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Charles DELORME, Christine LAVIT, Alain MEZARD et Jean-Claude RAOULT. — **Solutions développées des exercices (du traité « Algèbre » par S. MacLane et G. Birkhoff).** — 3^e partie: Les grands théorèmes. — Un vol. broché, 15,5 × 25, de 184 p. — Gauthier-Villars, Paris (en Suisse: Diffusion SPES, Lausanne), 1976.

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Preliminaries: Notation and basic definitions. Integration with respect to stochastic processes of bounded variation. Adapted processes and stopping times. — *Generalised martingales and general theory of processes*: Discrete martingales. Continuous parameter martingales. Classification of stopping times. Basic sub σ -algebras of $\Sigma = B \otimes F$ and projections of stochastic processes. Processes of bounded variation and projections. Quasimartingales. — *Stochastic integration*: Integration with respect to measures with values in a Banach space. Stochastic integration with respect to square integrable martingales and martingales of bounded variation. Locally summable and summable stochastic processes. Decomposition of the space SM of summable martingales and representation of martingales as stochastic integrals.

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J. R. HIGGINS. — **Completeness and basis properties of sets of special functions.** — Cambridge tracts in mathematics, vol. 72. — Un vol. relié, 14,5 × 22, de x, 134 p. — Prix: £9.80. — Cambridge University Press, Cambridge/London/New York/Melbourne, 1977.

Foundations: Notes on metric spaces. Notes on the L^p spaces. Orthogonal sequences in Hilbert space. Biorthogonal systems in Hilbert space. — *Orthogonal sequences*: Complete sequences of polynomials. The Vitali completeness criterion. The Daxzell completeness criterion. The functions of Rademacher, Walsh and Haar. CON sequences and the reproducing kernel. The method of isometric transformation. CON sequences of complex functions. — *Non-orthogonal sequences*: The stability of bases. A complex variable method. Non-orthogonal Fourier-Bessel and Legendre functions. Some theorems of Müntz and Szasz. — *Differential and integral operators*: Sturm-Liouville systems. Singular boundary value problems. Integral operators. — *Appendix 1*: Supplementary theorems. — *Appendix 2*: Definitions of special functions. — *Appendix 3*: Some complete sequences of special functions.

Martin DAVIS. — **Applied nonstandard analysis.** — Pure and applied mathematics, a Wiley-Interscience series of texts, monographs and tracts. — Un vol. relié, 16 × 24, de xi, 181 p. — Prix: £12.70. — John Wiley and Sons, New York/London/Sydney/Toronto, 1977.

Introduction: Why nonstandard analysis? Infinitesimals as ideal elements. The role of logic. Three techniques. Mathematical logic and rigor. Numbering of theorems. — *Universes and languages*: Sets and relations. Filters. Individuals and superstructures. Universes. Languages. Semantics. Łos' theorem. Concurrence, infinite integers, internal sets. Recapitulation. Exercises. — *Real numbers and hyperreal numbers*: Ordered fields. Nonstandard theory of Archimedean fields. The real numbers. The hyperreal numbers. Real sequences and functions. Prolongation theorems. Nonstandard differential calculus. Additivity. The existence of nonmeasurable sets. Exercises. — *Topological and metric spaces*: Topological spaces. Mappings and products. Topological groups. The existence of Haar measure. Metric spaces. Uniform convergence. Uniform continuity and equicontinuity. Compact mappings. — *Normed linear spaces*: Linear spaces. Compact operators. Integration of Banach space valued functions. Differential calculus. — *Hilbert space*: Unitary spaces. Orthogonal projections. The Bernstein-Robinson theorem. The spectral theorem for compact Hermitian operators. Noncompact Hermitian operators.

Jacqueline LELONG-FERRAND et Jean-Marie ARNAUDIES. — **Cours de mathématiques, tome 4**: Equations différentielles, intégrales multiples, fonctions holomorphes. — 2^e éd.

corrigée. — Un vol. relié, 16 × 25, de ix, 454 p. — Paris: Dunod (en Suisse: Diffusion SPES, Lausanne), 1977.

Equations différentielles. Généralités, cas linéaire: Systèmes différentiels. Forme normale. Equations différentielles vectorielles: problème de Cauchy. Equations différentielles linéaires. Généralités. Théorème de Cauchy (cas des équations linéaires). Equations différentielles scalaires linéaires du premier ordre. Etude directe. Equations et systèmes homogènes. Méthode de variation des constantes. Equations différentielles linéaires du second ordre. Equations scalaires d'ordre quelconque. Intégration par développement en série. Equations du type de Fuchs. — *Equations différentielles linéaires à coefficients constants*: Principes généraux. Cas où E est de dimension finie. Exemples de systèmes homogènes. Systèmes non homogènes. Utilisation d'un changement de base. Cas d'une équation scalaire d'ordre n à coefficients constants. Equations d'Euler. Calcul symbolique. — *Equations différentielles non linéaires. Exemples et applications*: Théorème de Cauchy-Lipschitz. Résultats pratiques. Cas d'une équation non résolue par rapport aux dérivées. Cas élémentaires. Etude locale. Equations de la forme $y'' = f(y)$. Equations de Bernoulli et de Riccati. Courbes intégrales. Point de vue géométrique. Equations de la forme $f(x, y') = 0$ ou $f(y, y') = 0$. Equations homogènes. Equations de Lagrange et de Clairaut. Trajectoires d'un champ de vecteurs. Exemples de trajectoires. Trajectoires orthogonales. — *Intégrales multiples. Définitions. Propriétés générales*: Fonctions en escalier sur un pavé de \mathbf{R}^n . Intégrale des fonctions en escalier. Intégration sur un pavé. Intégration sur un ensemble borné. Conditions d'intégrabilité. Propriétés de l'intégrale. Ensembles quarrables. Mesure. Propriétés de la mesure. Sommes de Riemann. Sommes de Darboux. — *Calcul des intégrales multiples*: Intégration sur un produit de pavés. Applications. Calcul des intégrales doubles. Intégrales triples. Calcul des volumes. Changement de variables. Exemples de changement de variables. Quelques exemples de calcul d'aires et de volumes. Aire des surfaces. Intégrales généralisées. Un exemple d'intégrale généralisée; comparaison avec une série double. Exemples d'intégrales généralisées sur des ensembles bornés. Intégrales multiples dépendant d'un paramètre. — *Formes différentielles. Intégrales curvilignes. Intégrales de surface*: Formes différentielles de degré un. Intégrales curvilignes. Formule de Riemann-Green. Application: Formule du changement de variables pour les intégrales doubles. Éléments d'algèbre extérieure. Formes différentielles de degré p . Intégration des formes différentielles. Intégrales de surface: interprétation géométrique. Formule d'Ostrogradski. Formule de Stokes. Le problème des primitives. — *Masses, centres et moments d'inertie des systèmes matériels*: Notion de mesure positive sur un compact. Système matériels. Masses. Centres de gravité (ou d'inertie). Propriétés des centres d'inertie. Théorèmes de Guldin. Moments d'inertie. Relations entre les moments d'inertie. Tenseurs et matrices d'inertie. — *Fonctions holomorphes; calcul des résidus*: Définitions. Exemples. Différentiabilité. Formules de Cauchy. Première formule de Cauchy. Propriétés des intégrales curvilignes de fonctions complexes. Théorème d'Alembert. Deuxième formule de Cauchy. Développement en série entière. Analyticité des fonctions holomorphes. Résidus. La formule des résidus. Calcul d'intégrales par la méthode des résidus. Autres exemples. Exemples d'intégrales de fonctions non uniformes.

HARRO HEUSER. — **Funktionalanalysis**. — Mathematische Leitfaden. — Un vol. broché, 16 × 23, de 416 p. — Prix: DM 58.00. — Stuttgart, B. G. Teubner, 1975.

Der Banachsche Fixpunktsatz: Metrische Räume. Der Banachsche Fixpunktsatz. Einige Anwendungen des Banachschen Fixpunktsatzes. — *Normierte Räume*: Vektorräume. Lineare Abbildungen. Normierte Räume. Stetige lineare Abbildungen. Die Neumannsche Reihe. Normierte Algebren. Endlichdimensionale normierte Räume. Die Neumannsche Reihe in unvollständigen normierten Räumen. Die Vervollständigung metri-

scher und normierter Räume. Kompakte Operatoren. — *Bilinearsysteme und konjugierte Operatoren*: Bilinearsysteme. Dualsysteme. Konjugierte Operatoren. Die Gleichung $(I-K)X = y$ mit endlichdimensionalem K . Die Gleichung $(R-S)x = y$ mit bijektivem R und endlichdimensionalem S . Die Fredholmsche Integralgleichung mit stetigem Kern. Quotientenräume. Die Quotientennorm. Quotientenalgebren. — *Fredholmoperatoren*: Defektendliche Operatoren. Fredholmoperatoren auf normierten Räumen. Fredholmoperatoren on saturierten Operatorenalgebren. Darstellungssätze für Fredholmoperatoren. Die Gleichung $Ax = y$ mit einem Fredholmoperator A . — *Vier Prinzipien der Funktionalanalysis und einige Anwendungen*: Das Fortsetzungsprinzip von Hahn-Banach. Normale Auflösbarkeit. Die normale Auflösbarkeit der Operatoren $I-K$ mit kompaktem K . Das Bairesche Kategorienprinzip. Das Prinzip der offenen Abbildung und der Graphensatz. Das Prinzip der gleichmässigen Beschränktheit. Einige analytische Anwendungen der funktionalanalytischen Prinzipien. Analytische Darstellung stetiger Linearformen. Operatoren mit abgeschlossenem Bildraum. Fredholmoperatoren auf Banachräumen. — *Die Riesz-Schaudersche Theorie kompakter Operatoren*: Kettenendliche Endomorphismen. Kettenendliche Fredholmoperatoren. Die Rieszsche Theorie kompakter Operatoren. Der Bidual eines normierten Raumes. Reflexivität. Die duale Transformation eines kompakten Operators. Singuläre Werte und Eigenwerte eines kompakten Operators. — *Spektraltheorie in Banachräumen und Banachalgebren*: Die Resolvente. Das Spektrum. Vektorwertige holomorphe Funktionen. Schwache Konvergenz. Potenzreihen in Banachalgebren. Der Funktionalkalkül. Spektralprojektoren. Isolierte Punkte des Spektrums. Der Fredholmbereich. Rieszoperatoren. Wesentliche Spektren. Normaloide Operatoren. — *Approximationsprobleme in normierten Räumen*: Ein Approximationsproblem: Strikt konvexe Räume. Innenprodukträume. Orthogonalität. Die Gaussapproximation. Das allgemeine Approximationsproblem. Approximations in gleichmässig konvexen Räumen. Approximation in reflexiven Räumen. — *Orthogonalzerlegungen in Hilberträumen*: Orthogonale Komplemente. Orthogonalreihen. Orthogonalbasen. Der Dual eines Hilbertraumes. Die adjungierte Transformation. — *Spektraltheorie in Hilberträumen*: Symmetrische Operatoren. Orthogonalprojektoren. Normale Operatoren und ihre Spektren. Normale meromorphe Operatoren. Symmetrische kompakte Operatoren. Das Sturms-Liouvillesche Eigenwertproblem. Wielandtoperatoren. Bestimmung und Abschätzung von Eigenwerten. Allgemeine Eigenwertprobleme für Differentialoperatoren. Vorbemerkungen zu dem Spektralsatz für symmetrische Operatoren. Funktionalkalkül für symmetrische Operatoren. Der Spektralsatz für symmetrische Operatoren auf Hilberträumen. — *Topologische Vektorräume*: Metrische Vektorräume. Topologische Grundbegriffe. Die schwache Topologie. Begriff des topologischen Vektorraumes. Beispiele. Die Nullumgebungen in topologischen Vektorräumen. Die Erzeugung von Vektorraumtopologien. Unter-, Produkt- und Quotientenräume Stetige lineare Abbildungen topologischer Vektorräume. Endlichdimensionale topologische Vektorräume. Fredholmoperatoren auf topologischen Vektorräumen. — *Lokalkonvexe Vektorräume*: Nullumgebungsbasen lokalkonvexer Vektorräume. Die Erzeugung lokalkonvexer Topologien durch Halbnormen. Unter-, Produkt- und Quotientenräume lokalkonvexer Räume. Normierbare lokalkonvexe Räume. Beschränkte Mengen. — *Dualität und Kompaktheit*: Der Satz von Hahn-Banach. Die topologische Charakterisierung der normalen Auflösbarkeit. Trennungssätze. Drei Anwendungen auf normierte Räume. Zulässige Topologien. Der Bipolarensatz. Lokalkonvexe Topologien sind σ -Topologien. Kompakte Mengen. Der Satz von Alaoglu-Bourbaki. Die Charakterisierung der zulässigen Topologien. Beschränkte Mengen in zulässigen Topologien. Tonnelierte Räume. Reflexivität. Konvexe, kompakte Mengen: die Sätze von Krein-Milman und Schauder. — *Die Darstellung kommutativer Banachalgebren*: Vorbemerkungen zum Darstellungsproblem. Multiplikative Linearformen und maximale Ideale. Der Gelfandsche Darstellungssatz. Die Darstellung kommutativer B^* -Algebren.

Vasant S. HUZURBAZAR. — **Sufficient statistics: selected contributions.** — Ed. by Anant M. Kshirsagar. — Statistics: textbooks and monographs, vol. 19. — Un vol. relié, 16 × 24, de XIII, 270 p. — Prix: SF 92.00. — Marcel Dekker, Inc., New York/Basel, 1976.

Invariance theory of prior probabilities: Bayes' theorem and inverse probability. Distributions admitting sufficient statistics. Invariance theory of Jeffreys. Some properties of Jeffreys' invariants. Invariants of distributions admitting sufficient statistics: 1. One parameter. 2. Several parameters. 3. The range depending on the parameter. 4. An alternative system of invariants. — *The general forms of distributions admitting sufficient statistics for parameters in nonregular cases*: Introduction. Definitions, notation, and preliminary results. The nonregular case with a single sufficient statistic for a single unknown parameter Derivation of the general form of section 3.10, assuming the general form of equation (2-3) $f(x; \theta) = \exp [u(\theta) v(x) + A(x) + B(\theta)]$, when $a \leq x \leq b$, for the regular case. The nonregular case with a single parameter admitting a minimal set of jointly sufficient statistics. Derivation of the general forms of Section 5, assuming the general form of equation (2-4) when $a \leq x \leq b$, for the regular case. The nonregular case with two parameters. The nonregular case involving more than two parameters. — *Location and scale parameters, and sufficient statistics*: Definitions, notation, and preliminary results. Location parameter. Scale parameter. Distributions depending on both location and scale parameters. Location-parameter families of distributions of the regular type admitting a single sufficient statistic for the location parameter. Scale-parameter families of distributions of the regular type admitting a single sufficient statistic for the scale parameter. The normal family of distributions as the only location scale-parameter family of distributions of the regular type admitting a minimal pair of jointly sufficient statistics for the parameters of location and scale. Location-parameter families of distributions of the nonregular type admitting a single sufficient statistic for the location parameter. Scale-parameter families of distributions of the nonregular type admitting a single sufficient statistic for the scale parameter. The rectangular and the exponential families of distributions as the only location scale-parameter families of distributions of the nonregular type admitting a minimal pair of jointly sufficient statistics for the parameters of location and scale.

Jagdish K. PATEL: C. H. KAPADIA and D. B. OWEN. — **Handbook of statistical distributions.** — Statistics: textbooks and monographs, vol. 20. — Un vol. relié, 16 × 24, de XIV, 302 p. — Prix: SF 65.00. — Marcel Dekker, Inc., New York/Basel, 1976.

Moments, cumulants, and generating functions: Moments and cumulants. Generating functions. More on characteristic functions. Moments, cumulants, and generating functions for some useful discrete distributions. Moments, cumulants, and generating functions for some useful continuous distributions. — *Inequalities*: Moment inequalities. Chebyshev inequalities. — *Order statistics*: Definition. Distribution of order statistics. Some useful results. Moments of order statistics from some discrete distributions. Moments of order statistics from some continuous distributions. — *Families of distributions*: Pearson (continuous) distributions. Exponential family of distributions. Linear exponential type (continuous) distributions (a subclass of the exponential family). Pólya type (continuous) distributions. Monotone likelihood ratio distributions. Generalized power series (discrete) distributions (GPSD). Monotone failure rate (continuous) distributions. New better (worse) than used (continuous) distributions. Stable (continuous) distributions. Infinitely divisible distributions (IDD). Unimodal distributions. Classification of some useful discrete distributions. Classification of some continuous distributions. — *Characterization*

of distributions: General characterizations. Characterization of some useful discrete distributions. Characterization of some useful continuous distributions. — *Point estimation*. Introduction. Methods of finding estimators. Sufficient statistics. Complete families and complete statistics. Uniformly minimum-variance unbiased estimator (UMVUE). Complete sufficient statistics and UMVUE's (discrete). Complete sufficient statistics and UMVUE's (continuous). — *Confidence intervals*: Introduction. Confidence intervals for some useful discrete distributions. Confidence intervals for some continuous distributions. — *Properties of distributions*: Discrete distributions. Continuous distributions. — *Basic limit theorems*: Types of convergence. Laws of large numbers. The central limit theorem. Some other limit theorems. *Miscellaneous results*: Gamma functions. Incomplete gamma functions. Beta functions. Incomplete beta functions. Convex (concave) functions. Transformation of statistics. Stirling numbers. Bernoulli numbers. Hyper-geometric functions. The notations O and o . K -statistics. Some useful combinatorials. Some useful series. Some well-known inequalities.

P. M. COHN. — **Skew field constructions**. — London mathematical society lecture note series, vol. 27. — Un vol. broché, 16×23 , de xii, 253 p. — Prix: £7.50. — Cambridge University Press, Cambridge/London/New Yor/Melbourne, 1977.

Skew polynomial rings and their fields of fractions: The general embedding problem. Ore's method. Skew polynomial rings. — *Topological methods*: Power series rings. Inverse limits of Ore domains. — *Extensions of finite degree*: Generalities. The Sweedler preduel and the Jacobson-Bourbaki correspondence. Galois theory. Pseudo-linear extensions. Cyclic outer Galois extensions. — *The general embedding*: The category of epic R -fields and specializations. The construction of epic R -fields. Firs and semifirs. — *Coproducts of fields*: The coproduct construction for groups and rings. Projective modules over coproducts over skew fields. The monoid of projectives. The tensor K -ring on a bimodule. Subfields of field coproducts. Extensions with different left and right degrees. — *General skew field extensions*: Presentations of skew fields. Existentially closed skew fields. A specialization lemma. The word problem for free fields. A skew field with unsolvable word problem. — *Rational relations and rational identities*: Polynomial identities. Rational identities. Specializations. A special type of rational identity. The rational meet of a family of X -rings. The support relation. Examples. — *Equations and singularities*: Equations over skew fields. Left and right eigenvalues of a matrix. Canonical forms for a single matrix over a skew field. Special cases of the singular eigenvalue problem. Specializations and the rational topology. Algebraic dependence.

Henry L. ALDER and Edward B. ROESSLER. — **Introduction to probability and statistics**. — 6th edition. — Un vol. broché, $15,5 \times 24$, de xxii, 426 p. — Prix: \$8.80.— W. H. Freeman and Co., San Francisco, 1977.

Preface. — Introduction. — Organization of data. — Sommatation notation. — Analysis of data. — Elementary probability, permutations and combinations. — The binomial distribution (and other discrete distributions). — The normal distribution (and Poisson distribution). — Random sampling. Large sample theory. — Testing hypotheses, significance levels, confidence limits. Large sample methods. — Student's t -distribution. Small sample methods. — Nonparametric statistics. — Regression and correlation. — Chi-square distribution. — Index numbers. — Time series. — The F -distribution. — The analysis of variance. — *Appendix*: Selected readings. Tables. Review exercises. Answers to odd-numbered exercises. Index.

A. KAUFMANN et E. PICHAT. — **Méthodes mathématiques non numériques et leurs algorithmes.** — Tome 1: Algorithmes de recherche des éléments maximaux. — Un vol. broché, 17 × 25, de xiv, 189 p. — Masson, Paris/New York/Barcelone/Milan, 1977.

Préface. — Tableau des principaux algorithmes. — *Nature particulière des problèmes non-numériques en mathématiques*: Introduction. Structures algébriques et configurations. Graphes, relations et généralisations. Principales structures algébriques. Configurations d'ordre. Treillis. Algèbre de Boole. Extension aux algèbres n -aires. Extension aux concepts flous de Zadeh. Applications et morphismes. Catégories. — *Représentation d'un sous-ensemble de pavés*: Introduction. Monômes premiers d'une fonction booléenne. Rectangles maximaux inclus dans une relation binaire. Sous-ensemble de pavés. Pavés maximaux. Pavés compatibles. Représentation d'un sous-ensemble de pavés à l'aide de pavés *-irréductibles. Premiers algorithmes pour représenter un sous-ensemble de pavés à l'aide de pavés maximaux. — *Algorithmes en file pour rechercher les éléments maximaux de structures algébriques*: Introduction. Notations et hypothèses concernant la structure algébrique $\langle A, \leq, * \rangle$. Algorithmes en file primitifs. Condition de décomposition concernant la structure algébrique $\langle A, \leq, * \rangle$ et algorithmes décomposés. Autres algorithmes pour représenter un sous-ensemble de pavés à l'aide de pavés maximaux. Calcul de la relation d'équivalence réunion de relations d'équivalence.

A. KAUFMANN et E. PICHAT. — **Méthodes mathématiques non numériques et leurs algorithmes.** — Tome 2: Algorithmes de recherche de chemins et problèmes associés. — Un vol. broché, 17 × 25, de xiv, 159 p. — Masson, Paris/New York/Barcelone/Milan, 1977.

Recherche de chemins et problèmes homomorphes: Introduction. — Concaténation et *-composition de chemins. — Algorithmes matriciels de cheminement ou algorithmes matriciels de recherche des éléments maximaux: Algorithmes matriciels de cheminement à tours. Algorithmes matriciels de cheminement progressifs. Algorithme matriciel de cheminement décomposé. Algorithmes matriciels de cheminement récursifs. — Enumération de chemins dans un multigraphe: premier, deuxième, troisième exemple. — Enumération des éléments maximaux de premier (ou de dernier) indice fixé: Algorithme matriciel en cascade et/ou décomposé, donnant les éléments maximaux de deuxième indice n . Algorithmes matriciels à tours irredondants et algorithmes matriciels à pas. Algorithme matriciel de la pile donnant les éléments maximaux de deuxième indice fixé. — Premier cas particulier. Algorithmes de cheminement dans le cas où le graphe associé à $\text{MAX } A$ est sans circuit: Algorithme matriciel en cascade dans le cas où le graphe associé à $\text{MAX } A$ n'admet pas de circuits autres que des boucles. Algorithme matriciel décomposé dans le cas où le graphe associé à $\text{MAX } A$ n'admet pas de circuits autres que des boucles. Algorithme matriciel emboîté dans le cas où le graphe associé à $\text{MAX } A$ n'admet pas de circuits autres que des boucles. Algorithmes matriciels de la pile. — Deuxième cas particulier. Algorithmes de cheminement symétriques. — Algorithmes de cheminement en file. — Problèmes homomorphes à un cheminement. Fermeture transitive de matrices: Fermeture transitive d'une matrice définie sur un gerbier et éléments maximaux. Algorithmes homomorphes à des algorithmes de cheminement. Fermatures transitives de matrices définies sur un gerbier avec loi d'absorption. Fermeture transitive d'une matrice définie sur un dioïde. Exemples de fermatures transitives non stationnaires. Exemples de fermatures transitives stationnaires. Pseudo-treillis distributif.

A. KAUFMANN. — **Introduction à la théorie des sous-ensembles flous à l'usage des ingénieurs (fuzzy sets theory)**. — Tome 1: Eléments théoriques de base. — 2^e édition revue et corrigée. — Un vol. relié, 17 × 25, de XXI, 424 p. — Masson, Paris/New York/Barcelone/Milan, 1977.

Notions de base : Rappel sur la notion d'appartenance. Le concept de sous-ensemble flou. Relation de domination. Opérations simples sur les sous-ensembles flous. Ensembles des parties floues pour E et M finis. Propriétés de l'ensemble des parties floues. Produit et somme algébrique de deux sous-ensembles flous. — *Graphes flous et relations floues* : Graphe flou. Relation floue. Composition de deux relations floues. Sous-ensemble flou induit par une application. Sous-ensembles flous conditionnés. Propriétés des relations binaires floues. Fermeture transitive d'une relation binaire floue. Chemin dans un graphe flou fini. Relation de pré-ordre floue. Relation de similitude. Sous-relations de similitude dans un pré-ordre flou. Antisymétrie. Relation d'ordre floue. Relation antisymétrique sans circuit. Relation ordinale. Fonction ordinale dans une relation d'ordre flou. Relation de dissimilitude. Relation de ressemblance. Propriétés diverses concernant la similitude et la ressemblance. Propriétés diverses concernant les relations d'ordre parfait floues. Fonctions d'appartenance usuelles. — *La logique floue* : Fonction caractéristique d'un sous-ensemble flou. Variable floues. Formes polynômiales. Analyse d'une fonction de variables floues. Méthode de Marinos. Structure logique d'une fonction de variables floues. Composition des intervalles. Synthèse d'une fonction de variables floues. Réseau d'éléments flous. Propositions floues et leur représentation fonctionnelle. La théorie des sous-ensembles flous et la théorie des probabilités. La théorie des sous-ensembles flous et la théorie des fonctions de structure. — *Lois de composition floues* : Rappel sur la notion de loi de composition. Loi de composition interne floue. Groupoïde flou. Principales propriétés concernant les groupoïdes flous. Monoïdes flous. Composition externe floue. Opérations sur des nombres flous. — *Généralisation de la notion de sous-ensemble flou* : Opérations sur des ensembles vulgaires. Propriétés fondamentales de l'ensemble des applications d'un ensemble dans un autre. Rappel sur quelques structures fondamentales. Généralisation de la notion de sous-ensemble flou. Opérations sur les sous-ensembles flous où L est un treillis. Rappel de diverses notions en vue d'expliquer le concept de catégorie. Le concept de catégorie. C -morphisme flous. — Annexes.

A. KAUFMANN. — **Introduction à la théorie des sous-ensembles flous à l'usage des ingénieurs (fuzzy sets theory)**. — Tome 4: Compléments et nouvelles applications. — Un vol. relié, 17 × 25, de x, 334 p. — Prix: FF 196. — Masson, Paris/New York/Barcelone/Milan, 1977.

Compléments : Introduction. Sous-ensembles flous probabilisés. Flou, désordre et entropie. Rappel de topologie. Topologie floue. Résolution des équations de relations floues. Hypergraphes flous. Matroïdes flous. — *Applications aux problèmes de comportement humain* : Introduction. Ebauche d'une théorie formelle de l'opérateur humain. Ebauche d'une théorie floue de l'opérateur humain. Comportement de n opérateurs humains. Procédures de stimulation inventive. Perceptrons et combinateurs. — *Annexe* : Remarques au sujet de la distance de Hamming et de la distance euclidienne.

George E. ANDREWS. — **The theory of partitions**. — Encyclopedia of mathematics and its applications, vol. 2. — Un vol. relié, xiv, 255 p. — Prix: £14.00. — Addison-Wesley Publ. Co., London/Amsterdam/Don Mill, Ontario/Sydney/Tokyo, 1976.

The elementary theory of partitions : Infinite product generating functions of one variable. Graphical representation of partitions. — *Infinite series generating functions* :

Elementary series-product identities. Applications to partitions. — *Restricted partitions and permutations*: The generating function for restricted partitions. Properties of Gaussian polynomials. Permutations and Gaussian multinomial coefficients. The unimodal property. — *Compositions and Simon Newcomb's problem*: Composition of numbers. Vector compositions. Simon Newcomb's problem. — *The Hardy-Ramanujan-Rademacher expansion of $p(n)$* : The formula for $p(n)$. — *The asymptotics of infinite product generating functions*: Proof and applications of theorem 6.2. — *Identities of the Rogers-Ramanujan type*: The generating functions. The Rogers-Ramanujan identities and Gordon's generalization. The Göllnitz-Gordon identities and their generalization. — *A general theory of partition identities*: Foundations. Partition ideals of order 1. Linked partition ideals. — *Sieve methods related to partitions*: Inclusion-exclusion. A sieve for successive ranks. — *Congruence properties of partition functions*: Rödseth's theorem for binary partitions. Ramanujan's conjecture for 5^n . — *Higher-dimensional partitions*: Plane partitions. The Knuth-Schensted correspondence. Higher-dimensional partitions. — *Vector of multipartite partitions*: Multipartite generating functions. Bell polynomials and formulas for multipartite partition functions. Restricted bipartite partitions. — *Partitions in combinatorics*: Partitions and finite vector spaces. Partitions of sets. The combinatorics of symmetric functions. — *Computations for partitions*: Elementary algorithms. Algorithms from generating functions. Computations for higher-dimensional partitions. Brief tables of partition functions. Table of the plane partition function. Table of Gaussian polynomials. Guide to tables. — Examples, notes, references (à la fin de chaque chapitre).

R. D. DRIVER. — **Ordinary and delay differential equations.** — Applied mathematical sciences, 20. — Un vol. broché, 15×24 , de ix, 501 p. — Prix: DM 33.60. — Springer Verlag, New York/Heidelberg/Berlin, 1977.

Elementary methods for ordinary differential equations of first order: Examples and classification. Linear equations. Separable equations. — *Uniqueness and Lipschitz conditions for ordinary differential equations*: First order scalar equations. Systems of equations. Higher order equations. Complex solutions. A valuable lemma. A boundary value problem. — *The linear equation of order n* : Constant coefficients (the homogeneous case). Linear independence and Wronskians. Constant coefficients (general solution for simple h). Variation of parameters. — *Linear ordinary differential systems*: Some general properties. Constant coefficients. Oscillations and damping in applications. Variation of parameters. Matrix norm. Matrix exponential. Existence of solutions (successive approximations). — *Introduction to delay differential equations*: Examples and the method of steps. Some distinguishing features and some "wrong" questions. Lipschitz condition and uniqueness. — *Existence theory*: Ordinary differential systems. Systems with bounded delays: notation and uniqueness. Systems with bounded delays: existence. — *Linear delay differential systems*: Superposition. Constant coefficients. Variation of parameters. — *Stability*: Definitions and examples. Lyapunov method for uniform stability. Asymptotic stability. Linear and quasi-linear ordinary differential systems. Linear and quasi-linear delay differential systems. — *Autonomous ordinary differential systems*: Trajectories and critical points. Linear systems of second order. Critical points of quasi-linear systems of second order. Global behavior for some nonlinear examples. — Appendices.

R. COURANT; K. O. FRIEDRICHS. — **Supersonic flow and shock waves.** — Applied mathematical sciences, vol. 21. — Un vol. relié, 17×25 , de xvi, 464 p. — Prix: DM 45.00. — Springer Verlag, New York/Heidelberg/Berlin, 1976. [Reprint of the 1948 edition].

Compressible fluids: General equations of flow. Thermodynamic notions. Differential equations for specific types of flow. — *Mathematical theory of hyperbolic flow*

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A. D. THOMAS. — **Zeta-functions: an introduction to algebraic geometry.** — Research notes in mathematics, vol. 12. — Un vol. broché, 17 × 25, de vii, 230 p. — Prix: £7.50. — Pitman publishing, London/San Francisco/Melbourne, 1977.

Introduction. — Dirichlet series. — Classical number theory. — Artin's thesis. — Valuation theory. — Global fields. — Algebraic curves. — Riemann surfaces. — Elliptic curves. — Varieties. — Complex manifolds. — Hodge theory. — Schemes.

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PETERSEN, K. E. — **Brownian motion, Hardy spaces and bounded mean oscillation.** — London mathematical society lecture note series, vol. 28. — Un vol. broché, 16 × 23 cm; de 105 p. — Prix: £3.95. — Cambridge University Press, Cambridge/London/New York/Melbourne, 1977.

Introduction. — *The maximal, square and Littlewood-Paley functions.* — *Brownian motion*: Definition. Construction. Some properties of the Brownian paths. The martingale and Markov properties. The strong Markov property. Kakutani's theorem. — *Distribution equivalence of the two maximal functions*: The right-hand inequality. Conditioned Brownian motion. Removal of the restrictions on σ and r . Conditionally reflected Brownian motion. — *Inequalities for the conjugate function*: A Brownian maximal function inequality. The M. Riesz inequalities. — *The maximal function characterization of H^p* . — *The martingale versions of H^p and BMO*: H^p martingales. BMO martingales. The duality theorem.

NORMAN BLEISTEIN and RICHARD A. HANDELSMAN. — **Asymptotic expansions of integrals.** — Un vol. relié, 17 × 24, de XIII, 425 p. — Prix: £18.00. — Holt, Rinehart and Winston, New York/Chicago/San Francisco/Atlanta/Dallas/Montreal/Toronto/London/Sydney, 1975.

Fundamental concepts: Order relations. Asymptotic power series expansions. Asymptotic sequences and asymptotic expansions of Poincaré type. Auxiliary asymptotic sequences. Complex variables and the Stokes phenomenon. Operations with asymptotic expansions of Poincaré type. Exercises. — *Asymptotic expansions of integrals: preliminary discussion*: Introduction. The gamma and incomplete gamma functions. Integrals arising in probability theory. Laplace transform. Generalized Laplace transform. Wave propagation in dispersive media. The Kirchhoff method in acoustical scattering. Fourier series. Exercises. — *Integration by parts*: General results. A class of integral transforms. Identification and isolation of critical points. An extension of the integration by parts procedure. Exercises. — *h-transforms with kernels of monotonic argument*: Laplace transforms and Watson's lemma. Results on Mellin transforms. Analytic continuation of Mellin transforms. Asymptotic expansions for real λ . Asymptotic expansions for small real λ . Asymptotic expansions for complex λ . Electrostatics. Heat conduction in a nonlinearly radiating

solid. Fractional integrals and integral equations of Abel type. Renewal processes. Exercises. — *h-transforms with kernels of nonmonotonic argument*: Laplace's method. Kernels of exponential type. Kernels of algebraic type. Expansions for small λ . Exercises. — *h-transforms with oscillatory kernels*: Fourier integrals and the method of stationary phase. Further results on Mellin transforms. Kernels of oscillatory type. Oscillatory kernels: continuation. Exercises. — *The method of steepest descents*: Preliminary results. The method of steepest descents. The airy function for complex argument. The gamma function for complex argument. The Klein-Gordon equation. The central limit theorem for identically distributed random variables. Exercises. — *Asymptotic expansions of multiple integrals*: Asymptotic expansion of double integrals of Laplace type. Higher-dimensional integrals of Laplace type. Multiple integrals of Fourier type. Parametric expansions. Exercises. — *Uniform asymptotic expansions*: Asymptotic expansions of integrals with two nearby saddle points. Underlying principles. Saddle point near an amplitude critical point. A class of integrals that arise in the analysis of precursors. Double integrals of Fourier type. Exercises.

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J. K. LENSTRA. — **Sequencing by enumerative methods.** — Mathematical centre tracts, n° 69. — Un vol. broché, 16 × 24, de x, 198 p. — Prix: DFL 24.00. — Mathematisch Centrum, Amsterdam, 1977.

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Job-shop scheduling : Algorithms. Computational experience. Remarks. — *Part 4 : Some applications : Applications of the travelling salesman problem* : Computer wiring. Vehicle routing. Clustering a data array. Job-shop scheduling with no wait in process. — *An application of machine scheduling theory* : Problem description. A heuristic approach. Results. Remarks.

M. REM. — **Associons and the closure statement.** — Mathematical centre tracts, n° 76. — Un vol. broché, 16 × 24, de vii, 115 p. — Prix: DFL 14.00. — Mathematisch Centrum, Amsterdam, 1976.

Prologue. — Associons. — Characterization of states. — An appreciation of the closure statement. — Closure of a set of associons. Formal definition of the closure statement. — Some small examples. — An appreciation of the repetitive construct. — Formal definition of the repetitive construct. — Some examples. — Dynamically created names. — Recording the cliques of an undirected graph. — On what we have rejected. — Epilogue.

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John F. PRICE. — **Lie groups and compact groups.** — London mathematical society lecture note series, vol. 25. — Un vol. broché, 23 × 15,5, de ix, 177 p. — Prix: £4.95. — Cambridge University Press, Cambridge/London/New York, Melbourne, 1977.

Analytic manifolds : Manifolds and differentiability. The tangent bundle. Vector fields. Notes. Exercises. — *Lie groups and Lie algebras* : Lie groups. The Lie algebra of a Lie group. Homomorphisms of Lie groups. The general linear group. Notes. Exercises. — *The Campbell-Baker-Hausdorff formula* : The CBH formula for lie algebras. The CBH formula for Lie groups. Closed subgroups. Simply connected Lie groups. Notes. Exercises. — *The geometry of Lie groups* : Riemannian manifolds. Invariant metrics on Lie groups. Geodesics on Lie groups. Notes. Exercises. — *Lie subgroups and subalgebras* : Subgroups and subalgebras. Normal subgroups and ideals. Notes. Exercises. — *Characterisations and structure of compact Lie groups* : Compact groups and Lie groups. Linear Lie groups. Simple and semisimple Lie algebras. The structure of compact Lie groups. Compact connected groups. Notes. Exercises. — *Appendix : Abstract harmonic analysis* : Topological groups. Representations. Compact groups. The Haar integral.

K. G. BINMORE. — **Mathematical analysis: a straightforward approach.** — Un vol. broché, 23 × 15, de x, 257 p. — Prix: £3.75. — Cambridge University Press, Cambridge/London/New York/Melbourne, 1977.

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Thomas WONNACOTT. — **Calculus: an applied approach.** — Un vol. relié, 17 × 24, de xiv, 514 p. — Prix: £9.70. — John Wiley and Sons, New York/Santa Barbara/London/Sydney/Toronto, 1977.

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Constructive theory of functions of several variables. — Proceedings of a conference held at Oberwolfach, April 25-May, 1, 1976. — Ed. by W. Schempp and K. Zeller. — Lecture notes in mathematics, vol. 571. — Un vol. broché, 16,5 × 24, de vi, 290 p. — Prix: DM 24.80. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

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Group theory: proceedings of a miniconference held at the Australian national university, Canberra, November 4-6, 1975. — Ed. by R. A. Bryce, J. Cossey and M. F. Newman. — Lecture notes in mathematics, vol. 573. — Un vol. broché, 16,5 × 24, de vii, 146 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

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Johan MOLDESTAD. — **Computations in higher types.** — Lecture notes in mathematics, vol. 574. — Un vol. broché, 16,5 × 24, de v, 203 p. — Prix: DM 24.80. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

Abstract. — The computation domain. — Recursion on α . — Connection with Kleene recursion in higher types. — Recursion in normal lists on α . — Kleene recursion in normal objects of type $n + 2$, $n < 0$. — Computation theories on α . — Abstract Kleene theories. — Normal computation theories on α . — More about Mahloness. — Calculation of the lengths of some computations. — Gaps. — On Platek: "Foundations of recursion theory". — A final comment concerning the two types.

K-theory and operator algebras. — Proceedings of a conference held at the University of Georgia in Athens, Georgia, April 21-25, 1975. — Ed. by B. B. Morrel and I. M. Singer. — Lecture notes in mathematics, vol. 575. — Un vol. broché, 16,5 × 24, de vi, 191 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

M. F. Atiyah: A survey of K -theory. — *Lawrence G. Brown*: Characterizing $\text{ext}(X)$. — *Richard W. Carey and Joel D. Pincus*: Almost commuting algebras. — *R. G. Douglas*: Extensions of C^* -algebras and K -homology. — *Karl Heinrich Hofmann*: Bundles and sheaves are equivalent in the category of Banach spaces. — *Jerome Kaminker*: Topological obstructions to perturbations of pairs of operators. — *Ronnie Lee and R. H. Szczarba*: On algebraic K -theory and the homology of congruence subgroups. — *Dusa Macduff*: Configuration spaces. — *Carl Pearcy and Norberto Salinas*: Extensions of C^* -algebras and the reducing essential matricial spectra of an operator. — *Graeme Segal*: K -homology theory and algebraic K -theory. — *I. M. Singer*: Some remarks on operator theory and index theory. — *Masamichi Takesaki*: Factors of type III. — *Joseph L. Taylor*: Twisted products of Banach algebras and third Čech cohomology. — *J. B. Wagoner*: H -cobordisms, pseudo-isotopies, and analytic torsion.

J. Peter MAY. — **E_∞ ring spaces and E_∞ ring spectra.** — With contributions by Frank Quinn, Nigel Ray, and Jørgen Tornehave. — Lecture notes in mathematics, vol. 577/ — Un vol. broché, 16,5 × 24, de iv, 268 p. — Prix: DM 24.80. — Springer Verlag, Berlin. Heidelberg/New York, 1977.

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Combinatoire et représentation du groupe symétrique. — Actes de la Table ronde du CNRS tenue à l'Université Louis-Pasteur de Strasbourg, 26 au 30 avril 1976. — Ed. par D. Foata. — Lecture notes in mathematics, vol. 579. — Un vol. broché, $16,5 \times 24$, de iv, 339 p. — Prix: DM 31.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

G. de B. Robinson: The papers of Alfred Young. — *Algèbre des tableaux de Young*: *G. Viennot*: Une forme géométrique de la correspondance de Robinson-Schensted. *M.-P. Schützenberger*: La correspondance de Robinson. *C. Greene*: Some order-theoretic properties of the Robinson-Schensted correspondance. *D. Foata*: Une propriété de vidage-remplissage des tableaux de Young. — *Fonctions symétriques*: *A. O. Morris*: A survey on Hall-Littlewood functions and their applications to representation theory. *Glânffrwd Thomas*: Further results on Baxter sequences and generalized Schur functions. *L. Geissinger*: Hopf algebras of symmetric functions and class functions. — *A. Lascoux*: Calcul de Schur et extensions grassmanniennes des λ -anneaux. *R. P. Stanley*: Some combinatorial aspects of the Schubert calculus. *J. McConnell*: Note on multiplication theorems for Schur functions. — *Calcul des caractères et groupes de permutations*: *J. Saxl*: Restrictions of characters, generosity, interchange and coloured graphs. *N. Esper and A. Kerber*: Permutrization of representations. *M. Klemm*: Charaktere mehrfach transitiver Permutationsgruppen. — *Partitions et algorithmes combinatoires*: *G.E. Andrews*: Implications of the MacMahon conjecture. *W. Oberschelp*: Monotonicity for structure numbers in theories without identity. *S. G. Williamson*: On the ordering, ranking, and random generation of basic combinatorial sets.

C. CASTAING; M. VALADIER. — **Convex analysis and measurable multifunctions.** — Lecture notes in mathematics, vol. 580. — Un vol. broché, $16,5 \times 24$, de vii, 278 p. — Prix: DM 24.80. — Springer-Verlag, Berlin/Heidelberg/New York, 1977.

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A. I. ARRUDA, N. C. A. da COSTA, R. CHUAQUI, eds. — **Non-classical logics, model theory, and computability.** — Proceedings of the third Latin-American symposium on mathematical logic, Campinas, Brazil, July 11-17, 1976. — Studies in logic and the foundations of mathematics, vol. 89. — Un vol. relié, 16 × 23, de xviii, 307 p. — Prix: DFL 70.00. — North-Holland Publishing Company, Amsterdam/New York/Oxford, 1977.

Non classical logics: A. I. Arruda: On the imaginary logic of N. A. Vasil'ev. F. G. Asenjo: Formalizing multiple location. N. C. A. da Costa, L. Dubikajtis: On Jaskowski's discussive logic. J. Kotas, N. C. A. da Costa: On some modal logical systems defined in connection with Jaskowski's problem. E. G. K. Lopez-Escobar: Infinite rules in finite systems. L. H. Lopes dos Santos: Some remarks on discussive logic. — *Model theory*: M. Benda: Some directions in model theory. R. B. Chuaqui: A semantical definition of probability. L. P. de Alcantara: The equivalence of some axioms of strong infinity. R. Fraïssé: Present problems about intervals in relation-theory and logic. R. Morais: Projective logics and projective Boolean algebras. C. C. Pinter: Some theorems on omitting types, with applications to model completeness, amalgamation, and related properties. A. R. Raggio: Semi-formal Beth tableaux. J. R. Shoenfield: Quantifier elimination in fields. — *Computability*: H. P. Sankappanavar: On the decision problem of the congruence lattices of pseudocomplemented semilattices. J. Simon: Polynomially bounded quantification over higher types and a new hierarchy of the elementary sets. R. M. Solovay: On random R. E. sets.

Edwin E. MOISE. — **Geometric topology in dimensions 2 and 3.** — Graduate texts in mathematics, vol. 47. — Un vol. relié, 16 × 24, de x, 262 p. — Prix: DM 45.00. — Springer Verlag, New York/Heidelberg/Berlin, 1977.

Introduction. — Connectivity. — Separation properties of polygons in \mathbb{R}^2 . — The Schönflies theorem for polygons in \mathbb{R}^2 . — The Jordan curve theorem. — Piecewise linear homeomorphisms. — PL approximations of homeomorphisms. — Abstract complexes and PL complexes. — The triangulation theorem for 2-manifolds. — The Schönflies theorem. — Tame imbedding in \mathbb{R}^2 . — Isotopies. — Homeomorphisms between Cantor sets. — Totally disconnected compact sets in \mathbb{R}^2 . — The fundamental group (summary). —

The group of (the complement of) a link. — Computations of fundamental groups. — The *PL* Schönflies theorem in \mathbf{R}^2 . — The Antoine set. — A wild arc with a simply connected complement. — A wild 2-sphere with a simply connected complement. — The Euler characteristic. — The classification of compact connected 2-manifolds. — Triangulated 3-manifolds. — Covering spaces. — The Stallings proof of the loop theorem of Papakyriakopoulos. — Bicollar neighborhoods; an extension of the loop theorem. — The Dehn lemma. — Polygons in the boundary of a combinatorial solid torus. — Limits on the loop theorem: Stallings's example. — Polyhedral interpolation theorems. — Canonical configurations. — Handle decompositions of tubes. — *PLH* approximations of homeomorphisms, for regular neighborhoods of linear graphs in R^3 . — *PLH* approximations of homeomorphisms, for polyhedral 3-cells. — The triangulation theorem. — The „Hauptvermutung“; tame imbedding. — Bibliography.

Otto FORSTER. — **Riemannsche Flächen.** — Heidelberger Taschenbücher, Band 184. — Un vol. broché, 14 × 21, de x, 223 p. — Prix: DM 24.80. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

Überlagerungen: Definition der Riemannsche Flächen. Einfache Eigenschaften holomorpher Abbildungen. Homotopie von Kurven. Fundamentalgruppe. Verzweigte und unverzweigte Überlagerungen. Universelle Überlagerung, Decktransformationen. Garben. Analytische Fortsetzung. Algebraische Funktionen. Differentialformen. Integration von Differentialformen. Lineare Differentialgleichungen. — *Kompakte Riemannsche Flächen*: Cohomologiegruppen. Das Dolbeaultsche Lemma. Ein Endlichkeitsatz. Die exakte Cohomologiesequenz. Der Satz von Riemann-Roch. Der Serresche Dualitätssatz. Funktionen und Differentialformen zu vorgegebenen Hauptteilen. Harmonische Differentialformen. Das Abelsche Theorem. Das Jacobische Umkehrproblem. — *Nicht-kompakte Riemannsche Flächen*: Das Dirichletsche Randwertproblem. Abzählbarkeit der Topologie. Das Weylsche Lemma. Der Rungesche Approximationssatz. Die Sätze von Mittag-Leffler und Weierstrass. Der Riemannsche Abbildungssatz. Funktionen zu vorgegebenen Automorphiesummanden. Geraden- und Vektorraumbündel. Trivialität von Vektorraumbündeln. Das Riemann-Hilbertsche Problem. — *Anhang*: Teilungen der Eins. Topologische Vektorräume.

Multivariate analysis IV. — Proceedings of the 4th international symposium on multivariate analysis. — Ed. by Paruchuri R. Krishnaiah. — Un vol. relié, 16 × 23, de XIII, 549 p. — Prix: DFL 125.00. — North-Holland Publishing Company, Amsterdam/New York/Oxford, 1977.

Multivariate distribution theory: R. C. Bose: Early history of multivariate statistical analysis. — A. Dvoretzky: Asymptotic normality of sums of dependent random vectors. — D. A. S. Fraser and K. W. Ng: Inference for the multivariate regression model. — Y. Fujikoshi: Asymptotic expansions for the distributions of some multivariate tests. — A. T. James: Tests for a prescribed subspace of principal components. — C. G. Khatri: Quadratic forms and extension of Cochran's theorem to normal vector variables. — P. R. Krishnaiah and J. C. Lee: Inference on the eigenvalues of the covariance matrices of real and complex multivariate normal populations. — J. C. Lee, T. C. Chang and P. C. Krishnaiah: Approximations to the distributions of the likelihood ratio statistics for testing certain structures on the covariance matrices of real multivariate normal populations. — E. Lukacs: A characterization of a bivariate gamma distribution. — C. McHenry and A. M. Kshirsagar: Use of Hotelling's generalized T_0^2 in multivariate

tests. — *Estimation, decision procedures and design of experiments* : J. Kiefer : Conditional confidence and estimated confidence in multidecision problems (with applications to selection and ranking). — P. A. W. Lewis, L. H. Liu, D. W. Robinson and M. Rosenblatt : Empirical sampling study of a goodness of fit statistic for density function estimation. — I. Olkin and M. Sylvan : Correlational analysis when some variances and covariances are known. — C. R. Rao : Prediction of future observations with special reference to linear models. — S. Zacks : Problems and approaches in design of experiments for estimation and testing in nonlinear models. — *Time series and stochastic processes* : R. E. Barlow and F. Proschan : Asymptotic theory of total time on test processes with applications to life testing. — T. Hida : Topics on nonlinear filtering theory. — M. Hitsuda and H. Watanabe : On a causal and causally invertible representation of equivalent Gaussian processes. — G. Kallianpur : A stochastic equation for the optimal non-linear filter. — E. Parzen : Multiple time series: determining the order of approximating autoregressive schemes. — B. S. Rajput and N. N. Vakhania : On the support of Gaussian probability measures on locally convex topological vector spaces. — M. M. Rao : Inference in stochastic processes VI: translates and densities. — V. A. Statulevicius : Application of semi-invariants to asymptotic analysis of distributions of random processes. — *Information and control theory* : A. V. Balakrishnan : Stochastic control of systems governed by partial differential equations. — F. J. Beuler, B. Melamed and B. P. Zeigler : Equilibrium properties of arbitrarily interconnected queueing networks. — C. W. Helstrom : An introduction to quantum estimation theory. — T. Kailath and L. L. Jung : A scattering theory framework for fast least-squares algorithms. — D. Middleton : A new approach to scattering problems in random media. — Y. A. Rozanov : Some system approaches to water resources problems III: optimal control of dam storage. — *Contingency tables, directional data statistics, and pattern recognition* : H. Chernoff : Some applications of a method of identifying an element of a large multidimensional population. — S. Das Gupta : Some problems in statistical pattern recognition. — R. H. Jones : Multivariate statistical problems in meteorology. — M. Kendall : Multivariate contingency tables and some further problems in multivariate analysis. — K. V. Mardia : Mahalanobis distances and angles. — M. L. Puri and J. S. Rao : Problems of association for bivariate circular data and a new test of independence. — M. Siotani and R.-H. Wang : Asymptotic expansions for error rates and comparison of the *W*-procedure and the *Z*-procedure in discriminant analysis.

Serge COLOMBO. — **Les équations aux dérivées partielles en physique et en mécanique des milieux continus.** — Un vol. relié, 17 × 25, de VIII, 188 p. — Prix: FS 57.50. — Masson: Paris/New York/Barcelone, Milan, 1976 (distr. en Suisse par CRISPA, S.A., Fribourg).

Considérations générales sur les équations aux dérivées partielles : Introduction. Notion d'analyticité. Sur quelques caractères généraux des solutions des équations aux dérivées partielles. Conditions aux frontières. Systèmes normaux. Théorème d'existence et d'unicité. Le problème de Cauchy. Solutions généralisées. Transformation de Legendre. — *Modèles mathématiques utilisés en mécanique et en physique* : Introduction. Phénomènes vibratoires. Mécanique des milieux continus. Théorie de l'élasticité. Electromagnétisme. Les équations de Maxwell. Ondes acoustiques. Equations des télégraphistes. — *Equations du premier ordre* : Cône de Monge. Equations quasi-linéaires. Courbes caractéristiques et surfaces intégrales. Problème de Cauchy dans le cas des équations quasi-linéaires. Equations du premier ordre. Cas général. — *Equations du second ordre* : Introduction. Classification des équations du second ordre. Classification des équations dans le cas de deux variables indépendantes. Equations de type mixte. Courbes caractéristiques et problème de Cauchy dans le cas de l'équation quasi-linéaire à deux variables. Autres propriétés des courbes caractéristiques. Cas de l'équation générale du second ordre. — *Equations hyperboliques.*

Propagation d'ondes: Equations des cordes vibrantes. Solution de d'Alembert. Corde vibrante. Analyse de Fourier. L'équation des ondes. Principe de Huyghens. Propagation en milieu dispersif. Résolution de l'équation hyperbolique linéaire par la méthode des approximations successives. Aperçus complémentaires sur le rôle des caractéristiques. Méthode de Riemann. — *Potentiels newtoniens. Equation de Laplace*: Fonctions harmoniques. Deux théorèmes fondamentaux sur les fonctions harmoniques. Problème de Dirichlet. Fonctions harmoniques et représentation conforme. Résolution des problèmes de Dirichlet et de Neumann. Problème de Neumann. Méthode de séparation des variables. Equation de Helmholtz. — *L'équation de diffusion*: L'équation de diffusion de la chaleur. Le problème du « mur » de Fourier. Cas de la barre infinie. Transformées de Laplace.

Franklin A. GRAYBILL. — **Theory and application of the linear model.** — Un vol. relié, 17 × 24, de XIV, 704 p. — Prix: DFL 69.90. — Duxbury Press, North Scituate, Mass., 1976.

Mathematical concepts: Elementary theorems on linear and matrix algebra. Partitioned matrices. Nonnegative matrices. Generalized and conditional inverses. Solutions of linear equations. Idempotent matrices. Trace of matrices. Derivatives of quadratic and linear forms; expectation of a matrix. Evaluation of an integral. — *Statistical concepts*: Random variables and distribution functions. Moment generating function. Independence of random vectors. Special distributions and some important formulas. Statistical inference. Point estimation. Hypothesis testing. Confidence intervals. Comments on statistical inference. — *The multidimensional normal distribution*: The univariate normal distribution. Multivariate normal distribution. Marginal distributions. Independent and uncorrelated random vectors. Conditional distribution. Regression. Correlation. — *Distributions of quadratic forms*: Noncentral chi-square distribution. Noncentral F and noncentral t distributions. Distribution of quadratic forms in normal variables. Independence of linear forms and quadratic forms. Expected value of a quadratic form. Additional theorems. — *Models*: General linear model. Linear regression model. Design models. Components-of-variance-model. — *General linear model*: Point estimation of σ^2 and linear functions of β_j ; case 1. Test of the hypothesis $\mathbf{H}\beta = h$: case 1. Special cases for hypothesis testing. Confidence intervals associated with the test $H_0: \mathbf{H}\beta = h$. Further discussion of confidence intervals associated with the test. $H_0: \mathbf{H}\beta = h$. Example. The general linear model, case 1, and $\Sigma \neq \sigma^2 I$. Examination of assumptions. Inference in the linear model: case 2. Further discussion of the test $\mathbf{H}\beta = h$. Problems. — *Computing techniques*: Square root method of factoring a positive definite matrix. Computing point estimates, test statistics, and confidence intervals. Analysis of variance. The normal equations using deviations from means. Some computing procedures when $\text{cov}[Y] = \sigma^2 V$. — *Applications of the general linear model*: Prediction intervals. Tolerance intervals. Other tolerance and associated intervals. Determining x for a given value of Y (the calibration problem). Parallel, intersecting, and identical models. Polynomial models. Trigonometric models. Designing investigations. Maximum or minimum of a quadratic function. Point of intersection of two lines. Problems. — *Sampling from the multivariate normal distribution*: Notation. Point estimators of μ and Σ . Test of the hypothesis $H_0: \mu = h_0$. Confidence intervals on $l_i' \mu$, for $i = 1, 2, \dots, q$. Computations. Additional theorems about $\hat{\mu}$ and $\hat{\Sigma}$. Problems. — *Multiple regression*: Multiple regression model: case I, case II, and point estimation. Multiple regression model: confidence intervals and tests of hypotheses, case I and case II. Multiple regression model: case III. Problems. — *Correlation*: Simple correlation. Partial correlation. Multiple correlation. Correlation for non-normal p.d.f.'s. Correlation and independence of random variables. Problems. — *Some applications of the regression model*: Prediction. Selecting variables for a model. Growth curves. Dis-

crimination (classification). Problems. — *Design models*: Point estimation for the design model; case I. Point estimation for the design model; case II. Confidence intervals and tests of hypotheses for case I of the design model. Computations. The one-factor design model. Further discussion of tests and confidence intervals for design models. Problems. — *Two-factor design model*: Two-factor design model, no interaction, one observation per cell. Two-factor design model, no interaction, $M > 1$ observations per cell. Two-factor design model, no interaction, unequal numbers of observations in cells. Interaction in the two-factor design model. Two-factor design model with interaction and $M > 1$ observations per cell. Two-factor design model with interaction and with $M = 1$. Two-factor model with interaction and unequal number of observations in the cells. Some situations described by two-factor design models. Balanced incomplete block models. Test for interaction. Problems. — *Components-of-variance models*: One-factor components-of-variance model; point estimation. A general components-of-variance model. Two-factor components-of-variance model. Other components-of-variance models. Additional results on components-of-variance models. Proof of theorem. Problems. — Tables.

H. Jerome KEISLER. — **Elementary calculus**. — Un vol. relié, 19 × 26, de xviii, 880 p. + 59 p. de solutions aux problèmes. — Prindle, Weber and Schmidt, Boston, Mass., 1976.

The real and hyperreal numbers: Real numbers. Rectangular coordinates. Second degree curves. Slope and velocity, the hyperreal line. Infinitesimal, finite, and infinite numbers. Standard parts. Functions of real numbers. Equations and inequalities, independent and dependent variables. Hyperreal functions. — *Differentiation*: Derivatives. Differentials and tangent lines. Derivatives of rational functions. Inverse functions. Chain rule. Higher derivatives and implicit functions. Related rates. Transcendental functions (an alternate text). — *Continuous functions*: Limits. Continuity. Partitions of an interval. Zeros of continuous functions. Maxima and minima. Maxima and minima — applications. Tests for maxima and minima. Mean value theorem. Derivatives and curve sketching. — *Integration*: Area functions. The definite integral. Properties of definite integrals. Uniqueness of the area function. Fundamental theorem of calculus. Indefinite integrals. Integration by change of variables. Second fundamental theorem of calculus. — *Limits and approximations*: Infinite limits. L'Hospital's rule. Limits and curve sketching. The ϵ, δ condition for limits. Estimates of error. Derivatives and increments. Trapezoidal rule. — *Applications of the integral*: Area between two curves. Volumes of solids of revolution. Length of a curve. Area of a surface of revolution. Averages. Some applications to physics. Improper integrals. — *Trigonometric functions*: Trigonometry. Derivatives of trigonometric functions. Inverse trigonometric functions. Integration by parts. Integrals of powers of trigonometric functions. Trigonometric substitutions. Polar coordinates. Slopes and curve sketching in polar coordinates. Area in polar coordinates. Length of a curve in polar coordinates. — *Exponential and logarithmic functions*: Exponential functions. Logarithmic functions. Derivatives of exponential functions and the number e . Some uses of exponential functions. Natural logarithms. Some differential equations. Derivatives and integrals involving x . Integration of rational functions. Methods of integration. — *Infinite series*: Sequences. Series. Properties of infinite sets. Series with positive terms. Alternating series. Absolute and conditional convergence. Power series. Derivatives and integrals of power series. Approximation by power series. Taylor's formula. Taylor series. — *Vectors*: Vector algebra. Vectors and plane geometry. Vectors and lines in space. Products of vectors. Planes in space. Vector valued functions. Vector derivatives. Hyperreal vectors. — *Partial differentiation*: Surfaces. Continuous functions of two or more variables. Partial derivatives. Total differentials and tangent

planes. Chain rule. Implicit functions. Maxima and minima. Higher partial derivatives. Directional derivatives and gradients. Line integrals. Independence of path. — *Multiple integrals*: Double integrals. Iterated integrals. Infinite sum theorem and volume. Applications to physics. Double integrals in polar coordinates. Triple integrals. Cylindrical and spherical coordinates. Green's theorem. Surface area and surface integrals. Theorems of Stokes and Gauss. — *Appendix: tables*: Trigonometric functions. Greek alphabet. Exponential functions. Natural logarithms. Powers and roots. — Answers to selected problems.

H. Jerome KEISLER. — **Foundations of infinitesimal calculus.** — Un vol. broché, 18 × 26, de ix, 214 p. — Prindle, Weber and Schmidt, Boston, Mass., 1976.

The hyperreal numbers: Structure of the hyperreal numbers. Axioms for the hyperreal numbers. Consequences of the solution axiom. Natural extensions of sets. A simple construction of the hyperreal numbers. Appendix: Algebra of the real numbers. — *Logic and superstructures*: The elementary extension principle. Superstructures. Standard, internal, and external sets. The ultrapower construction. Representation and uniqueness. — *Differentiation*: Derivatives. Infinitesimal microscopes and infinite telescopes. Properties of derivatives. Chain rule. — *Continuous functions*: Limits and continuity. Hyper-integers. Continuous functions on an interval. — *Integration*: The definite integral. Fundamental theorem of calculus. Second fundamental theorem of calculus. — *Limits*: Equivalence theorems. L'Hospital's rule. — *Applications of the integral*: Infinite sum theorem. Lengths of curves. Improper integrals. — *Trigonometric functions*: Inverse function theorem. Derivatives of trigonometric functions. Area in polar coordinates. — *Exponential functions*: Extending continuous functions. Definition and derivative of e^x . — *Infinite series*: Sequences. Series. Taylor's formula and higher differentials. — *Vectors*: Hyperreal vectors. Vector functions. — *Partial differentiation*: Continuity and partial derivatives. Chain rule and implicit functions. Maxima and minima. Second partial derivatives. Line integrals. — *Multiple integration*: Double integrals. Green's theorem. Infinite sum theorem for two variables. Change of variables in double integrals.

Peter HENRICI. — **Applied and computational complex analysis. Vol. p.** — Special functions, integral transforms, asymptotics, continued fractions. — Pure and applied mathematics, a Wiley-Interscience series of texts, monographs and tracts, — Un vol. relié, 17 × 24, de x, 662 p. — Prix: £24.40. — John Wiley and Sons, New York/London/Sydney/Toronto, 1977.

Infinite products: Definition and elementary properties. Some infinite products relevant to number theory. Product representations of entire functions. The gamma function. Stirling's formula. Some special series and products. The beta function. Integrals of the Mellin-Barnes type. Seminar assignments. Notes. — *Ordinary differential equations*: The existence theorem. Power series method. Linear systems. Linear systems with isolated singularities. Singularities of the first kind: formal solutions. Scalar equations of higher order: method of Frobenius. Two examples: the equations of Krummer and Bessel. The infinite point: equations of Fuchsian type. The hypergeometric differential equation. Quadratic transforms: Legendre functions. Singularities of the second kind: formal solutions. Singularities of the second kind of special second-order equations. Seminar assignments. Notes. — *Integral transforms*: Definition and basic properties of the \mathcal{L} transformation. Operational rules: basic correspondences. Ordinary differential equations: systems. Convolution. Some nonelementary correspondences. The Fourier integral.

The Laplace transform as a Fourier transform. Dirichlet series: prime number theorem. Functions of exponential type. The discrete Laplace transform. Some integral transforms related to the \mathcal{L} transform. Some applications to partial differential equations. Seminar assignments. Notes. — *Asymptotic methods*: An example: Asymptotic power series. The algebra of asymptotic power series. Analytic properties of asymptotic power series. Asymptotic solutions of differential equations. The Watson-Doetsch lemma. Extension of the lemma. Asymptotic formulas: Laplace's method. The method of steepest descent. General asymptotic expansions: asymptotic factorial series. Generating functions: subtracted singularities. The Euler-Maclaurin summation formula. The numerical evaluation of limits: Romberg's algorithm. Seminar assignments. Notes. — *Continued fractions*: Definition and basic properties. Continued fractions in number theory. Convergence of continued fractions with complex elements. RITZ fractions (formal theory): Padé table. The convergence of RITZ fractions: examples. The division algorithm: rational RITZ fractions. SITZ fractions: approximants, stable polynomials. S fractions: generalized value functions, convergence. S fractions: the representation of their generalized value functions by Stieltjes transforms. Positive symmetric functions and their representation as Stieltjes transforms. Existence and convergence of the S fraction corresponding to a Stieltjes transform. S fractions: expansions of Stieltjes transforms. S fractions: expansions of iterated Laplace transforms. Moment problems. Seminar assignments. Notes. — *Appendix*: Some additional problems on vol. 1.

Norman L. JOHNSON and Samuel KOTZ. — **Urn models and their application**: an approach to modern discrete probability theory. — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 24, de XIII, 402 p. — Prix: £16.45. — John Wiley and Sons, New York/London/Sydney/Toronto, 1977.

Introductory background: basic concepts and methods: Some mathematical formulas. Background for urn models. Probability. Random variables. — *Some special distributions (mostly via urn models)*: Introduction. Binomial, normal, Poisson, gamma and beta distributions. Hypergeometric distributions. Negative binomial distributions. Negative hypergeometric distributions. Power series and factorial series distributions. Multivariate distributions. Mixture distributions. Exchangeable variates (J. Galambos). Appendix (J. Galambos). — *Occupancy and related problems*: Occupancy problems. Related occupancy distributions. Randomized occupancy models. Multivariate occupancy distributions. Sequential occupancy problems. Committee problems. — *Urn models with stochastic replacements*: Introduction. Pólya-Eggenberger distributions. Generalizations of Pólya-Eggenberger distributions. Inverse Pólya distributions. Multivariate Pólya distributions. Stagemwise linkage. Randomized schemes. Urn transfer models. Appendix: Tables of Pólya-Eggenberger distribution. — *Applications*: Introduction. Applications in genetics (W. J. Ewens). Capture-recapture models. Application of urn models to learning processes. Miscellaneous applications. Sampling systems. Tests of empty boxes. Tolerance regions. Markov chains. A decision theory application. — *Limit distributions for urn models*: Introduction and summary. Occupancy distributions. Pólya-Eggenberger and related limit distributions. Limit laws for exchangeable variables (J. Galambos).

James V. BECK and Kenneth J. ARNOLD. — **Parameter estimation in engineering and science**. — Wiley series in probability and mathematical statistics. — Un vol. relié, 16 × 24, de XIX, 501 p. — Prix: £18.75.— John Wiley and Sons, New York/London/Sydney/Toronto, 1977.

Introduction to and survey of parameter estimation: Introduction. Fundamental problems. Simple examples. Sensitivity coefficients. Identifiability. *Summary and con-*

clusions. References. Problems. — *Probability*: Random happenings. Events. Probability distributions. Conditional probabilities. Functions of random variables. Expectations. Law of large numbers. Central limit theorem. Examples of distributions. References. Problems. — *Introduction to statistics*: Some examples of estimators. Properties of estimators. Confidence intervals. Hypothesis testing. References. Problems. — *Parameter estimation methods*: Introduction. Relations between observed random variables and parameters. Expected values, variances, covariances. Linear problems. Least squares. Gauss-Markov estimation. Some other estimators. Cost. Monte Carlo methods. References. — *Introduction to linear estimation*: Motivation, models, and assumptions. Ordinary least squares estimation (OLS). Maximum likelihood (ML) estimation. Maximum a posteriori (MAP) estimation. Multiple data points. Coefficient of multiple determination (R^2). Analysis of variance about the sample mean. Analysis of variance about the regression line for multiple measurements at each X_i . Confidence interval about the points on the regression line. Violation of the standard assumption of zero mean errors. Violation of the standard assumption of normality. Violation of the standard assumption of constant variance. Violation of standard assumption of uncorrelated errors. Errors in independent and dependent variables. — *Matrix analysis for linear parameter estimation*: Introduction to matrix notation and operations. Least squares estimation. Orthogonal polynomials in OLS estimation. Factorial experiments. Maximum likelihood estimator. Linear maximum a posteriori estimator (MAP). Sequential estimation. Matrix formulation for confidence intervals and regions. Matrix analysis with correlated observation errors. — *Minimization of sum of squares functions for models nonlinear in parameters*: Matrix form of Taylor series expansion. Sum of squares function. Gauss method of minimization. Examples to illustrate Gauss minimization method involving ordinary differential equations. Modifications of Gauss method. Model building and confidence regions. Sequential estimation for multiresponse data. Examples utilizing sequential estimations. Sensitivity coefficients. — *Design of optimal experiments*: Introduction. One parameter examples. Criteria for optimal experiments for multiple parameters. Algebraic examples for two parameters and large n . Optimal parameter estimation involving the partial differential equation of heat conduction. Nonstandard assumptions. Sequential optimization. Not all parameters of interest. Design criteria for model discrimination. — *Appendices*: Identifiability condition. Estimators and covariances for various estimation methods for the linear model $\eta = \chi\beta$. List of symbols. Some estimation programs.

Sidney A. MORRIS. — **Pontryagin duality and the structure of locally compact abelian groups.** — London mathematical society lecture note series, vol. 29. — Un vol. broché, 16 × 23, de VIII, 128 p. — Prix: £4.95. — Cambridge University Press, Cambridge/London/New York/Melbourne, 1977.

Preface. — Introduction to topological groups. — Subgroups and quotient groups of R^n . — Uniform spaces and dual groups. — Introduction to the Pontryagin-van Kampen duality theorem. — Duality for compact and discrete groups. — The duality theorem and the principal structure theorem. — Consequences of the duality theorem. — Locally Euclidean and NSS-groups. — Non-abelian groups. — References. — Index of terms. — Index of exercises, propositions and theorems.

I. J. MADDOX. — **Elements of functional analysis.** — Un vol. broché, 15 × 23, de x, 208 p. — Prix: £2.95. — Cambridge University Press, Cambridge/London/New York/Melbourne, 1970.

Basic set theory and analysis: Sets and functions. Real and complex numbers. Sequences of functions, continuity, differentiability. Inequalities. — *Metric and topological spaces*:

Metric and semimetric spaces. Complete metric spaces. Some metric and topological concepts. Continuous functions on metric and topological spaces. Compact sets. Category and uniform boundedness. — *Linear and linear metric spaces*: Linear spaces. Subspaces, dimensionality, factorspaces, convex sets. Linear metric spaces, paranorms, seminorms and norms. Basis. Distributions. — *Normed linear spaces*: Convergence and completeness. Linear operators and functionals. The Banach-Steinhaus theorem. The open mapping and closed graph theorems. The Hahn-Banach extension theorem. Weak convergence. — *Banach algebras*: Algebras and Banach algebras. Homomorphisms and isomorphisms. The spectrum and the Gelfand-Mazur theorem. The Gelfand representation theorem. — *Hilbert space*: Inner product and Hilbert spaces. Orthonormal sets. The dual space of a Hilbert space. — *Matrix transformations in sequence spaces*: Matrix and linear transformations. Algebras of matrices. Summability. Tauberian theorems. Some problems for further study.

Joachim ROSENMUELLER. — **Extreme games and their solutions.** Lecture notes in economics and mathematical systems, vol. 145. — Un vol. broché, 17 × 25, de III, 126 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

Preliminaries: Introductory remarks. Notations and definitions. — *Convex games*: Representation. Extreme points of c^1 . — *Superadditive games*: Representation. Extreme points of s^1 . Solutions of extreme zero-sum games. — *Examples*: Production games. Selling goods in minimal quantities.

Convex analysis and its applications. — Proceedings of a conference held at Muratle-Quaire, March 1976. — Ed. by Alfred Auslender. — Lecture notes in economics and mathematical systems, vol. 144. — Un vol. broché, 17 × 25, de v, 219 p. — Prix: DM 24.80. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

M. Atteia et J. Audounet: Noyaux des sous-espaces de Banach réflexif d'un espace localement convexe. — *B. Cornet*: An abstract theorem for planning procedures. — *P. Charrier, B. Hanouzet et J. L. Joly*: Estimation and regularity for the maximum lower solution of a unilateral problem. — *J. P. Crouzeix*: Conjugacy in quasiconvex analysis. — *O. Debordes*: Duality: some results in asymptotical elastoplasticity. — *R. Janin*: Sensitivity for non convex optimization problems. — *P. J. Laurent et C. Carasso*: A dual algorithm in quasi-convex optimization. — *J. Mossino*: Etude d'une inéquation quasi-variationnelle apparaissant en physique. — *M. F. Nougues-Sainte-Beuve*: Vector measures with bounded variation: a topological property and some applications. — *G. Owen*: Computation of equilibrium price and quantity vectors. — *J. Saint-Pierre*: Borel convex-valued multifunctions. — *R. J. B. Wets*: On the convergence of random convex sets. — *J. P. Zolesio*: An optimal design procedure for optimal control support.

Werner GAHLER. — **Grundstrukturen der Analysis I.** — Mathematische Reihe, Band 58. — Un vol. relié, 18 × 25, de VIII, 412 p. — Prix: FS 64.00. — Birkhäuser Verlag, Basel/Stuttgart, 1977.

Mengenlehre: Zum Klassenbegriff. Über Klassenbildung. Mengentheoretische Operationen. Die leere Klasse und die Allklasse. Vereinigung und Durchschnitt der Elemente einer Klasse, Potenzklassen. Einer-, Zweier-, Dreierklassen usw. Geordnete Paare, cartesische Produkte. Relationen. Spezielle Relationen. Abbildungen. Familien.

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Free groups and their subgroups : Nielsen's method. Subgroups of free groups. Automorphisms of free groups. Stabilizers in $\text{Aut}(F)$. Equations over groups. Quadratic sets of word. Equations in free groups. Abstract length functions. Representations of free groups; the Fox calculus. Free products with amalgamation. — *Generators and relations* : Finite presentations. Fox calculus, relation matrices, connections with cohomology. The Reidemeister-Schreier method. Groups with a single defining relator. Magnus' treatment of one-relator groups. — *Geometric methods* : Complexes. Covering maps. Cayley complexes. Planar Cayley complexes. F -groups continued. Fuchsian complexes. Planar groups with reflections. Singular subcomplexes. Spherical diagrams. Aspherical groups. Coset diagrams and permutation representations. Behr graphs. — *Free products and HNN extensions* : Free products. Higman-Neumann-Neumann extensions and free products with amalgamation. Some embedding theorems. Some decision problems. One-relator groups. Bipolar structures. The Higman embedding theorem. Algebraically closed groups. — *Small cancellation theory* : Diagrams. The small cancellation hypothesis. The basic formulas. Dehn's algorithm and Greendlinger's lemma. The conjugacy problem. The word problem. Applications to knot groups. The theory over free products. Small cancellation products. Small cancellation theory over free products with amalgamation and HNN extensions.

Séminaire de géométrie algébrique du Bois-Marie 1965-66: SGA 5. — Dirigé par A. Grothendieck, avec la collab. de I. Bucur, C. Houzel, L. Illusie, J.-P. Jouanolou et J.-P. Serre. — *Cohomologie I -adique et fonctions L* . — *Lecture notes in mathematics*, vol. 589. — Un vol. broché, 17 × 25, de xii, 484 p. — Prix: DM 37.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

A. Grothendieck : Complexes dualisants. — *A. Grothendieck* : Formule de Lefschetz. — *L. Illusie* : Calculs de termes locaux. — *J.-P. Jouanolou* : Systèmes projectifs J -adiques. — *J.-P. Jouanolou* : Cohomologie adique. — *J.-P. Jouanolou* : Cohomologie de quelques schémas classiques et théorie cohomologique des classes de Chern. — *A. Grothendieck* : Groupes de classes de catégories abéliennes et triangulées, complexes parfaits. — *A. Grothendieck* : Formule d'Euler-Poincaré en cohomologie étale. — *A. Grothendieck* : Formules de Nielsen-Wecken et de Lefschetz en géométrie algébrique. — *C. Houzel* : Morphisme de Frobenius et rationalité des fonctions L .

Hideya MATSUMOTO. — **Analyse harmonique dans les systèmes de Tits bornologiques de type affine.** — Lecture notes in mathematics, vol. 590. — Un vol. broché, 17×25 , de III, 219 p. — Prix: DM 24.80. — Springer Verlag: Berlin/Heidelberg/New York, 1977.

Généralités sur les fonctions sphériques: Fonctions sphériques sur G/K . Transformation de Fourier commutative. Une remarque sur d'autres fonctions sphériques. — *Une analyse harmonique dans les systèmes de Coxeter*: Algèbres de convolution sur un système de Coxeter. Algèbres de convolution involutives. Espaces L^p . Représentations unitaires et fonctions de type positif. Fonctions sphériques. Le cas exemplaire des groupes diédraux. Application à un problème combinatoire. — *Systèmes de racines et groupes de Weyl affines*: Définitions et rappels. Fonctions quasi-multiplicatives sur W . Algèbre involutive des invariants exponentiels. Polynômes et caractères sur un monoïde commutatif. — *Analyse harmonique dans les groupes de Weyl affines*: Représentations de la série principale. Quelques théorèmes fondamentaux. Opérateurs d'entrelacement. Fonctions sphériques sur W/W^0 . Mesures de Plancherel partielles. — *Systèmes de Tits bornologiques de type affine*: Rappels sur les systèmes de Tits. Systèmes de Tits bornologiques. Une décomposition d'Iwasawa et ses conséquences. Sous-groupes radiciels et sous-groupes paraboliques. Suites de Jordan-Hölder et opérateurs d'entrelacement. Représentations unitaires des groupes de rang 1.

G. A. ANDERSON. — **Surgery with coefficients.** — Lecture notes in mathematics, vol. 591. — Un vol. broché, 17×25 , de VIII, 157 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

Preliminaries: Modules. Homology and cohomology with twisted coefficients. Δ -sets. Microbundles, block bundles and spherical fibrations. The immersion classification theorem. Intersection numbers. Algebraic K -theory. Localization. — *Whitehead torsion*. — *Poincaré complexes*: Poincaré duality. Spherical fibrations and normal maps. — *Surgery with coefficients*: Surgery. The problem of surgery with coefficients. Surgery obstruction groups. The simply connected case. The exact sequence of surgery. — *Relative surgery*: Handle subtraction and applications. Geometric definition of surgery groups. Classifying spaces for surgery. The periodicity theorem, part 1. — *Relations between surgery theories*: The long exact sequence of surgery with coefficients. The Rothenberg sequence. The periodicity theorem, part 2. Simple linking numbers. — *Appendix A*: Torsion for n -ads. — *Appendix B*: Higher L -theories. — *Appendix C*: L groups of free abelian groups. — *Appendix D*: Ambient surgery and surgery leaving a submanifold fixed. — *Appendix E*: Homotopy and homology spheres.

Detlef VOIGT. — **Induzierte Darstellungen in der Theorie der endlichen, algebraischen Gruppen.** — Lecture notes in mathematics, vol. 592. — Un vol. broché, 17×25 , de V, 413 p. — Prix: DM 37.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

I. Kapitel: Das Kriterium von Blattner. Einfache Darstellungen von auflösbaren, algebraischen Gruppen. Folgerungen aus dem Kriterium von Blattner. Monomiale Gruppen. Die Sätze von Shoda in der Situation endlicher, algebraischer Gruppen. Der Satz von Taketa in der Situation endlicher, algebraischer Gruppen. Satz und Lemma von Dade in der Situation endlicher, algebraischer Gruppen. Exkurs über die Frattinialgebra einer p -Liealgebra. — *II. Kapitel*: Das Schema der Darstellungen einer Algebra. Das Schema der Zerlegungen eines Moduls. Das verallgemeinerte Taylorlemma. Induzierte und Koinduzierte Darstellungen. Induzierte Moduln, die von stabilen Moduln herrühren. Der

Zerlegungssatz von Mackey. Filtrierungen auf induzierten Moduln. — *III. Kapitel: Verschränkte Produkte. Das Rechnen mit verschränkten Produkten. Endomorphismenringe induzierter Darstellungen als verschränkte Produkte.*

Klaus BARBEY and Heinz KOENIG. — **Abstract analytic function theory and Hardy algebras.** — Lecture notes in economics, vol. 593. — Un vol. broché, 17×25 , de vii, 260 p. — Prix: DM 24.80. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

Boundary value theory for harmonic and holomorphic functions in the unit disk : Harmonic functions. Pointwise convergence: the Fatou theorem and its converse. Holomorphic functions. The function classes $Hol^\#(D)$ and $H^\#(D)$. — *Function algebras: the bounded-measurable situation* : Szegö functional and fundamental lemma. Measure theory: pre-bands and bands. The abstract F . and M . Riesz theorem. Gleason parts. The abstract Szegö-Kolmogorov-Krein theorem. — *Function algebras: the compact-continuous situation* : Representative measures and Jensen measures. Return to the abstract F . and M . Riesz theorem. The Gleason and Harnack metrics. Comparison of the two Gleason part decompositions. — *The abstract Hardy algebra situation* : Basic notions and connections with the function algebra situation. The functional α . The function classes $H^\#$ and $L^\#$. The Szegö situation. — *Elements of abstract Hardy algebra theory* : The moduli of the invertible elements of $H^\#$. Substitution into entire functions. Substitution into functions of class $Hol^\#(D)$. The function class H^+ . Weak- L^1 properties of the functions in H^+ . Value carrier and Lumer spectrum. — *The abstract conjugation* : A representation theorem. Definition of the abstract conjugation. Characterization of E with the means of M . The basic approximation theorem. The Marcel Riesz and Kolmogorov estimations. Special situations. Return to the Marcel Riesz and Kolmogorov estimations. — *Analytic disk and isomorphisms with the unit disk situation* : The invariant subspace theorem. The maximality theorem. The analytic disk theorem. The isomorphism theorem. Complements on the simple invariance of H_φ . A class of examples. — *Weak compactness of M* : The decomposition theorem of Hewitt-Yosida. Strict convergence. Characterization theorem and main result. — *Logmodular densities and small extensions* : Logmodular densities. The closed subgroup lemma. Small extensions. — *Function algebras on compact planar sets* : Consequences of the abstract Hardy algebra theory. The Cauchy transformation of measures. Basic facts on $P(K) \subset R(K) \subset A(K)$. On the annihilating and the representing measures for $R(K)$ and $A(K)$. On the Gleason parts for $R(K)$ and $A(K)$. The logarithmic transformation of measures and the logarithmic capacity of planar sets. The Walsh theorem. Application to the problem of rational approximation. — *Appendix* : Linear functionals and the Hahn-Banach theorem. Measure theory. The Cauchy formula via the divergence theorem.

Singular perturbations and boundary layer theory. — Proceedings of the Conference held at the Ecole centrale de Lyon, December 8-10, 1976. — Ed. by C. M. Brauner, B. Gay, and J. Mathieu. — Lecture notes in mathematics, vol. 594. — Un vol. broché, 17×25 , de vii, 539 p. — Prix: DM 41.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

31 exposés par: J. Baranger. — A. Bensoussan, J. L. Lions, G. Papanicolau. — Yu. A. Berezin, G. I. Dudnikova, V. A. Novikov, N. N. Yanenko. — A. Bourgeat, R. Tapiero. — C. M. Brauner, B. Nicolaenko. — J. S. Darrozes. — A. S. Demidov. — G. Duvaut. — W. Eckhaus. — Ph. Gatignol. — J. Genet, M. Madaune. — N. Gordon, F. C. Hoppensteadt. — J. P. Guiraud. — M. Holt, M. Y. Hussaini, — F. C. Hoppens-

teadt, W. L. Miranker. — D. Huet. — Th. Levy. — P. Louvet, J. Durivault. — J. L. Lumley. — J. Mathieu, B. Gay. — F. Mignot, J. P. Puel. — F. Obermeier. — R. E. O'Malley, Jr., J. E. Flaherty. — E. Sanchez-Palencia. — D. B. Spalding. — L. Tartar. — V. A. Trenogin. — V. A. Trenogin, N. A. Sidorov. — M. van Dyke. — R. Kh. Zeytounian.

Robert A. RANKIN. — **Modular forms and functions.** — Un vol. relié, 16×24 , de XIII, 384 p. — Prix: £16.50. — Cambridge University Press, Cambridge/London/New York/Melbourne, 1977.

Groups of matrices and bilinear mapping: Notation. The modular group. The subgroups Γ^2 , Γ^3 , Γ^4 and $\Gamma'(1)$. The level of a subgroup; congruence subgroups. Groups of level 2. Groups of level 3. Further results. — *Mapping properties*: Conformal mappings. Fixed points. Fundamental regions. Construction of fundamental regions for $\hat{\Gamma}(1)$ and its subgroups. Further results. — *Automorphic factors and multiplier systems*: Introduction. The functions $\sigma(S, T)$ and $\omega(S, T)$. Automorphic factors on subgroups of the modular group. Multiplier systems on $\Gamma(1)$, Γ^2 and Γ^3 . Further results. — *General properties of modular forms*: Definitions and general theorems. Dimensions of spaces of modular forms. Relations between modular forms. Modular forms of weight 2. Orders of magnitude. Further results. — *Construction of modular forms*: Poincaré series. The Hilbert space of cusp forms. The Fourier coefficients of Poincaré series. Kloosterman sums. Poincaré series belonging to $\Gamma(N)$. Poincaré series on $\Gamma(N^2)$. Modular forms on $\Gamma(N)$ of weight 2. Further results. — *Functions belonging to the full modular group*: Modular forms of even weight with constant multiplier system. Poincaré series. The cases $\delta_k = 1$. Modular forms of any real weight. Modular equations. Further remarks. — *Groups of level 2 and sums of squares*: Hermite and theta functions. Modular functions of level 2. Eisenstein series belonging to $\Gamma(2)$. Functions belonging to $\Gamma_v(2)$; sums of squares. Further remarks. — *Modular forms of level N*: Forms of fixed character or divisor. The interaction of the operators R^x and D_t . The operator J_n . The operator H_q . The operator L_q . The conjugate linear map K . Historical remarks. — *Hecke operators and congruence groups*: Double coset modules. Definition and properties of Hecke operators. The effect of Hecke operators on Poincaré series. Eigenforms. Historical and other remarks. — *Applications*: Dirichlet series. Eigenforms for the full modular group. Eigenforms for $\Gamma_v(2)$ and $\Gamma(2)$. Eigenforms of level 4. Final remarks.

Wilfried HAZOD. — **Stetige Faltungshalbgruppen von Wahrscheinlichkeitsmassen und erzeugende Distributionen.** — Lecture notes in mathematics, vol. 595. — Un vol. broché, 17×25 , de XIII, 157 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

Einleitung. — Bezeichnungen und Symbole. — Halbgruppen von Massen und Halbgruppen invarianter Operatoren. Struktur der erzeugenden Distributionen. — Mischungen erzeugender Distributionen und Zufallsentwicklungen. — Über Sätze von H. Cramér, D. A. Raikoff und S. N. Bernstein. — Halbgruppen komplexer Masse und dissipative Distributionen. — Faltungshalbgruppen mit nicht trivialen idempotenten Faktoren. — Literatur. — Sachverzeichnis.

Klaus JAENICH. — **Einführung in die Funktionentheorie.** — Hochschultext. — Un vol. broché, 17×25 , de IX, 239 p. — Prix: DM 19.80. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

Holomorphe Funktionen. — Der Wirtinger-Kalkül. — Der Cauchysche Integralsatz. — Erste Folgerungen aus dem Cauchyschen Integralsatz. — Isolierte Singularitäten. — Analytische Fortsetzung und Monodromiesatz. — Die Umlaufzahlversion des Cauchyschen Integralsatzes. — Der Residuen-Kalkül. — Folgen holomorpher Funktionen. — Satz von Mittag-Leffler, Weierstrasscher Produktsatz und Riemannscher Abbildungssatz. — Riemannsche Flächen. — Die Riemannsche Fläche eines holomorphen Keimes. — Algebraische Funktionen (kurz gefasst).

Ernst KUEHNER und Peter LESKY. — **Grundlagen der Funktionalanalysis und Approximationstheorie.** — Moderne Mathematik in elementarer Darstellung, vol. 17. — Un vol. broché, 16 × 24, de 216 p. — Prix: DM 30.00. — Vandenhoeck und Ruprecht, Göttingen, 1977.

Metrische Räume. — Vektorräume. — Normierte Vektorräume. — Skalarprodukträume. — Approximation in endlichdimensionalen Skalarprodukträumen und normierten Vektorräumen. — Grenzwerte, Vollständigkeit, Stetigkeit. — Approximation in unendlichdimensionalen Skalarprodukträumen. — Approximation in unendlichdimensionalen normierten Vektorräumen. — Ausblicke.

Recent developments in statistics. — Proceedings of the European meeting of statisticians, Grenoble, 6-11 September, 1976. — Edited by J. R. Barra, F. Brodeau, G. Romier B. Van Cutsem. — Un vol. relié, 16 × 24, de x, 808 p. — Prix: DFL 180.00. — North-Holland Publishing Company, Amsterdam/New York/Oxford, 1977.

Opening lecture: H. Cramer: L'héritage de Bernoulli. — *First part: Invited papers*: Session on asymptotic expansions: Papers by H. Strasser and R. Michel. Session on the analysis of survival data in medical investigations: papers by D. P. Byar, P. N. Lee. Session on computers and statistics: papers by J. A. Nelder, Y. Schektman, J. Jockin, P. Pasquier, D. Vielle, T. Calinski, R. Tomassone. Session on data analysis and applications to human, social and nature sciences: papers by J. C. Gower, Y. Escoufier, J. de Leeuw. Session on sampling genetics: paper by G. Malecot. Session on statistical problems in control theory: paper by J. Jacod. Session on approach to statistics by children from 11 to 15: paper by P. Comiti, P. Clarou, E. Dumousseau, G. Le Nezet, J. Pincemin. Session on stochastic approximation: paper by J. B. Hiriart-Urruty. Session on statistical inference and stochastic processes in demography: papers by T. Schweder, D. Bosq, A. P. Dawid, A. F. M. Smith, J. L. Soler, S. Tolver Jensen, G. Tusnady. — *Second part: Selected contributed papers: Mathematical statistics and statistical inference*: 45 papers by: R. Ahmad, A. M. Abouammoh, R. Ahmad, M. A. Al-Mutair, H. T. Amundsen, A. Basilevsky, D. Hum, J. M. Bernado, R. J. Bhansali, J. Bulatovic, T. Calinski, D. M. Cifarelli, E. Regazzini, J. Dauxois, A. Pousse, S. Degerine, M. Delecroix, C. Deniau, G. Oppenheim, N. C. Viano, S. Dossou-Gbete, P. Ettinger, A. de Falguerolles, D. Dugué, J. Geffroy, R. D. Gill, P. J. Green, G. Gregoire, L. P. J. Groenewegen, K. M. van Hee, B. Gyires, M. Graf-Jacottet, P. Jacob, J. Janssen, S. Johansen, S. Kounias, V. Kurotschka, A. Le Breton, G. Lennes, H. N. Linssen, E. Lukacs, K. Matusita, A. O'Hagan, J. Y. Ouvrard, E. Pardoux, F. Pesarin, T. Pham-Dinh, M. F. Ramalhoto, D. H. Girmes, W. J. J. Rey, S. Rinco, J. Spirzglas, N. Therstappen, J. Tiago de Oliveira, A. Veevers, J. M. Taylor, H. Walk. *Applied statistics*: 12 papers by J. C. Bethlehem, J. F. Bithell, R. G. Upton, P. Dagnelie, J. Demongeot, E. Elvers, J. Gani, J. A. Greenwood, E. Jolivet, Y. Kurita, L. S. Mortensen, M. E. Larsen, H. Raynaud, A. Schroeder. *Data analysis and connected topics*: 9 papers by A. I. Albert, A. Bellacicco, J. M. Bouroche, G. Saporta, M. Tenenhaus, A. Carlier, G. Drouet d'Aubigny, M. Gondran, B. Leclerc, I. C. Lerman, F. Streit.

R. GNANADESIKAN. — **Methods for statistical data analysis of multivariate observations.** — A Wiley publication in applied statistics. — Un vol. relié, 16×23 , de x, 311 p. — Prix: £15.00. — John Wiley and Sons, New York/London/Sydney/Toronto, 1977.

Introduction. — *Reduction of dimensionality*: General. Linear reduction techniques: Principal components analysis; Factor analysis. Nonmetric methods for nonlinear reduction of dimensionality. Nonlinear singularities and generalized principal components analysis: Nonlinear singularities; Generalized principal components analysis. — *Development and study of multivariate dependencies*: General. Internal dependencies. External dependencies. — *Multidimensional classification and clustering*: General. Classification: Distance measures; Classification strategies for large numbers of groups; Classification in the presence of possible systematic changes among replications. Clustering: Hierarchical clustering procedures; Nonhierarchical clustering procedures. — *Assessment of specific aspects of multivariate statistical models*: General. Estimation and tests of hypotheses: Location and regression parameters; Dispersion parameters; Robust estimation of location and dispersion. Data-based transformations. Assessment of distributional properties: Methods for evaluating similarity of marginal distributions; Methods for assessing normality. — *Summarization and exposure*: General. Study of an unstructured multi-response sample. Comparison of several multiresponse samples: Graphical internal comparisons among single-degree-of-freedom contrast vectors; Graphical internal comparisons among equal-degree-of-freedom groupings. Multidimensional residuals and methods for detecting multivariate outliers: Analysis of multidimensional residuals; Other methods for detecting multivariate outliers. — *Appendix*: Computer programs and software.

Klaus DEIMLING. — **Ordinary differential equations in Banach spaces.** — Lecture notes in mathematics, vol. 596. — Un vol. broché, 17×25 , de vi, 137 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

Lipschitz type conditions: Existence and uniqueness. Approximate solutions. Extension of solutions. Linear equations. Excursion to nonlinear eigenvalue problems. — *Compactness conditions*: Nonexistence. Measures of noncompactness. Existence. The set of solutions. Excursion to Ovcyannikov. — *Conditions of dissipative type*: Duality maps and semi-inner products. Uniqueness. Local existence. Global existence. Excursion to stochastic differential equations. Excursion to continuous accretive operators. — *Solutions in closed sets*: Boundary conditions. Approximate solutions. Existence. Examples. — *Flow invariance and differential inequalities*: Boundary conditions. Flow invariance. Differential inequalities. Maximal and minimal solutions. — *Countable systems of ordinary differential equations*: Lower diagonal systems. Row-finite systems. General systems. The function $\exp(At)$. — *Approximate solutions*: Galerkin approximations in Banach spaces. Galerkin approximations for countable systems. Examples. — *Related topics*: Carathéodory conditions. Weaker continuity. Evolution equations. Qualitative properties.

Geometry and topology. — Third Latin American school of mathematics: Proceedings of the school held at the Instituto de matemática pura e aplicada CNPq, Rio de Janeiro, July 1976. — Edited by Jacob Palis and Manfredo do Carmo. — Lecture notes in mathematics, vol. 597. — Un vol. broché, 17×25 , de vi, 866 p. — Prix: DM 50.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

J. Adem and K. Y. Lam : Evaluations of some Maunder cohomology operations. — *J. S. Andrade* : Constructions géométriques de certaines séries discrètes. — *J. L. Arraut and N. M. dos Santos* : The point spectrum of the adjoint of an automorphism of a vector bundle. — *Th. Banchoff and C. McCrory* : Whitney duality and singularities of projections. — *C. Camacho and A. L. Neto* : Orbit preserving diffeomorphisms and the stability of Lie group actions and singular foliations. — *A. G. Colares and M. P. do Carmo* : On minimal immersions with parallel normal curvature tensor. — *S.-S. Chern* : Circle bundles. — *D. B. A. Epstein* : A topology for the space of foliations. — *D. B. A. Epstein and H. Rosenberg* : Stability of compact foliations. — *S. Feder and W. Iberkleid* : Secondary operations in K -theory and the generalized vector field problem. — *R. Gérard* : On holomorphic solutions of certain kind of Pfaffian systems with singularities. — *H. Gluck and D. Singer* : Scattering problems in differential geometry. — *C. Gutierrez and W. de Melo* : The connected components of Morse-Smale vector fields on two manifolds. — *G. Hector* : Feuilletages en cylindres. — *M. R. Herman* : Mesure de Lebesgue et nombre de rotation. The Godbillon-Vey invariant of foliations by planes of T^3 . — *M. Herrera* : On the construction of the trace in Serre duality. — *P. Hilton* : Localization theories for groups and homotopy types. — *H. Kollmer* : On hyperbolic attractors of codimension one. — *A. Lins, W. de Melo and C. C. Pugh* : On Liénard's equation. — *S. Lojasiewicz* : On the Weierstrass preparation theorem. — *R. Mañé* : Reduction of semilinear parabolic equations to finite dimensional C^1 flows. Axiom A for endomorphisms. Characterizations of AS diffeomorphisms. — *A. S. de Medeiros* : Structural stability of integrable differential forms. — *W. de Melo* : Accessibility of an optimum. — *J. Moser* : The scattering problem for some particle systems on the line. Proof of a generalized form of a fixed point theorem. — *J. Palis, Jr.* : Some developments on stability and bifurcations of dynamical systems. — *L. L. Rodriguez* : Convexity and tightness of manifolds with boundary. — *O. R. Ruiz M.* : Existence of brake orbits in Finsler mechanical systems. — *J. C. de Souza Kiihl* : On the complex projective bundle construction. — *F. Takens* : Symmetries, conservation laws and variational principles. — *G. Tavares dos Santos* : Classification of generic quadratic vector fields with no limit cycles. — *J. Tiraó* : The classifying ring of $SL(2, C)$. — *F. Tomi* : On the finite solvability of Plateau's problem. — *A. J. Tromba* : The set of curves of uniqueness for Plateau's problem has a dense interior. — *C. T. C. Wall* : Geometric properties of generic differentiable manifolds. — *E. C. Zeeman* : A catastrophe model for the stability of ships. — *E. Zehnder* : Note on smoothing symplectic and volume preserving diffeomorphisms. A simple proof of a generalization of a theorem by C. L. Siegel.

J. HOFFMANN-JØRGENSEN, T. M. LIGGETT, J. NEVEU. — Ecole d'été de probabilité de Saint-Flour VI-1976. — Edité par P.-L. Hennequin. — Lecture notes in mathematics, vol. 598. — Un vol. broché, 17×25 , de XII, 447 p. — Prix: DM 37.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

J. Hoffmann-Jørgensen : Probability in Banach space: Prerequisites. The tail distribution of convex functions. The two pearls of probability. — *T. M. Liggett* : The stochastic evolution of infinite systems of interacting particles: Part 1: Existence results and first ergodic theorems. The use of coupling techniques. The use of duality techniques. Other results. Part 2: Exclusion processes: Existence results and identification of simple invariant measures. The symmetric simple exclusion process. The asymmetric simple exclusion process. The exclusion process with speed change. — *J. Neveu* : Processus ponctuels: Généralités sur les processus ponctuels. Processus ponctuels stationnaires. Méthode des martingales.

Complex analysis. — Proceedings of the Conference held at the University of Kentucky, May 18-22, 1976. — Edited by J. D. Buckholtz and T. J. Suffridge. — Lecture notes in mathematics, vol. 599. Un vol. broché, 17 × 25, de x, 159 p. — Prix: DM 18.00. — Springer Verlag, Berlin/Heidelberg/New York, 1977.

L. V. Ahlfors: A somewhat new approach to quasiconformal mappings in R^n . — *I. N. Baker and C.-C. Yang*: An infinite order periodic entire function which is prime. — *J. D. Buckholtz*: A uniqueness theorem with application to the Abel series. — *M. Damodar*: On the distribution of values of meromorphic functions of slow growth. — *P. Duren*: Subordination. — *A. Edrei*: Equidistribution of the arguments of the zeros of Padé numerators. — *M. Essén and D. F. Shea*: An extremal problem in function theory. — *W. H. J. Fuchs*: A look at Wiman-Valiron theory. — *F. Gross*: Factorization of meromorphic functions and some open problems. — *W. K. Hayman*: Values and growth of functions regular in the unit disk. — *F. R. Keogh*: Some recent developments in the theory of univalent functions. — *J. Miles and D. Townsend*: On the imaginary values of meromorphic functions. — *G. Piranian*: The points of maximum modulus of a univalent function. — *L. A. Rubel and C.-C. Yang*: Values shared by an entire function and its derivative. — *W. Rudin*: Holomorphic maps of discs into F -spaces. — *I. J. Schoenberg*: On the zeros of the successive derivatives of integral functions II. — *S. M. Shah*: Entire functions of bounded index. — *T. J. Suffridge*: Starlikeness, convexity and other geometric properties of holomorphic maps in higher dimensions.

Yuriy A. ROZANOV. — **Innovation processes.** — Translation editor: A. V. Balakrishnan. — Scripta series in mathematics. — Un vol. relié, 15 × 23, de vii, 136 p. — Prix: £10.90. — V. H. Winston and Sons, Washington, D. C., 1977, (A Halsted Press book, John Wiley and Sons, New York/Toronto/London/Sydney).

Innovation processes and canonical representations: Introduction. Structural types and subordinate processes. Some examples involving innovation processes. — *Regular processes*: Isometric families. Some examples. Some models of random processes. Regularity and a problem of factorization. A theorem on factorization. — *Regular stationary processes*: A structural type of a regular stationary process. Wold decomposition and factorization of the spectral density. Multiplicity of a regular stationary process. Regularity conditions. — *Equivalent random processes*: The concept of equivalence probability interpretation in the case of Gaussian distributions. Equivalence of stationary processes. Random processes equivalent to a Wiener process.

Alexandru SOLIAN. — **Theory of modules: An introduction to the theory of module categories.** — Translated from the Romanian by Mioara Buiculescu. — Un vol. relié, 18 × 25, de x, 420 p. — Prix: £12.75. — Editura Academiei, Bucuresti, and John Wiley and Sons, London/New York/Sydney/Toronto, 1977.

Preliminary notions. — Modules and linear mappings. — Groups of homomorphisms. — Submodules and quotient modules. — Kernels, cokernels, the canonical factorization of a morphism. — Exact sequences. — Direct products. — Direct sums. — Intersections and sums of submodules. — Internal direct sum of submodules. — Linearly independent families, bases, free modules. — Modules of finite length. — Projective limits. — Inductive limits. — Commutativity properties. — Change of the ring of scalars. — Multimodules. — Duality. — Projective and injective modules. — Generators. Injective envelopes. — Representation theorems.

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