuchs. — F. Kiefer. — P. Hill. — R. B. Warfield, Jr. — R. Hunter and E. Walker. — F. Richman. — J. H. Moore. — M. Höppner and H. Lenzing. — C. M. Ringel.

Heiner ZIESCHANG. — **Finite groups of mapping classes of surfaces.** — Lecture Notes in Mathematics, vol. 875. — Un vol. broché, 16,5 × 24, de viii, 340 p. — Prix: DM 34.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

On the Nielsen realization problem: preliminaries: The Nielsen realization problem: an introduction. Guide to the text. Linear fractional transformations. Non-Euclidean geometry. Discontinuous groups of the plane. On group extensions. — *Tori, crystallographic groups and the realization of mapping classes*: The modular problem for tori. Discontinuous groups of motions of the Euclidean plane. The group of automorphisms of $\mathbf{Z} \oplus \mathbf{Z}$. Effective extensions of $\mathbf{Z} \oplus \mathbf{Z}$. Crystallographic groups. Crystallographic groups: proofs. Cohomological interpretation of the Zassenhaus equations. — *Marked Riemann surfaces and Fuchsian groups and Fenchel's realization theorem*: Factor surfaces. Marked Riemann surfaces and Fuchsian groups. Moduli for the indecomposable marked Fuchsian groups. The space of moduli of marked Fuchsian groups. On other approaches to the modular problem. The Smith fixed point theorem. Realizing finite solvable groups of mapping classes. — *The Nielsen construction of finite groups of mapping classes*: The mappings of the limit points. Types of mappings on \overline{G}_F . Simple axis. On the construction of extensions. Extension to simple axes. Cross cuts. Extension to K_F . On the shift length. On the existence of a simple axis. — *On the Nielsen realization problem*: Introduction. The generalized Riemann-Hurwitz formula. On extensions without simple axes. The extension theorem in case of the existence of a simple axis and first applications. On the signature of subgroups. Further applications of the extension theorem. — *On finite groups of mapping classes of 3-manifolds: some applications*: Finite groups of mapping classes of fibered 3-manifolds. Examples. On finite groups of mapping classes of Seifert fiber spaces. Finite groups of mapping classes of Seifert fiber spaces that fiber over S^1 .

Algebraic geometry. — Proceedings of the Midwest algebraic geometry conference, University of Illinois at Chicago Circle, May 2-3, 1980. — Edited by A. Libgober and P. Wagreich. — Lecture Notes in Mathematics, vol. 862. — Un vol. broché, 16,5 × 24, de v, 281 p. — Prix: DM 29.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

I. Dolgachev, A. Libgober: On the fundamental group of the complement to a discriminant variety. — *W. Fulton, R. Lazarsfeld*: Connectivity and its applications in algebraic geometry. — *M. Hochster*: The dimension of an intersection in an ambient hypersurface. — *B. Moishezon*: Stable branch curves and braid monodromies. — *P. Orlik, L. Solomon*: Complexes for reflection groups. — *J. Rosoff*: The monoid of effective divisor classes on a complex torus. — *A. Sommese*: Hyperplane sections. — *J. Roberts, R. Speiser*: Schubert's enumerative geometry of triangles from a modern viewpoint.

Processus aléatoires à deux indices. — Colloque E.N.S.T. — C.N.E.T., Paris 1980. — Edité par H. Korezlioglu, G. Mazziotto et J. Szpirglas. — Lecture Notes in Mathematics, vol. 863. — Un vol. broché, 16,5 × 24, de v, 274 p. — Prix: DM 29.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

P. A. Meyer: Théorie élémentaire des processus à deux indices. — *D. Bakry*: Limites « quadrantales » des martingales. — *A. Millet*: Convergence and regularity of strong submartingales. — *G. Mazziotto, E. Merzbach, J. Szpirglas*: Discontinuités des processus croissants et martingales à variation intégrable. — *G. Mazziotto, J. Szpirglas*: Sur les discontinuités d'un processus cad-lag à deux indices. — *J. Brossard*: Régularité des martingales à deux indices et inégalités de normes. — *M. Ledoux*: Inégalités de Burkholder

pour martingales indexées par $\mathbf{N} \times \mathbf{N}$. — *D. Nualart* : Martingales à variation indépendante du chemin. — *M. Zakai* : Some remarks on integration with respect to weak martingales. — *M. Dozzi* : On the decomposition and integration of two-parameter stochastic processes. — *J. B. Walsh* : Optional increasing paths. — *D. Nualart, M. Sanz* : The conditional independence property in filtrations associated to stopping lines. — *X. Guyon, B. Prum* : Identification et estimation de semi-martingales représentables par rapport à un Brownien à un indice double. — *A. Al-Hussaini, R. J. Elliott* : Stochastic calculus for a two parameter jump process. — *H. Korezlioglu, P. Lefort, G. Mazziotto* : Une propriété markovienne et diffusions associées.

Complex analysis and spectral theory. — Seminar, Leningrad 1979/80. — Edited by V. P. Havin and N. K. Nikol'skii. — Lecture Notes in Mathematics, vol. 864. — Un vol. broché, $16,5 \times 24$, de vi, 480 p. — Prix: DM 48.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

A. B. Aleksandrov : Essays on non-locally convex Hardy classes. — *E. M. Dyn'kin* : The rate of polynomial approximation in the complex domain. — *V. P. Havin, B. Jöricke* : On a class of uniqueness theorems for convolutions. — *S. V. Hruščev, S. A. Vinogradov* : Free interpolation in the space of uniformity convergent Taylor series. — *S. V. Hruščev, N. K. Nikol'skii, B. S. Pavlov* : Unconditional bases of exponentials and of reproducing kernels. — *S. V. Kisliakov* : What is needed for a 0-absolutely summing operator to be nuclear ?. — *N. G. Makarov, V. I. Vasjunin* : A model for noncontractions and stability of the continuous spectrum. — *N. A. Shirokov* : Division and multiplication by inner functions in spaces of analytic functions smooth up to the boundary. — *A. L. Volberg* : Thin and thick families of rational fractions.

Roelof W. BRUGGEMAN. — **Fourier coefficients of automorphic forms.** — Lecture Notes in Mathematics, vol. 865. — Un vol. broché, $16,5 \times 24$, de iii, 201 p. — Prix: DM 25.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Introduction. — The universal covering group G . — Representations. — Automorphic models. — Standard and Whittaker models. — Intertwining operators. — Fourier coefficients of automorphic models. — The operators Θ_α . — Eisenstein models. — $L^2(\Gamma \backslash G, \chi)$. — The analytic continuation of the Eisenstein model. — Spectral decomposition of ${}^e L^2(\Gamma \backslash G, \chi)$. — The space H_σ^r . — Convolution operators. Scalar product of Poincaré series. Sum formula.

Jean-Michel BISMUT. — **Mécanique aléatoire.** — Lecture Notes in Mathematics, vol. 866. — Un vol. broché, $16,5 \times 24$, de xvi, 563 p. — Prix: DM 59.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Flots associés à des diffusions : Convergence C^0 des flots φ^n sur R^d . Convergence C^∞ des flots φ^n sur R^d . Propriétés différentielles et probabilistes du flot $\varphi.(\omega, \cdot)$ sur R^d . Application aux flots sur les variétés. Formule de Ito et formule de Stratonovitch généralisée. Extension des résultats aux équations de Ito. — *Propriétés d'intersection du flot $\varphi.(\omega, \cdot)$* : Diffusions construites sur le flot $\varphi.(\omega, \cdot)$. Intersections de tubes aléatoires. Transversalité stochastique. — *Intégrales stochastiques* : Intégrales stochastiques fonctions. Extensions. Intégrales non monotones. — *Calcul différentiel stochastique* : Action de φ sur les formes tensorielles. Intégration de formes différentielles sur des chaînes aléatoires. Formule de Stokes. Intégrales sur des surfaces non anticipatives. — *Diffusions sur des variétés symplec-*

tiques : Diffusions symplectiques. Diffusions hamiltoniennes. Formule de Ito-Stratonovitch pour les diffusions hamiltoniennes. Intégrales premières. Réduction de l'espace des phases. Diffusions hamiltoniennes sur un fibré cotangent. — *Problèmes variationnels et diffusions hamiltoniennes* : Dérivation de $\int_c \gamma$ par rapport à un paramètre. Extrémalité de l'intégrale $\int_c \gamma$ pour les diffusions hamiltoniennes sur un fibré cotangent. Eclatement du fibré cotangent. Formulation lagrangienne. Fonctions génératrices du flot symplectique. Equation de Hamilton-Jacobi généralisée. Changements de coordonnées dans l'équation de Hamilton-Jacobi et résolution markovienne de cette équation. Applications. — *Reconstruction de la structure hamiltonienne dans les problèmes d'optimisation stochastique classique* : Dérivation d'une structure hamiltonienne. Remarques sur la dérivation de la structure hamiltonienne. Retournement du temps. — *Formulation géométrique du calcul différentiel de Ito* : Transport parallèle le long d'une semi-martingale. Développement d'une semi-martingale. Formule de Ito géométrique. Approximation d'une diffusion par des polygones géodésiques dans R^d . — *Calcul différentiel stochastique en coordonnées covariantes* : Relèvement horizontal d'un flot dans les fibrés tensoriels. Calcul différentiel stochastique covariant. Géométrie symplectique en coordonnées covariantes. — *Relèvement de connexions dans un fibré cotangent et relèvement de diffusions* : Connexions sur T^*M . Relèvement d'une diffusion géométrique de Ito dans un fibré cotangent. Caractéristiques locales d'une semi-martingale de Ito à valeurs dans T^*M . Connexions sur TM et $TM \oplus T^*M$. Une formule variationnelle élémentaire. — *Approximation des flots associés à une diffusion de Ito sur une variété riemannienne à courbure négative* : Rappels sur les variétés à courbure négative. Approximation des diffusions sur une variété à courbure négative. — *Calcul variationnel en coordonnées covariantes sur des semi-martingales de Ito* : Retour sur l'éclatement du fibré cotangent. Problèmes variationnels sur des semi-martingales de Ito. Formulation pseudo-hamiltonienne des conditions d'extremum. Changement de connexion. Principe du maximum pour des équations de Ito.

Séminaire d'algèbre Paul Dubreil et Marie-Paule Malliavin. — Proceedings, Paris 1980 (33^e année). — Edité par M. P. Malliavin. — Lecture Notes in Mathematics, vol. 867. — Un vol. broché, 16,5 × 24, de v, 476 p. — Prix: DM 48.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Robert M. Fossum : Invariant theory, representation theory, commutative algebra — ménage à trois. — *Tatsuo Kimura* : On the construction of some relative invariants for $GL(n)$ ($n = 6,7,8$) by the decomposition of the Young diagrams. — *Wim H. Hesselink* : Concentration under actions of algebraic groups. — *I. G. Mac Donald* : Some conjectures for root systems and finite Coxeter groups. — *Anne Levy-Bruhl-Laperriere* : Spectre du de Rham-Hodge sur l'espace projectif quaternionique. — *G. Besson* : Groupe de Lie p -adique, immeuble et cohomologie. — *David Eisenbud* : Report on normal bundles of curves in P_3 . — *Jan-Erik Björk* : The Bernstein class of modules on algebraic manifolds. — *Thierry Levasseur* : Anneaux d'opérateurs différentiels. — *Marc Bayart* : Factorialité et séries formelles irréductibles II. — *Colette Schoeller* : Homologie d'anneaux locaux de dimension d'immersion 3. — *L. Gruson et C. U. Jensen* : Dimensions cohomologiques reliées aux foncteurs $\varinjlim (i)$. — *J. P. Van Deuren, J. Van Geel et F. Van Oystaeyen* : Genus and a Riemann-Roch theorem for non-commutative function fields in one variable. — *A. Verschoren* : Pour une géométrie algébrique non commutative. — *Jak Alev* : Sur la formule de Molien dans certaines algèbres enveloppantes. — *Joe W. Fisher* : Semi-prime ideals in rings with finite group actions revisited. — *François Couchot* : Les modules artiniens et leurs enveloppes quasi-injectives. — *Alfred W. Goldie* : The reduced rank in noetherian rings. — *Martin Lorenz* : Prime ideals in group algebras of polycyclic-by-finite groups: vertices and sources. — *K. W. Roggenkamp* : Structure of integral group rings. — *C. Musili et C. S. Seshadri* : Standard monomial theory.

Surfaces algébriques. — Séminaire de géométrie algébrique d'Orsay 1976-78. — Edité par J. Giraud, L. Illusie et M. Raynaud. — Lecture Notes in Mathematics, vol. 868. — Un vol. broché, 16,5 × 24, de v, 314 p. — Prix: DM 34.50. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

J. Giraud: Surfaces d'Hilbert-Blumenthal (d'après Hirzebruch, etc...). — *J. Giraud*: Surfaces d'Hilbert-Blumenthal II. — *J. Giraud*: Surfaces d'Hilbert-Blumenthal III. — *P. Deligne (rédigé par L. Illusie)*: Relèvement des surfaces $K3$ en caractéristique nulle. — *P. Deligne avec la collaboration de L. Illusie*: Cristaux ordinaires et coordonnées canoniques. — *N. Katz*: Serre-Tate local moduli. — *P. Berthelot*: Le théorème de dualité plate pour les surfaces (d'après J. S. Milne). — *L. Breen*: Extensions du groupe additif sur le site parfait. — *G. Rousseau*: Instabilité dans les espaces vectoriels. — *G. Rousseau*: Instabilité dans les fibrés vectoriels (d'après Bogomolov). — *M. Raynaud*: Fibrés vectoriels instables — applications aux surfaces (d'après Bogomolov).

Rolando Basim CHUAQUI. — **Axiomatic set theory: impredicative theories of classes.** — North-Holland mathematics studies, vol. 51. and Notas de matematica, vol. 78. — Un vol. broché, 16,5 × 24, de xv, 388 p. — Prix: Dfl 100.00. — North-Holland Publishing Company, Amsterdam/New York/Oxford, 1981.

Introduction: Informal background. Axioms. — *General class theory*: Introduction to general class theory. Relations. Functions and operations. Natural numbers. Generalized recursive definitions. Well-orderings. Cardinality. — *Morse-Kelley-Tarski class theory*: Introduction to Morse-Kelley-Tarski class theory. Structure of well-founded classes. Ordinal numbers. Cardinal numbers. Simple orderings. Alephs. The local axiom of choice and the generalized continuum hypothesis. Gauging sizes of sets and classes. — *Morse-Kelley-Tarski class theory with choice*: The global axiom of choice. Cardinality theory. Filters, ideals, and trees. — *Bernays class theory*: Inaccessibility. Weakly compact and larger cardinals.

James GLIMM, Arthur JAFFE. — **Quantum physics: a functional integral point of view.** — Un vol. relié, 16 × 24, de xx, 417 p. — Prix: DM 62.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1981.

An introduction to modern physics: Quantum theory. Classical statistical physics. The Feynman-Kac formula. Correlation inequalities and the Lee-Yang theorem. Phase transitions and critical points. Field theory. — *Function space integrals*: Covariance operator = Green's function = resolvent kernel = Euclidean propagator = fundamental solution. Quantization = integration over function space. Calculus and renormalization on function space. Estimates independent of dimension. Fields without cutoffs. Regularity and axioms. — *The physics of quantum fields*: Scattering theory: time-dependent methods. Scattering theory: time-independent methods. The magnetic moment of the electron. Phase transitions. The ϕ^4 critical point. The cluster expansion. From path integrals to quantum mechanics. Further directions.

Hans JARCHOW. — **Locally convex spaces.** — Mathematische Leitfäden. — Un vol. relié, 16 × 24, de 548 p. — Prix: DM 98.00. — B. G. Teubner, Stuttgart, 1981.

Linear topologies: Vector spaces. Topological vector spaces. Completeness. Inductive linear topologies. Baire topological vector spaces and webbed topological vector spaces. Locally r -convex topological spaces. Theorems of Hahn-Banach, Krein-Milman, and

Riesz. — *Duality theory for locally convex spaces*: Basic duality theory. Continuous convergence and related topologies. Local convergence and Schwartz spaces. Barrelledness and reflexivity. Sequential barrelledness. Bornological and ultrabornological spaces. On topological bases. — *Tensor products and nuclearity*: The projective tensor product. The injective tensor product. Some classes of operators. The approximation property. Ideals of operators in Banach spaces. Components of ideals on particular spaces. Nuclear locally convex spaces.

Social history of nineteenth century mathematics. — Papers from a workshop, Berlin, July 5-9, 1979. — Edited by Herbert Mehrrens, Henk Bos, Ivo Schneider. — Un vol. relié, $15,5 \times 23,5$, de XII, 301 p. — Prix: FS 44.00. — Birkhäuser, Boston/Basel/Stuttgart, 1981.

ASPECTS OF A FUNDAMENTAL CHANGE — THE EARLY NINETEENTH CENTURY: *Henk Bos*: Introduction. — *Dirk J. Struik*: Mathematics in the early part of the nineteenth century. — *Hans Niels Jahnke and Michael Otte*: Origins of the programm of "arithmetization of mathematics". — *Luke Hodgkin*: Mathematics and revolution from Lacroix to Cauchy. — THE PROFESSIONALIZATION OF MATHEMATICS AND ITS EDUCATIONAL CONTEXT: *Ivo Schneider*: Introduction. — *Ivo Schneider*: Forms of professional activity in mathematics before nineteenth century. — *Gert Schubring*: The conception of pure mathematics as an instrument in the professionalization of mathematics. — *Philip C. Enros*: Cambridge university and the adoption of analytics in early nineteenth century England. — *Leo Rogers*: A survey of factors affecting the teaching of mathematics outside the universities in Britain in the nineteenth century. — *Umberto Bottazzini*: Mathematics in a unified Italy. — *Horst-Eckart Gross*: The employment of mathematicians in insurance companies in the nineteenth century. — INDIVIDUAL ACHIEVEMENTS IN SOCIAL CONTEXT: *Henk Bos*: Introduction. — *David Bloor*: Hamilton and Peacock on the essence of algebra. — *Thomas Hawkins*: The Berlin school of mathematics. *Albert C. Lewis*: F. Schleiernacher's influence on H. Grassmann's mathematics. — *Herbert Mehrrens*: Social history of mathematics.

Bang-yen CHEN. — **Geometry of submanifolds and its applications.** — Un vol. broché, $18,5 \times 25,5$, de III, 96 p. — Prix: \$5.00. — Tokyo, Science University of Tokyo, 1981.

Submanifolds. — Surfaces with parallel normalized mean curvature vector. — Total mean curvature. — Generic submanifolds of Kaehler manifolds. — *CR*-submanifolds of Kaehler manifolds. — (M_+, M_-) — method and its applications. — Totally umbilical submanifolds.

Lebendige Zahlen: fünf Exkursionen. — Par Walter Borho, Don Zagier, Jürgen Rohlf, Hanspeter Kraft, Jens Carsten Jantzen. — Mathematische Miniaturen, vpl. 1. — Un vol. broché, $16,5 \times 18$, de VI, 135 p. — Prix: FS 18.00. — Birkhäuser Verlag, Basel/Boston/Stuttgart, 1981.

F. Hirzebruch: Vorwort. — Einleitung. — *Walter Borho*: Befreundete Zahlen: ein zweitausend Jahre altes Thema der elementaren Zahlentheorie. — *Don Zagier*: Die ersten 50 Millionen Primzahlen. — *Jürgen Rohlf*: Über Summen von zwei Quadraten. — *Hanspeter Kraft*: Algebraische Kurven und diophantische Gleichungen. — *Jens Carster Jantzen*: Beziehungen zwischen Darstellungstheorie und Kombinatorik.

Anders KOCK. — **Synthetic differential geometry.** — London mathematical society lecture note series, vol. 51. — Un vol. broché, 15×23 , de 311 p. — Prix: £13.00. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1981.

The synthetic theory: Basic structure on the geometric line. Differential calculus. Higher Taylor formulae (one variable). Partial derivatives. Higher Taylor formulae in several variables. Taylor series. Some important infinitesimal objects. Tangent vectors and the tangent bundle. Vector fields and infinitesimal transformations. Lie bracket — commutator of infinitesimal transformations. Directional derivatives. Some abstract algebra and functional analysis. Application to proof of Jacobi identity. The comprehensive axiom. Order and integration. Forms and currents. Currents defined using integration. Stokes' theorem. Weil algebras. Formal manifolds. Differential forms in terms of 1-neighbour simplices. Open covers. Differential forms as quantities. Pure geometry. — *Categorical logic*: Generalized elements. Satisfaction (1). Extensions and descriptions. Semantics of function objects. Axiom 1 revisited. Comma categories. Dense class of generators. Satisfaction (2), and topological density. Geometric theories. — *Models*: Models for axioms 1, 2, and 3. Models for ε -stable geometric theories. Axiomatic theory of well-adapted models. The algebraic theory of smooth functions. Germ-determined algebras. The open cover topology. Construction of well-adapted models. W -determined algebras, and manifolds with boundary. A field property of R , and the synthetic role of germ algebras. Order and integration in the Cahiers topos. — *Loose ends.* — *Historical remarks.* — *Appendices.*

Hans Joachim BAUES. — **Commutator calculus and groups of homotopy classes.** — London mathematical society lecture note series, vol. 50. — Un vol. broché, 15×23 , de 160 p. — Prix: £11.25. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1981.

Homotopy operations, nilpotent group theory and nilpotent Lie algebra theory: Commutator calculus. Distributivity laws in homotopy theory. Homotopy operations on spheres. Higher order Hopf invariants on spheres. — *Homotopy theory over a subring R of the rationals \mathbb{Q} with $1/2, 1/3 \in R$* : The homotopy Lie algebra and the spherical cohomotopy algebra. Groups of homotopy classes. The Hilton-Milnor theorem and its dual.

Marcel F. NEUTS. — **Matrix-geometric solutions in stochastic models: an algorithmic approach.** — Johns Hopkins series in the mathematical sciences, vol. 2. — Un vol. relié, $16 \times 23,5$, de XIII, 332 p. — Prix: £22.75/\$40.60. — The Johns Hopkins University Press, Baltimore/London, 1981.

Matrix-geometric invariant vectors: The main theorem. The case where the matrix A is irreducible. A case where the matrix A is reducible. Complex boundary behavior. The approach using complex analysis. Continuous-parameter Markov processes. Marginal and conditional probabilities. Moments. Computational procedures. — *Probability distributions of phase type*: Definitions and closure properties. Asymptotic behavior of PH -distributions. PH -renewal processes. Two applications of PH -distributions. — *Quasi-birth-and-death processes*: The bounded and unbounded $M/PH/1$ and $PH/M/c$ queues. The busy period structure. The computation of the matrix $G(x)$. The embedded Markov chain at left transitions. The busy period of the $PH/G/1$ queue. The $PH/PH/1$

queue as a *QBD* process. The simplicity of Erlang arrivals. Waiting time distributions in the *QBD* process. — *The GI/PH/1 queue and related models*: The *GI/PH/1* queue. Generalizations and variants of the *GI/PH/1* queue. A design problem for the *D/PH/1* queue. Some models for dams. The multi-server *GI/PH/c* queue. — *Buffer models*: Servers in series with a finite intermediate buffer. A. B. Clarke's tandem queue. A multiprogramming model. — *Queues in a random environment*: The random environment. The *M/M/1* queue and related models in a Markovian environment. A queue with server breakdowns and repairs. Overflow models. Two models in which the matrix *A* is triangular. A finite-source priority queue. Queues with paired customers.

E. RAMIS, C. DESCHAMPS, J. ODOUX. — **Cours de mathématiques spéciales. Vol. 5: Applications de l'analyse à la géométrie.** — Un vol. broché, 16 × 24, de VIII, 307 p. — Prix: FF 140.00. — Masson, Paris/New York/Barcelone/Milan/Mexico/Rio de Janeiro, 1981.

Etude affine des arcs: Compléments de topologie. Arcs géométriques. Construction du support d'un arc plan. Arc paramétré en coordonnées polaires. Courbes planes définies implicitement. Théorie élémentaire des enveloppes de droites. — *Etude métrique des arcs*: Longueur d'un arc; abscisse curviligne. Courbure; repère de Frenet; torsion. Compléments. — *Etude affine des nappes*: Généralités; plans tangents. Notions sur les nappes réglées. Sous-variétés; courbes et surfaces. — *Etude métrique des nappes et des surfaces*: Propriétés métriques locales. Aire d'une nappe géométrique; aire d'une surface. — *Intégrale d'une forme différentielle*: Formes différentielles. Intégrales curvilignes. Théorème de Green-Riemann. Intégrale d'une forme différentielle de degré deux. Théorème de Stokes; théorème d'Ostrogradski. Analyse vectorielle. — *Masses, centres et moments d'inertie*: Intégrale sur un système matériel. Centre d'inertie d'un système matériel. Moments d'inertie d'un système matériel.

N. BOURBAKI. — **Éléments de mathématique: espaces vectoriels topologiques, chapitres 1 à 5.** — Nouvelle édition. — Un vol. relié, 18 × 24,5 de 368 p. — Masson, Paris/New York/Barcelone/Milan/Mexico/Rio de Janeiro, 1981.

Espaces vectoriels topologiques sur un corps valué: Espaces vectoriels topologiques. Variétés linéaires dans un espace vectoriel topologique. Espaces vectoriels topologiques métrisables. *Ensembles convexes et espaces localement convexes*: Semi-normes. Ensembles convexes. Le théorème de Hahn-Banach (forme analytique). Espaces localement convexes. Séparation des ensembles convexes. Topologies faibles. Points extrémaux et génératrices extrémales. Espaces localement convexes complexes. — *Espaces d'applications linéaires continues*: Bornologie dans un espace vectoriel topologique. Espaces bornologiques. Espaces d'applications linéaires continues. Le théorème de Banach-Steinhaus. Applications bilinéaires hypocontinues. Le théorème du graphe borélien. — *La dualité dans les espaces vectoriels topologiques*: Dualité. Bidual. Espaces réflexifs. Dual d'un espace de Fréchet. Morphismes stricts d'espaces de Fréchet. Critères de compacité. Appendice. — *Espaces hilbertiens (théorie élémentaire)*: Espaces préhilbertiens et espaces hilbertiens. Familles orthogonales dans un espace hilbertien. Produit tensoriel d'espaces hilbertiens. Quelques classes d'opérateurs dans les espaces hilbertiens.

Jati K. SENGUPTA. — **Optimal decisions under uncertainty.** — Lecture notes in economics and mathematical systems, vol. 193. — Un vol. broché, 16,5 × 24,5, de VII, 156 p. — Prix: DM 28.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1981.

Optimal decisions : theory and practice. — *Linear programming under uncertainty* : Mixed strategy solutions. Informational efficiency. Econometric tests. — *Risk aversion in decision models* : Risk aversion in economic models. Applications in other models. Selected empirical applications. — *Linear allocation rules under uncertainty* : Comparative analysis of allocation rules. Estimation and regulation by allocation. Team decisions as games. Allocation under imperfect competition. — *Economic planning under uncertainty* : Input-output model under risk aversion. Output planning under imperfect competition. Stabilization policy under constraints. — *Stochastic programs as nonzero sum games* : Games with unknown parameters. Constrained statistical games. — *Research trends and problems.*

F. A. SZÁSZ. — **Radicals of rings.** — A Wiley-interscience publication. — *Disquisitiones mathematicae hungaricae*, vol. 11. — Un vol. relié, de 187 p., 17 × 24, — Prix : £14.75. — John Wiley & Sons, Chichester/New York/Brisbane/Toronto, (distributed throughout the Socialist countries by Akadémiai Kiado, Budapest), 1981.

General theory of the radicals : The definition and the most important properties of radicals. Relative independence of axioms for the Amitsur-Kurosh radical property of a ring. The upper radical. The lower radical. Sets of radical classes. Decompositions of the class of all rings having no non-trivial ideals. The radical of an algebra over an operator domain and the radical of a full matrix ring. A property of hereditary radicals and of strong semisimplicities. Radicals and operator modules. The definition of a Maranda-Michler quasiradical. — *Theory of the supernilpotent and special radicals* : Supernilpotent and special radicals. Special classes of subdirectly irreducible rings. Supplementing, dual and subidempotent radicals. Supernilpotent radicals and direct decompositions of a ring with minimum condition on principal right ideals. Special modules and special radicals. — *Nil radicals* : The upper and lower nil radicals in the sense of Baer. The lower nil radical and prime ideals. Nil radicals as Amitsur — Kurosh radicals. Hereditary subradicals of the lower nil radical. The existence of a nil ring which is not locally nilpotent. The Levitzki nil radical. Results concerning the Levitzki nil radical. Nil rings with certain conditions. Pivotal monomials. The generalized nil radical. — *The Jacobson radical* : Irreducible right modules, right primitive ideals, modular and quasi-modular right ideals. The existence of a right primitive ring which is not left primitive. Quasi-regular elements. Right primitive matrix rings. The Jacobson radical of rings related to a ring. The Jacobson radical of an algebra over a field. Example of a right primitive ring whose proper homomorphic images are nilpotent, and example of a simple ring which is a radical ring in the sense of Jacobson. The density theorem for right primitive rings. Radicals which coincide with the Jacobson radical on the class of rings with minimum condition on right ideals. — *The Brown-McCoy radical* : The definition of the Brown-McCoy radical. The Brown-McCoy radical as an (F, Ω) -subgroup and as an (F, Ω_1, Ω) -subgroup. The Brown-McCoy radical as a (k, l, m, n) -radical. The Brown-McCoy radical of a full matrix ring. The upper radical determined by a class of simple rings with unity element. Special and completely non-special semisimple rings in the sense of Brown and McCoy. A classification of the semisimple rings in the sense of Brown and McCoy. Brown-McCoy radical rings with a module-theoretical property. — *Further concrete radicals and zeroid-pseudoradicals* : The maximal von Neumann regular ideal as a radical. The maximal biregular ideal of a ring. Zeroid-pseudoradicals.

SZOLEM MANDELBROJT. — **Selecta.** — Ouvrage publié par le Comité national français de mathématiciens. — Un vol. relié, 16,5 × 24,5, de 639 p. — Gauthier-Villars, Paris, 1981.

La série de Taylor et son prolongement analytique (avec Jacques Hadamard); Scientia, 41, 2^e éd., 1926. — Modern researches on the singularities of functions defined by Taylor's series; The Rice institute pamphlet, 14, 1927. — Analytic functions and classes of infinitely differentiable functions; The Rice institute pamphlet, 29, 1942. — Dirichlet series; The Rice institute pamphlet, 31, 1944. — General theorems of closure; The Rice institute pamphlet, 38, 1951. — Composition theorems; The Rice institute pamphlet, 45, 1958.

Combinatorics: proceedings of the 8th British combinatorial conference, University College, Swansea 1981. — Ed. by H. N. V. Temperley. — London mathematical society lecture note series, vol. 52. — Un vol. broché, 16,5 × 23, de 190 p. — Prix: £11.95. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1981.

L. Babai: On the abstract group of automorphisms. — *Lowell W. Beineke*: A tour through tournaments or bipartite and ordinary tournaments: a comparative survey. — *Henry Beker and Fred Piper*: Shift register sequences. — *Bela Bollobas*: Random graphs. — *F. R. K. Chung and R. L. Graham*: Recent results in graph decompositions. — *Branko Grunbaum and G. C. Shephard*: The geometry of planar graphs. — *F. J. MacWilliams*: Some connections between designs and codes. — *R. W. Robinson*: Counting graphs with a duality property. — *John G. Thompson*: Ovals in a projective plane of order 10.

V. I. ARNOLD. — **Singularity theory: selected papers.** — London mathematical society lecture note series, vol. 53. — Un vol. broché, 16,5 × 23, de 266 p. — Prix: £12.50. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1981.

Singularities of smooth mappings. — On matrices depending on parameters. — Remarks on the stationary phase method and Coxeter numbers. — Normal forms of functions in neighbourhoods of degenerate critical points. — Critical points of smooth functions and their normal forms. — Critical points of functions on a manifold with boundary, the simple Lie groups B_k , C_k and F_4 with singularities of evolutes. — Indices of singular points of 1-forms on a manifold with boundary, convolution of invariants of reflection groups and singular projections of smooth surfaces.

Integrable systems: selected papers. — S. P. Novikov, I. M. Gelfand, L. A. Dikii, B. V. Yusin, B. A. Dubrovin, V. B. Matveev, I. M. Krichever, A. M. Vinogradov, B. A. Kupershmidt, I. S. Krasilshchik. — London mathematical society lecture note series, vol. 60. — Un vol. broché, 16,5 × 23, de 266 p. — Prix: £13.00. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1981.

I. M. Gelfand and L. A. Dikii: Asymptotic behaviour of the resolvent of Sturm-Liouville equations and the algebra of the Korteweg-de Vries equations. — *B. V. Yusin*: Proof of a variational relation between the coefficients of the asymptotic expansion of the resolvent of a Sturm-Liouville equation. — *B. A. Dubrovin, V. B. Matveev and S. P. Novikov*: Non-linear equations of Korteweg-de Vries type, finite-zone linear operators and abelian varieties. — *I. M. Krichever*: Methods of algebraic geometry in the theory of non-linear equations. — *I. M. Krichever*: Algebraic curves and non-linear difference equations. — *A. M. Vinogradov and B. A. Kupershmidt*: The structures of Hamiltonian mechanics. — *A. M. Vinogradov and I. S. Krasilshchik*: What is Hamiltonian formalism?

Ernest SONDHEIMER and Alan ROGERSON. — **Numbers and infinity: a historical account of mathematical concepts.** — Un vol. broché, 14 × 21,5 de x, 172 p. — Prix: £9.50 hard-cover/£3.95 paperback. — Cambridge University Press, Cambridge/London/New York/New Rochelle/Melbourne/Sydney, 1981.

Representation of numbers. — The integers. — Types of numbers. — Historical development of the number concept I. — The cubic equation. — Historical development of the number concept II. — Complex numbers, quaternions and vectors. — Greek ideas about infinity. — The calculus in the 17th century. — The function concept. — Transfinite numbers.

Peter J. HUBER. — **Robust statistics.** — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 23,5, de ix, 308 p. — Prix: £21.40. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1981.

Generalities: Why robust procedures? What should a robust procedure achieve? Qualitative robustness. Quantitative robustness. Infinitesimal aspects. Optimal robustness. Computation of robust estimates. — *The weak topology and its metrization*: The weak topology. Lévy and Prohorov metrics. The bounded Lipschitz metric. Fréchet and Gâteaux derivatives. Hampel's theorem. — *The basic types of estimates*: Maximum likelihood type estimates (*M*-estimates). Linear combinations of order statistics (*L*-estimates). Estimates derived from rank tests (*R*-estimates). Asymptotically efficient *M*-, *L*-, and *R*-estimates. — *Asymptotic minimax theory for estimating a location parameter*: Minimax bias. Minimax variance: preliminaries. Distributions minimizing Fisher information. Determination of F_0 by variational methods. Asymptotically minimax *M*-estimates. On the minimax property for *L*- and *R*-estimates. Descending *M*-estimates. Questions of asymmetric contamination. — *Scale estimates*: *M*-estimates of scale. *L*-estimates of scale. *R*-estimates of scale. Asymptotically efficient scale estimates. Distributions minimizing Fisher information for scale. Minimax properties. — *Multiparameter problems, in particular joint estimation of location and scale*: Consistency of *M*-estimates. Asymptotic normality of *M*-estimates. Simultaneous *M*-estimates of location and scale. *M*-estimates with preliminary estimates of scale. Quantitative robustness properties of simultaneous estimates for location and scale. The computation of *M*-estimates. Studentizing. — *Regression*: The classical linear least squares case. Robustizing the least squares approach. Asymptotics of robust regression estimates. Conjectures and empirical results. Asymptotic covariances and their estimation. Concomitant scale estimates. Computation of regression *M*-estimates. Moderate leverage points. Analysis of variance. — *Robust covariance and correlation matrices*: Estimation of matrix elements through robust variances. Estimation of matrix elements through robust correlation. An affinity invariant approach. Estimates determined by implicit equations. Existence and uniqueness of solutions. Influence functions and qualitative robustness. Consistency and asymptotic normality. Breakdown point. Least informative distributions. Some notes on computation. — *Robustness of design*: Minimax global fit. Minimax slope. — *Exact finite sample results*: Lower and upper probabilities and capacities. Robust tests. Sequential tests. The Neyman-Pearson lemma for 2-alternating capacities. Estimates derived from tests. Minimax interval estimates. — *Miscellaneous topics*: Hampel's extremal problem. Shrinking neighborhoods.

Robert GILMORE. — **Catastrophe theory for scientists and engineers.** — A Wiley-interscience publication. — Un vol. relié, 17 × 24, de xvii, 666 p. — Prix: £33.95. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1981.

The program of catastrophe theory. — The local character of potentials. — Change of variables: canonical forms. — Change of variables: perturbations. — The “Crowbar principle”. — Geometry of the fold and the cusp. — Catastrophe organization. — Catastrophe conventions. — Catastrophe flags. — Thermodynamics. — Structural mechanics. — Aerodynamics. — Caustics and diffraction patterns. — Jordan-Arnol'd canonical form. — Quantum mechanics. — Climate. — Beyond the elementary catastrophes. — Gradient dynamical systems. — Autonomous dynamical systems. — Equations exhibiting catastrophes. — Thom's theorem. — Transversality. — Determinacy and unfolding.

Brian D. RIPLEY. — **Spatial statistics**. — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 24, de x, 252 p. — Prix: £22.15. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1981.

Introduction. — *Basic stochastic processes*: Definitions. Covariances and spectra. Poisson and point processes. Gibbs processes. Monte Carlo methods and simulation. — *Spatial sampling*: Sampling schemes. Error variances. Estimating sampling errors. Optimal location of samples. — *Smoothing and interpolation*: Trend surfaces. Moving averages. Tessellations and triangulations. Stochastic process prediction. Contouring. — *Regional and lattice data*: Two-dimensional spectral analysis. Spatial autoregressions. Agricultural field trials. Regression and spatial autocorrelation. — *Quadrat counts*: Indices. Discrete distributions. Blocks of quadrats. One-dimensional examples. Two-dimensional examples. — *Field methods for point patterns*: Distance methods. Forestry estimators. Line transects. — *Mapped point patterns*: Basic parameters. Nearest-neighbor methods. Second moments. Models. Comparative studies. Examples. — *Image analysis and stereology*: Random set theory. Basic quantities. Stereological sampling. Size distributions.

T. S. ARTHANARI, Yadolah DODGE. — **Mathematical programming in statistics**. — Wiley series in probability and mathematical statistics. — Un vol. relié, 15 5 × 23, de xviii, 413 p. — Prix: £24.05. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1981.

Linear regression analysis. — Generalized inverses in linear statistical models. — Theory of testing statistical hypotheses. — Sampling. — Design and analysis of experiment. — Cluster analysis.

Steven F. ARNOLD. — **The theory of linear models and multivariate analysis**. — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 24, de xv, 474 p. — Prix: £27.30. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1981.

Basic statistical definitions and theorems. — Subspaces and projections. — Properties of the multivariate and spherical normal distributions. — Introduction to linear models. — A sufficient statistic. — Estimation. — Tests about the mean. — Simultaneous confidence intervals-Scheffé type. — Tests about the variance. — Asymptotic validity of procedures under nonnormal distributions. — James-Stein and ridge estimators. — Inference based on the studentized range distribution and Bonferroni's inequality. — The generalized linear model. — The repeated measures model. — Random effects and mixed models. — The correlation model. — The distribution theory for multivariate analysis. — The

multivariate one- and two-sample models; inference about the mean vector. — The multivariate linear model. — Discriminant analysis. — Testing hypotheses about the covariance matrix. — Simplifying the structure of the covariance matrix. — Appendix: some matrix algebra.

Ulf GRENANDER. — **Abstract inference.** — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 24, de IX, 526 p. — Prix: £25.90. — John Wiley and Sons, New York/Chichester/Brisbane/Toronto, 1981.

Introduction: The two objects of study. Observing general objects. Parametric study of nonparametric problems. General approach, notation. — **SOME PROBABILITY THEORY ON ABSTRACT SPACES**: *Probabilistic background*: Probabilities in function spaces. Probabilities in topological vector spaces. Probabilities in locally compact spaces. — *Geometry of stochastic processes*: Curves in Hilbert space. Calculus of second-order processes. Representations of processes. Special representations. Toeplitz theory of stationary process. Reproducing covariance kernels. — **INFERENCE IN ABSTRACT SAMPLE SPACE**: *General inference in abstract sample space*: Likelihood ratios in abstract space. Calculating Radon-Nikodym derivatives. Perpendicular measures and consistent estimation. — *Linear inference*: The finite-dimensional situation. Consistent estimation. BLUES for stochastic processes. Asymptotic optimality; discrete time. Asymptotic optimality; continuous case. Linear inference in Banach spaces. Selecting linear functionals for estimation. — *Testing Gaussian processes*: Testing mean value functions. Testing covariance functions. Selecting linear functionals for testing. — *Inference in Markov processes*: The infinitesimal generator as parameter. Finite Markov chains. Birth-and-death processes with linear growth. Processes with independent increments. Estimation for diffusion processes. Likelihood estimation for some general Markov processes. — **INFERENCE IN ABSTRACT PARAMETER SPACE**: *Regularization in abstract parameter space*: Parametric methods for nonparametric questions. Direct methods in abstract parameter space. Regularization of spectral estimates. Regularization of frequency estimates. Regularization of sets. General regularization. — *Sieves in parameter space*: Parameter in l_1 -space. Parameter in L_1 -space. Parameter in l_2 - and L_2 -spaces. Parameter in C -spaces. Parameter in a BV -space. Operators as parameter. Parameter in groups. Sets as parameters. — *General parameter space*: General conditions for sieves. Regularization via sieves. Sieves in general. Cramer-Rao's inequality in Banach spaces.

N. R. DRAPER, H. SMITH. — **Applied regression analysis.** — Second edition. — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 24, de XIV, 709 p. — Prix: £19.95. — John Wiley & Sons, Inc., New York/Chichester/Brisbane/Toronto, 1981.

Fitting a straight line by least squares: Introduction: the need for statistical analysis. Straight line relationships between two variables. Linear regression: fitting a straight line. The precision of the estimated regression. Examining the regression equation. Lack of fit and pure error. The correlation between X and Y . Inverse regression (straight line case). Some practical implications. — *The matrix approach to linear regression*: Fitting a straight line in matrix terms: the estimates of β_0 and β_1 . The analysis of variance in matrix terms. The variances and covariance of b_0 and b_1 from the matrix calculation. Variance of \hat{Y} using the matrix development. Summary of matrix approach to fitting a straight line. The general regression situation. The "extra sum of squares" principle.

Orthogonal columns in the X -matrix. Partial F -tests and sequential F -tests. Testing a general linear hypothesis in regression situations. Weighted least squares. Bias in regression estimates. Restricted least squares. Some notes on errors in the predictors (as well as in the response). Inverse regression (multiple predictor case); selected useful matrix results; expected value of extra sum of squares; how significant should my regression be? Lagrange's undetermined multipliers. — *The examination of residuals*: Overall plot. Time sequence plot. Plot against \hat{Y}_i . Plot against the predictor variables X_{ij} , $i = 1, 2, \dots, n$. Other residuals plots. Statistics for examination of residuals. Correlations among the residuals. Outliers. Serial correlation in residuals. Examining runs in the time sequence plot of residuals. The Durbin-Watson test for a certain type of serial correlation. Detection of influential observations; normal and half-normal plots. — *Two predictor variables*: Multiple regression with two predictor variables as a sequence of straight-line regressions. Examining the regression equation. — *More complicated models*: Polynomial models of various orders in the X_j . Models involving transformations other than integer powers. Families of transformations. The use of "dummy" variables in multiple regression. Centering and scaling; performing the regression in correlation form. Orthogonal polynomials. Transforming X matrices to obtain orthogonal columns. Regression analysis of summary data. — *Selecting the "best" regression equation*: All possible regressions. "Best subset" regression. The backward elimination procedure. The stepwise regression procedure. A drawback to understand but not be overly concerned about. Variations on the previous methods. Ridge regression. PRESS. Principal component regression. Latent root regression. The stagewise regression procedure. Summary. Computational method for stepwise regression. Robust regression. Some comments on statistical computer packages; canonical form of ridge regression. — *Two specific problems*: The first problem. Examination of the data. Choosing the first variable to enter regression. Construction of new variables. The addition of a cross-product term to the model. Enlarging the model. The second problem. Worked examples of second-order surface fitting for $k = 3$ and $k = 2$ variables. — *Multiple regression and mathematical model building*: Planning the model building process. Development of the mathematical model. Validation and maintenance of the mathematical model. — *Multiple regression applied to analysis of variance problems*: The one-way classification: an example. Regression treatment of the one-way classification example. The one-way classification. Regression treatment of the one-way classification using the original model. Regression treatment of the one-way classification independent normal equations. The two-way classification with equal numbers of observations in the cells: an example. Regression treatment of the two-way classification example. The two-way classification with equal numbers of observations in the cells. Regression treatment of the two-way classification with equal numbers of observations in the cells. Example: the two-way classification. Comments. — *An introduction to nonlinear estimation*: Least squares in the nonlinear case. Estimating the parameters of a nonlinear system. An example. A note on reparameterization of the model. The geometry of linear least squares. The geometry of nonlinear least squares. Nonlinear growth models. Nonlinear models: other work. — *Normal distribution*. — *Percentage points of the t -distribution*. — *Percentage points of the F -distribution*.

Reuven Y. RUBINSTEIN. — **Simulation and the Monte Carlo method**. — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 24, de xv, 278 p. — Prix: £24.35. — John Wiley and Sons, New York/Chichester/Brisbane/Toronto, 1981.

Systems, models, simulation, and the Monte Carlo methods: Systems. Models. Simulation and the Monte Carlo methods. A machine shop example. — *Random number*

generation : Congruential generators. Statistical tests of pseudorandom numbers. — *Random variate generation* : Inverse transform method. Composition method. Acceptance-rejection method. Simulation of random vectors. Generating from continuous distributions. Generating from discrete distributions. — *Monte Carlo integration and variance reduction techniques* : Monte Carlo integration. Variance reduction techniques. — *Linear equations and Markov chains* : Simultaneous linear equations and ergodic Markov chains. Integral equations. The Dirichlet problem. — *Regenerative method for simulation analysis* : Regenerative simulation. Point estimators and confidence intervals. Examples of regenerative processes. Selecting the best stable stochastic system. The regenerative method for constrained optimization problems. Variance reduction techniques. — *Monte Carlo optimization* : Random search algorithms. Efficiency of random search algorithms. Local and integral properties of optimum trial random search algorithm RS-4. Monte Carlo method for global optimization. A closed form solution for global optimization. Optimization by smoothed functionals. — Exercices à la fin de chaque chapitre.

N. N. VAKHANIA. — **Probability distributions on linear spaces.** — North-Holland series in probability and applied mathematics. — Un vol. relié, 16 × 24, de xiv, 123 p. — Prix: United States and Canada: \$34.95, rest of the world: Dfl. 105.00. — Elsevier-North-Holland, Inc., New York/Oxford, 1981.

Characteristic functionals of probability distributions on spaces of numerical sequences : The space R^N : basic properties. Probability distributions on the space R^N . Probability distributions on subspaces of the space R^N . Characteristic functionals of distributions on subspaces of the space R^N . — *Gaussian distributions on spaces of numerical sequences* : The definition and basic properties of Gaussian distributions: Gaussian distributions on the spaces R^N and l^p ($1 \leq p < \infty$). Gaussian distributions on the spaces c_0 and l^∞ . — *Distributions on Hilbert space* : Some general problems. The estimation of the convergence rate in the central limit theorem. Some other problems. — *Some basic problems of the theory of probability distributions on Banach spaces* : Introductory remarks: Fourier analysis in Banach spaces. The Pettis integral and the expectation of random elements. Operators mapping spaces into their conjugates and the covariance of random elements. The characterization of classes of covariance operators.

Raymond SMULLYAN. — **Quel est le titre de ce livre ? : 253 casse-tête logiques.** — Traduit de l'anglais par Jérôme Marthon. — Illustrations de Pierre Berloquin. — Un vol. relié, 16 × 22, de 250 p. — Paris, Dunod, 1981.

Récréations logiques : Attrapé ? Enigmes et attrape-nigauds. Les purs et les pires. Alice dans la forêt de l'oubli. — *Les coffrets de Portia et autres mystères* : Le mystère des coffrets de Portia. Dans les dossiers de l'inspecteur Craig. Comment échapper aux loups-garous et autres conseils utiles à la jeunesse. Enigmes logiques. Bellini ou Cellini ? — *Contes de fée* : L'île de Baal. L'île des Zombies. Dracula est-il toujours vivant ? — *La logique et ses multiples splendeurs* : La logique dans la vie courante. Comment démontrer n'importe quoi. Du paradoxe à la vérité. La découverte de Gödel. — Solutions des problèmes à la fin de chaque chapitre.

Georges de RHAM. — **Œuvres Mathématiques.** — Un vol. relié, 17 × 24,5, de 752 p. avec un portrait. — Prix: FS 110. — L'Enseignement Mathématique, Université de Genève, 1981.

Première partie : Topologie et Analyse. — Sur la dualité en Analysis situs. Intégrales multiples et Analysis situs. Sur l'Analysis situs des variétés à n dimensions (Thèse, Paris, 1931). Rapport sur la thèse de G. de Rahm par Elie Cartan. Sur les périodes des intégrales de première espèce attachées à une variété algébrique. Sur la théorie des intersections et les intégrales multiples. Sur la notion d'homologie et les résidus d'intégrales multiples. Relations entre la topologie et la théorie des intégrales multiples. Sur les nouveaux invariants topologiques de M. Reidemeister. Über mehrfache Integrale. Sur les complexes avec automorphismes. Sur un procédé de formation d'invariants intégraux. Sur une décomposition des chaînes d'un complexe. Les formes différentielles harmoniques. Sur la théorie des formes différentielles harmoniques. Sur les conditions d'homéomorphie de deux rotations de la sphère à n dimensions, et sur les complexes avec automorphismes. Harmonic Integrals (Lectures delivered at the Institute for Advanced Study, Princeton, 1950). Intégrales harmoniques et théorie des intersections. Complexes à automorphismes et homéomorphie différentiable. Sur un théorème de Stieltjes relatif à certaines matrices. Sur les espaces de Riemann réductibles. La notion de valeur à la frontière pour un courant. Sur la division de formes et de courants par une forme linéaire. Sur certaines équations de la théorie des formes différentielles harmoniques. On currents in an analytic complex manifold. On the area of complex manifolds. Solution élémentaire d'opérateurs différentiels du second ordre. Sur un théorème de Marston Morse. La théorie des formes différentielles extérieures et l'homologie des variétés différentiables (Cours CIME, 1961). Factorisation topologique du disque à cinq dimensions. Involutions topologiques de S^4 . Sur les transformations topologiques d'une sphère à n dimensions en elle-même. Reidemeister's torsion invariant and rotations of S^n . Torsion et type simple d'homotopie. Sur les invariants de torsion de Reidemeister-Franz et de J. H. C. Whitehead. Introduction aux polynômes d'un nœud. Le type simple d'homotopie d'une variété différentiable. Sur les polygones générateurs de groupes fuchsien. Sur certaines applications génériques d'une variété close à 3 dimensions dans le plan. L'œuvre d'Elie Cartan et la topologie. Quelques souvenirs des années 1925-1950. Homéomorphie des rotations de S^n — Evolution d'un problème, souvenirs.

Seconde partie : Courbes et fonctions définies par des équations fonctionnelles. — Un peu de mathématiques à propos d'une courbe plane. Sur certaines équations fonctionnelles. Sur une courbe plane. Sur un exemple de fonction continue sans dérivée. Sur quelques courbes définies par des équations fonctionnelles. Sur les courbes limites de polygones obtenus par trisection. Sur quelques fonctions différentiables dont toutes les valeurs sont des valeurs critiques.

Logic and Algorithmic. — An international symposium held in honour of Ernst Specker, Zurich, February 5-11, 1980. — Un vol. broché, 16 × 24, de 392 pages. — Prix: FS 90. — Monographie de l'Enseignement Mathématique N° 30, Université de Genève, 1982.

Ce volume réunit des articles d'exposition et des contributions originales d'éminents représentants de la logique mathématique et de la théorie des algorithmes, qui illustrent les fructueux rapports existant entre ces deux domaines.

H. Wang : Specker's mathematical work from 1949 to 1979. — *W. Baur* : Die Theorie der Paare reell abgeschlossener Körper. — *W. Baur* and *M. O. Rabin* : Linear disjointness

and algebraic complexity. — *A. Borodin*: Structured vs general models in computational complexity. — *R. Bott*: An equivariant setting of the Morse theory. — *S. A. Cook*: Towards a complexity theory of synchronous parallel computation. — *G. Coray*: Complexité d'algorithmes modulaires. — *C. Elgot* and *J. C. Shepherdson*: An equational axiomatization of the algebra of reducible flowchart schemes. — *P. Erdős*: Problems and results on finite and infinite combinatorial analysis II. — *M. J. Fischer* and *M. S. Paterson*: The fast skew-closure algorithm. — *M. Fürer*: Alternation and the Ackermann case of the decision problem. — *H. Gaifman* and *C. Dimitracopoulos*: Fragments of Peano's arithmetic and the MRDP theorem. — *J.-Y. Girard*: Proof-theoretic investigations of inductive definitions (Part I). — *J. Heintz* and *C.-P. Schnorr*: Testing polynomials which are easy to compute. — *R. M. Karp* and *R. J. Lipton*: Turing machines that take advice. — *S. Kochen* and *S. Kripke*: Non-standard models of Peano arithmetic. — *S. Koppelberg*: On Boolean algebras with distinguished subalgebras. — *J. B. Paris* and *C. Dimitracopoulos*: Truth definitions for Δ_0 formulae. — *W. Paul* and *J. Simon*: Decision trees and random access machines. — *A. Prestel*: Zur Axiomatisierung gewisser affiner Geometrien. — *A. Schönhage*: Random access machines and Presburger arithmetic. — *L.G. Valiant*: Reducibility by algebraic projections. — *M. Ziegler*: Einige unentscheidbare Körpertheorien.
