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$$1 - \left( \frac{-1}{q} \right)^q$$

*Variation 13:* Die quadratische Gleichung  $x^2 + x + \frac{1 - \left( \frac{-1}{q} \right)^q}{4} = 0$  in  $\mathbf{F}_p$ . — *Variation 14:* Faktorzerlegung gewisser Polynome in  $\mathbf{F}_p$ . — *Anhang 1:* Einige Ergebnisse der elementaren Zahlentheorie. — *Anhang 2:* Endliche Körper.

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*Elementare Differentialgeometrie:* Grundlegendes über Kurven. Kurven im  $\mathbf{R}^2$ . Vierscheitelsatz. Kurven im  $\mathbf{R}^3$ . Flächenstücke im  $\mathbf{R}^3$ . Die Abbildungen von Gauss und Weingarten. Die Rolle der zweiten Fundamentalform. Regelflächen. Nulllinien Pfaffscher Formen in  $\mathbf{R}^2$  und Anwendungen. Weitere Aufgaben zu Kapitel 1. — *Riemannsche Geometrie:* Definition und einfache Eigenschaften. Der Levi-Civita-Zuzammenhang. Die Methode der Basisfelder (Cartanscher Kalkül). Wechsel des Basisfeldes. Spezialisierung auf den zweidimensionalen Fall. Parallelverschiebung. Geodätische und Exponentialabbildung. Die Schnittkrümmung. Radiale Entwicklung. — *Hyperflächen im Euklidischen Raum:* Grundlegendes über Hyperflächenimmersionen. Die Methode der bewegten Basen. Die Abbildungen von Gauss und Weingarten. Nabelpunktsimmersionen. Isometrie und Kongruenz. Der Kalkül von K. Voss. Die Integralformeln von Minkowski. Globale Kennzeichnungen der Sphären. Der Kongruenzsatz von Cohn-Vossen. — *Der Satz von Gauss-Bonnet:* Der Kalkül von Flanders. Die Chern-Gleichung. Gauss-Bonnet-Chern-Integral und reguläre Nullstellen von Vektorfeldern. Allgemeiner Index und Euler-Charakteristik. Der Integralsatz von Gauss-Bonnet mit Rand. Berechnung der Euler-Charakteristik durch nicht-ausgeartete Funktionen. — *Kovariante Abteilung von Tensorfeldern.* — *Anhänge:* Multilineare Algebra. Differenzierbare Mannigfaltigkeiten.

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*Degree theory in finite dimensional spaces:* Definition of degree for  $C^1$  functions. Towards a definition for continuous functions. Admitting critical values. Continuous functions. — *Properties of degree in finite dimensional spaces:* Changes in  $\emptyset$  and  $p$ . Changes in the domain  $D$ . The multiplication theorem. Mappings defined on manifolds. — *Some topological applications:* The Brouwer fixed point theorem. Odd mappings. The Jordan separation theorem. — *Leray-Schauder degree:* Introductory remarks.

Definition of the Leray-Schauder degree. Properties of the Leray-Schauder degree. Fixed point theorems. — *Axiomatic treatment*: Axioms for degree theory. General theory. The uniqueness of the Leray-Schauder degree. — *Condensing maps and k-set contractions*: Measure of non-compactness. Degree for condensing maps. Fixed point theorems. — *Generalised degree*: Intertwined representations. A-proper mappings. Multivalued mappings. — *Differentiable mappings*: Calculation of degree. Another definition of degree. — *Some applications of degree theory*: Periodic solutions (I). Periodic solutions (II). Holomorphic mappings and differential equations. Boundary value problems. Bifurcation theory. Other applications.

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associated with linear evolutionary processes in Hilbert space : Statement of the problem. The optimality theorem. Optimal control of linear hereditary systems. — *Synthesis of optimal control* : Optimal synthesis function. Hamilton-Jacobi equations.

William J. GILBERT. — **Modern algebra with applications.** — Un vol. relié, 16 × 24, de XII, 348 p. — Prix: £ 15.60. — John Wiley & Sons, New York/London/Sydney/Toronto, 1976.

*Introduction* : Classical algebra. Modern algebra. Binary operations. Algebraic structures. Extending number systems. — *Boolean algebras* : Algebra of sets. Number of elements in a set. Boolean algebras. Switching circuits. Posets and lattices. Normal forms and simplification of circuits. Transistor gates. Representation theorem. — *Groups* : Groups and symmetries. Subgroups. Cyclic groups and dihedral groups. Morphisms. Permutation groups. Even and odd permutations. Cayley's representation theorem. — *Quotient groups* : Equivalence relations. Cosets and Lagrange's theorem. Normal subgroups and quotient groups. Morphism theorem. Direct products. Group of low order. Action of a group on a set. — *Symmetry groups in three dimensions* : Translations and the Euclidean group. Matrix groups. Finite groups in two dimensions. Proper rotations of regular solids. Finite rotation groups in three dimensions. Crystallographic groups. — *Polya-Burnside method of enumeration* : Burnside's theorem. Necklace problems. Coloring polyhedra. Counting switching circuits. — *Monoids and machines* : Monoids and semi-groups. Finite-state machines. Quotient monoids and the monoid of a machine. — *Rings and fields* : Rings. Integral domains and fields. Subrings and morphisms of rings. New rings from old. Field of fractions. Convolution fractions. — *Polynomial and Euclidean rings* : Division algorithm. Euclidean algorithm. Unique factorization. Factoring real and complex polynomials. Factoring rational and integral polynomials. Factoring polynomials over finite fields. Linear congruences and the Chinese remainder theorem. — *Quotient rings* : Ideals and quotient rings. Computations in quotient rings. Morphism theorem. Quotient polynomial rings that are fields. — *Field extensions* : Field extensions. Algebraic numbers. Galois fields. Primitive elements. — *Latin squares* : Latin squares. Orthogonal Latin squares. Finite geometries. Magic squares. — *Geometrical constructions* : Constructible numbers. Duplicating the cube. Trisecting an angle. Squaring the circle. Constructing regular polygons. A non-constructible number of degree four. — *Error-correcting codes* : The coding problem. Simple codes. Polynomial representation. Matrix representation. Error correcting and decoding. BCH codes. — *Answers to odd-numbered exercises*. — *Glossary of symbols*.

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extensions. Abelian extensions and separable algebras. Semisimple rings. — *The nilpotent radical*: The controller subgroup. The  $N^*$ -radical. A conjecture. Radical ideals and intersection theorems. — *Primitive rings*: Extensions and the center. Some basic constructions. Normal abelian subgroups. Simple augmentation ideals. — FINITENESS PROPERTIES: *Chain conditions*: Artinian rings. Noetherian rings. Homological dimension. Goldie rings. — *Nilpotent groups*: Dimension subgroups. The Artin-Rees property. Hypercentral rings. Ideal correspondence. — *Finite dimensional modules*: Solvable and finite linear groups. Philip Hall's problem. Some residually finite groups. Finite endomorphism dimension. — *The zero divisor problem*: Unique product groups. — Ordered groups. Supersolvable groups. Polycyclic-by-finite groups. — *Isomorphism questions*: Central subfields. Finite metabelian groups. Infinite abelian groups. Fields of the first kind.

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Thomas A. WHITELAW. — **An introduction to abstract algebra.** — Un vol. broché, 15 × 22, de IX, 166 p. — Prix: £4.95. — Blackie and Son, Ltd., Glasgow/London, 1978.

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biharmonic problem. Solution of the discrete problem by duality techniques. — *Finite element methods for shells* : The shell problem. Conforming methods. A nonconforming method for the arch problem. — *Epilogue* : Some “real-life” finite element model examples.

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*Vector bundles*: Quasi-vector bundles. Vector bundles. Clutching theorems. Operations on vector bundles. Sections of vector bundles. Algebraic properties of the category of vector bundles. Homotopy theory of vector bundles. Metrics and forms on vector bundles. — *First notions of K-theory*: The Grothendieck group of a category. The group  $K(X)$ . The Grothendieck group of a functor. The group  $K(X, Y)$ . The group  $K^{-1}$  of a Banach category. The group  $K^{-1}(X)$ . The groups  $K^{-n}(X)$  and  $K^{-n}(X, Y)$ . Multiplicative structures. — *Bott periodicity*: Periodicity in complex  $K$ -theory. First applications of Bott periodicity theorem in complex  $K$ -theory. Clifford algebras. The functors  $K^{p,q}(\mathcal{C})$  and  $K^{p,q}(X)$ . The functors  $K^{p,q}(X, Y)$  and the isomorphism  $t$ . Periodicity in real  $K$ -theory. Proof of the fundamental theorem. — *Computation of some K-groups*: The Thom isomorphism in complex  $K$ -theory for complex vector bundles. Complex  $K$ -theory of complex projective spaces and complex projective bundles. Complex  $K$ -theory of flag bundles and Grassmann bundles.  $K$ -theory of a product. Complements in Clifford algebras. The Thom isomorphism in real and complex  $K$ -theory for real vector bundles. Operations in  $K$ -theory. — *Some applications of K-theory*:  $H$ -space structures on spheres and the Hopf invariant. The solution of the vector field problem on the sphere. Characteristic classes and the Chern character. The Riemann-Roch theorem and integrality theorems. Applications of  $K$ -theory to stable homotopy. (*Exercises et Historical note à la fin de chaque chapitre*).

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*The Hilbert manifold of closed curves*: Hilbert manifolds. The manifold of closed curves. Riemannian metric and energy integral of the manifold of closed curves. The condition (C) of Palais and Smale and its consequences. — *The Morse-Lusternik-Schnirelmann theory on the manifold of closed curves*: The Lusternik-Schnirelmann theory on  $\Lambda M$ . The space of unparameterized closed curves. Closed geodesics on spheres. Morse theory on  $\Lambda M$ . The Morse complex. — *The geodesic flow*: Hamiltonian systems. The index theorem for closed geodesics. Properties of the Poincaré map. Appendix by J. Moser: The Birkhoff-Lewis fixed point theorem. — *On the existence of many closed geodesics*: Critical points in  $\Pi M$  and the theorem of Fet. The theorem of Gromoll-Meyer. The existence of infinitely many closed geodesics. Appendix by J. Sacks: The minimal model for the rational homotopy type of  $\Lambda M$ . Some generic existence theorem. — *Miscellaneous results*: The theorem of the three closed geodesics. Some special manifolds of elliptic type. Geodesics on manifolds of hyperbolic and parabolic type. — *Appendix: The theorem of Lusternik and Schnirelmann*: The space  $PM$  and the theorem of Lyusternik and Fet. Closed curves without self-intersections on the 2-sphere. The theorem of Lusternik and Schnirelmann.

Ulf GRENANDER. — **Pattern analysis: lectures in pattern theory, vol. 2.** — Applied mathematical sciences, vol. 24. — Un vol. broché, 17 × 25, de viii, 605 p. — Prix: DM 39.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1978.

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R. S. LIPTSER, A. N. SHIRYAYEV. — **Statistics of random processes I: general theory.** — Translated by A. B. Aries. — Applications of mathematics, vol. 5. — Un vol. relié, 17 × 25, de x, 394 p. — Prix: DM 64.80. — Springer-Verlag, New York/Heidelberg/Berlin, 1977.

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Brian DAVIES. — **Integral transforms and their applications.** — Applied mathematical sciences, vol. 25. — Un vol. broché, 17 × 25, de XII, 411 p. — Prix: DM 32.00. — Springer-Verlag, New York/Heidelberg/Berlin, 1978.

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*Chronology of most relevant scientists mentioned in the text. — Historical background*: A historical prelude. Biography. Academic background and contemporaries. Bienaymé in the literature. The “Société Philomathique” and the journal “L'Institut”. — *Demography and social statistics*: Infant mortality and birth statistics. Life tables. Probability and the law. Insurance and retirement funds. — *Homogeneity and stability of statistical trials*: Varieties of heterogeneity. Bienaymé and Poisson's law of large numbers. Dispersion theory. Bienaymé's test. — *Linear least squares*: Legendre, Gauss, and Laplace. Bienaymé's contribution. Cauchy's role in interpolation theory. Consequences. Bienaymé and Cauchy on probabilistic least squares. Cauchy continues. — *Other probability and statistics*: A limit theorem in a Bayesian setting. Medical statistics. The law of averages. Electoral representation. The concept of sufficiency. A general inequality. A historical note on Pascal. The simple branching process. The Bienaymé-Chebyshev inequality. A test for randomness. — *Miscellaneous writings*: A perpetual calendar. The alignment of houses. The Montyon prize reports. — References to Bienaymé extracted from name indexes of « Comptes rendus hebd. des séances de l'Académie des sciences ». — Bienaymé's publications.

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**Journées de statistique des processus stochastiques.** — Proceedings, Grenoble, juin 1977. — Edité par Didier Dacunha-Castelle et Bernard Van Cutsem. — Lecture notes in mathematics, vol. 636. — Un vol. broché, 17 × 25, de viii, 202 p. — Prix: DM 24.80. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

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*Statement of the theorem:* Characteristic classes. Motivation of the index theorem. Statement of the index theorem. — *Applications of the index theorem:* The de Rham operator. The Dolbeault operator. The Hodge operator. The Dirac operator. — *Outline of the proof:* The ring  $K(X)$ . The topological index B. Pseudodifferential operators. Construction of the index homomorphism. Proof of the index theorem. — *The Atiyah-Singer fixed point theorem:* The topological  $G$ -index  $B_G$ . The  $G$ -index theorem. The Atiyah-Singer fixed point theorem. — *Applications of the fixed point theorem:* The Lefschetz fixed point theorem. The holomorphic fixed point theorem. The  $G$ -signature theorem. The  $G$ -spin theorem. — *Appendix:* Classifying spaces. The splitting principle for complex vector bundles. The splitting principle for real vector bundles. The splitting principle and spin bundles. Universal symbols.

Norbert ADASCH, Bruno ERNST, Dieter KEIM. — **Topological vector spaces:** the theory without convexity conditions. — Lecture notes in mathematics, vol. 639. — Un vol. broché, 17 × 25, de v, 125 p. — Prix: DM 18.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

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*G. Almkvist, R. Fossum*: Decomposition of exterior and symmetric powers of indecomposable  $\mathbf{Z}/p\mathbf{Z}$ -modules in characteristic  $p$  and relations to invariants. — *U. Oberst*: The use of representations in the invariant theory of not necessarily reductive groups. — *C. Procesi*: Les bases de Hodge dans la théorie des invariants. — *I. Reiner*: Integral representations of finite groups. — *A. Levy-Bruhl-Laperrière*: Spectre du de Rham Hodge sur l'espace projectif complexe. — *J. C. McConnell*: The global dimension of rings of differential operators. — *F. Couchot*: Sous-modules purs et modules de type cofini. — *G. Krause*: Some recent developments in the theory of noetherian rings. — *L. Lesieur*: Conditions nothériennes dans l'anneau de polynômes de Ore  $A[X, \sigma, \delta]$ . — *E. Wexler-Kreindler*: Propriétés de transfert des extensions d'Ore. — *G. Barou*: Cohomologie locale des algèbres enveloppantes d'Algèbres de Lie nilpotents. — *H. Popp*: Recent developments in the classification theory of algebraic varieties. — *M. Paugam*: Sur les invariants homologiques des anneaux locaux nothériens: un calcul de la cinquième déflexion. — *H. Rahbar-Rochandel*: Relations entre la série de Betti d'un anneau local de Gorenstein  $R$  et celle de l'anneau  $R/\text{Socle } R$ . — *J. Querré*: Intersections d'anneaux intègres (II).

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*General concepts*: Categories. Functors. Morphisms of functors. Representable functors. Products and sums. Limits. Adjoint functors. Suprema and infima. Continuous functors. — *Internal structure of categories*: Epimorphisms and monomorphisms. Punctured categories. Additive categories. Kernels and cokernels. Exact and abelian categories. Exact sequences. Functors preserving extra structure. Special objects: projectives, injectives, generators and cogenerators. Grothendieck categories. — *Homological algebra*: Extensions. Connected sequences and satellites. Derived functors. Satellites and derived functors. — *Sheaves and their cohomology*: Introduction. Concrete sheaves. Presheaves. The sheafification of presheaves. Sheaves. Change of base space. A pseudo-categorical survey. Presheaves and sheaves of modules. Subspaces and sheaves of modules. Cohomology of sheaves. Flabby sheaves and cohomology. Soft and fine sheaves.

**William J. LEVEQUE.** — **Fundamentals of number theory.** — Un vol. relié, 17 × 24, de VII, 280 p. — Prix: \$18.40. — Addison-Wesley Publishing Company, Reading, Mass./Menlo Park, Calif./London/Amsterdam/Don Mills, Ont./Sydney, 1977.

*Introduction*: What is number theory? Algebraic properties of the set of integers. Types of proofs, and some examples. Representation systems for the integers. The early history of number theory. — *Unique factorization and the GCD*: The greatest common divisor. Unique factorization in other domains. The linear Diophantine equation. The least common multiple. — *Congruences and the ring  $Z_m$* : Congruence and residue classes. Complete and reduced residue systems; Euler's  $\phi$ -function. Linear congruences. Higher-degree polynomial congruences. The  $p$ -adic fields. — *Primitive roots and the group  $U_m$* : Primitive roots. The structure of  $U_m$ .  $n$ th power residues. An application to Fermat's

equation. *Quadratic residues*: Introduction. Quadratic residues of primes, and the Legendre symbol. The law of quadratic reciprocity. The Jacobi symbol. Factorization of large integers. — *Number-theoretic functions and the distribution of primes*: Introduction. The Möbius function. The function  $[x]$ . The symbols “ $O$ ”, “ $o$ ”, “ $\ll$ ” and “ $\sim$ ”. The sieve of Eratosthenes. Sums involving primes. The true order of  $\pi(x)$ . Primes in arithmetic progressions. Bertrand's hypothesis. The order of magnitude of  $\varphi$ ,  $\sigma$  and  $\tau$ . Average order of magnitude. Brun's theorem on twin primes. — *Sums of squares*: Preliminaries. Primitive representations as a sum of two squares. The total number of representations. Sums of three squares. Sums of four squares. Waring's problem. — *Quadratic equations and quadratic fields*: Legendre's theorem. Pell's equation. Algebraic number fields and algebraic integers. Arithmetic in quadratic fields. — *Diophantine approximation*: Farey sequences and Hurwitz's theorem. Best approximations to a real number. Infinite continued fractions. Quadratic irrationalities. Applications to Pell's equation and to factorization. Equivalence of numbers. The transcendence of  $\pi$ . — *Appendix*: Factor table. Computer-plotted graphs. Tables of indices. Greek alphabet. List of symbols.

A. KAUFMANN, G. BOULAYE. — **Théorie des treillis en vue des applications**. — Un vol. relié,  $17 \times 25$ , de 146 p. — Prix: FF 178.00. — Masson, Paris/New York/Barcelone/Milan, 1978.

*Présentation générale de la théorie des treillis*: Introduction. Notations et rappels ensemblistes. Les configurations ordonnées. Le concept de treillis en tant que configuration. Le concept de treillis en tant que structure algébrique. Demi-treillis. — *Les principaux types de treillis du point de vue algébrique*: Introduction. Treillis modulaire; treillis semi-modulaire. Treillis distributif. Treillis distributif et complémenté ou treillis de Boole. Treillis vectoriel. Treillis complet. Sous-treillis. — *Les principaux types de treillis en tant qu'ensembles ordonnés*: Introduction. Chaîne. Treillis libres à  $n$  générateurs. Sous-treillis et produit de treillis. Fermetures associées aux opérateurs  $\nabla$  et  $\Delta$  dans un treillis. Extension d'un ensemble ordonné. — *Treillis booléens; point de vue algébrique et ordonné*: Introduction. Définition axiomatique d'une algèbre de Boole. Ordre sur une algèbre de Boole. Fonctions booléennes. Équations booléennes.

Aleksey Vasil'yevich POGORELOV. — **The Minkowski multidimensional problem**. — Scripta series in mathematics. — Un vol. relié,  $15 \times 23$ , de 106 p. — Prix: £.9.70.— V. H. Winston & Sons, Washington D. C. (Distributed solely by Halsted press, a division of John Wiley & Sons, New York/Toronto/London/Sydney), 1978.

Introductory commentary. — Preface to the American edition. — Foreword. — Introduction: Convex bodies and hypersurfaces in  $E^n$ . Generalized solution of the Minkowski problem. Regular solution of Minkowski's problem. Generalization of Minkowski's problem. Multidimensional analog of the Monge-Ampère equation. On improper convex affine hyperspheres. — Bibliography.

Edward A. BENDER. — **An introduction to mathematical modeling**. — Un vol. relié,  $16 \times 24$ , de x, 256 p. — Prix: £11.95. — John Wiley & Sons, New York/Chichester/Brisbane/Toronto, 1978. (A Wiley-Interscience publication).

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D. J. SHOESMITH; T. J. SMILEY. — **Multiple-conclusion logic**. — Un vol. relié, 16 × 24, de XIII, 396 p. — Prix: £15.00. — Cambridge university press, Cambridge/London/New York/Melbourne, 1978.

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*Informal statement calculus*: Statements and connectives. Truth functions and truth tables. Rules for manipulation and substitution. Normal forms. Adequate sets of connectives. Arguments and validity. — *Formal statement calculus*: The formal system  $L$ . The adequacy theorem for  $L$ . — *Informal predicate calculus*: Predicates and quantifiers. First order languages. Interpretations. Satisfaction, truth. — *Formal predicate calculus*: The formal system  $K_{\mathcal{L}}$ . Equivalence, substitution. Prenex form. The adequacy theorem for  $K$ . Models. — *Mathematical systems*: Introduction. First order systems with equality. The theory of groups. First order arithmetic. Formal set theory. Consistency and models. — *The Gödel incompleteness theorem*: Introduction. Expressibility. Recursive functions and relations. Gödel numbers. The incompleteness proof. — *Computability, unsolvability, undecidability*: Algorithms and computability. Turing machines. Word problems. Undecidability of formal systems. — *Appendix*: Countable and uncountable sets.

H. B. GRIFFITHS, P. J. HILTON. — **Klassische Mathematik in zeitgemässer Darstellung. Band 3:** Das Zahlensystem, Topologie und Analysis, Logik und Kategorien. — Studia mathematica: Mathematische Lehrbücher. — Un vol. broché, 15,5 × 23,5, de 320 p. — Prix: DM 39.00. — Vandenhoeck & Ruprecht, Göttingen/Zürich, 1978.

*Aufbau des Zahlensystems und Topologie*: Die rationalen Zahlen. Die reellen und die komplexen Zahlen. Topologie im  $\mathbf{R}^n$ . — *Infinitesimalrechnung*: Die Algebra  $\mathbf{R}^I$ . Limesbildung. Stetige Funktionen. Differenzierbare Funktionen: *Weitere Themen aus der*

*Analysis*: Logarithmus und Exponentialfunktion. Differentialgleichungen. Komplexwertige Funktionen. Approximation und Iteration. Funktionen von mehreren reellen Veränderlichen. Vektorwertige Funktionen.  $C^r$ -Funktionen. — *Vertiefung der Grundlagen*: Kategorien und Funktoren. Mathematische Logik.

Jean DIEUDONNE, directeur de publication. — **Abrégé d'histoire des mathématiques 1700-1900. Tome 1:** Algèbre, analyse classique, théorie des nombres. — Avec la collab. de Pierre Dugac, W. J. et F. Ellison, Jean Guérindon, Marcel Guillaume, Guy Hirsch, Christian Houzel, Paulette Libermann, Michel Loève, Jean-Luc Verley. — Un vol. relié,  $18 \times 25$ , de viii, 392 p. — Prix: FF 272.00 les 2 volumes. — Hermann, Paris, 1978.

*Introduction*: La carrière de mathématicien. La communauté mathématique. Evolution et progrès des mathématiques. — *L'analyse mathématique au dix-huitième siècle*: Introduction. Les problèmes. Rigueur et formalisme. Résultats généraux. Etude de fonctions particulières. Equations différentielles. Equations aux dérivées partielles du premier ordre. Equations aux dérivées partielles d'ordre supérieur. Calcul des variations. Calcul numérique. — *L'algèbre et la géométrie jusqu'en 1840*: Introduction. Algèbre linéaire et multilinéaire. La résolution des équations algébriques. Géométrie analytique et analyse géométrique. La géométrie projective complexe. — *L'algèbre depuis 1840*: Introduction. Le calcul sur de nouveaux objets. Algèbre linéaire et multilinéaire. Corps, anneaux, idéaux et modules. La naissance de l'algèbre moderne. — *Les fonctions analytiques*: Introduction. Les fonctions élémentaires. Calcul d'intégrales définies réelles. La représentation géométrique. Cauchy et l'école française de la première moitié du xixe siècle. Riemann et la théorie géométrique des fonctions. La théorie des fonctions de Weierstrass. Les fonctions de plusieurs variables complexes. — *Théorie des nombres*: Une brève histoire des débuts de l'arithmétique. La fin du xviii<sup>e</sup> siècle. Les débuts du xix<sup>e</sup> siècle. Formes quadratiques binaires. La théorie des nombres algébriques. Nombres premiers. Nombres transcendants. Approximations diophantiennes. Equations diophantiennes. Formes quadratiques à  $n$  variables. Théorie additive des nombres. Corps de fonctions algébriques d'une variable sur un corps fini. — *Fondements de l'analyse*: Effort de rigueur du début du xix<sup>e</sup> siècle et élucidation des notions de convergence et de continuité. Les séries trigonométriques, le problème de la continuité d'une série de fonctions continues et la convergence uniforme. La définition de l'intégrale. Premières réflexions sur les nombres réels, sur une théorie générale des fonctions et sur les ensembles. Les constructions des nombres réels. La rigueur weierstrassienne. Les débuts de la théorie des ensembles. Théorie des ensembles et topologie générale. Théorie de la mesure. Fondements de l'arithmétique. (Bibliographie à la fin de chaque chapitre).

Jean DIEUDONNE, directeur de publication. — **Abrégé d'histoire des mathématiques 1700-1900. Tome 2:** Fonctions elliptiques, analyse fonctionnelle, topologie, géométrie différentielle, probabilités, logique mathématique. — Avec la collab. de Pierre Dugac, W. J. et F. Ellison, Jean Guérindon, Marcel Guillaume, Guy Hirsch, Christian Houzel, Paulette Libermann, Michel Loève, Jean-Luc Verley. — Un vol. relié,  $18 \times 25$ , de viii, 469 p. — Prix: FF 272.00 les 2 vol. — Hermann, Paris, 1978.

*Fonctions elliptiques et intégrales abéliennes*: 1<sup>re</sup> partie: *Fonctions elliptiques*: Développement en série des intégrales elliptiques. Equations différentielles vérifiées par les intégrales elliptiques. Théorème d'addition des intégrales elliptiques. Réduction des intégrales elliptiques à des formes canoniques. Inversion et double périodicité. Fonctions

méromorphes doublement périodiques. Division des intégrales elliptiques. Transformations. Equation modulaire. Développement des fonctions elliptiques en séries ou en produits infinis. Fonctions thêta. Fonctions de Weierstrass. Multiplication complexe. Courbes elliptiques. Applications des fonctions elliptiques. Fonctions modulaires et fonctions automorphes. — 2<sup>e</sup> partie : *Intégrales abéliennes* : Le théorème d'Abel. Problème de l'inversion. Fonctions thêta à deux variables. Division et transformation. Travaux de Weierstrass sur les intégrales hyperelliptiques. Travaux de Riemann. La théorie de Weierstrass. Courbes algébriques. Variétés abéliennes. — *L'analyse fonctionnelle* : Introduction. Théorèmes d'existence locaux. Les équations différentielles dans le domaine complexe. Les équations différentielles dans le domaine réel. Les systèmes hamiltoniens. Equations aux dérivées partielles linéaires et théorie spectrale. Espaces métriques. Espaces normés et théorie spectrale. Développements récents. — *Géométrie différentielle* : Introduction. Courbes dans l'espace euclidien à trois dimensions. Etude des surfaces plongées dans l'espace euclidien à trois dimensions, avant Gauss. La contribution de Gauss, à l'étude des surfaces. Les continuateurs de Gauss. Riemann et la géométrie à  $n$  dimensions. Le calcul tensoriel. Début des connexions. — *Topologie* : Introduction. Topologie générale. Topologie combinatoire. Les débuts de l'homologie. Dualité. Invariance. Travaux de Brouwer. Champs de vecteurs. Structures multiplicatives. Le groupe fondamental et les revêtements. Les groupes d'homotopie et les espaces fibrés. Variétés à trois dimensions. Type simple d'homotopie. CW-complexes. Conclusions. — *Intégration et mesure* : La définition de l'intégrale. Les théorèmes fondamentaux. Mesures de Stieltjes et de Radon. Les mesures « abstraites ». — *Calcul des probabilités* : Introduction. Genèse et période classique. Libération. Vingtième siècle. Ramifications. — *Axiomatique et logique* : Introduction. Le devenir de la méthode axiomatique au XIX<sup>e</sup> siècle. Le progrès vers la formalisation et la compréhension de son rôle jusqu'à la fin du XIX<sup>e</sup> siècle. La logique mathématique au XIX<sup>e</sup> siècle. Grandes idées du XX<sup>e</sup> siècle. — Index historique. — Index terminologique. (Bibliographie à la fin de chaque chapitre).

**Transactions of the 7th Prague conference on information theory, statistical decision functions, random processes and of the 1974 European meeting of statisticians held at Prague, from August 18 to 23, 1974, volume B.** — Ed. by Jaroslav Kozesnik. — Un vol. relié, 18,5 × 24,5. de 582 p. — Prix: DFL 130.000. — D. Reidel Publishing Company, Dordrecht/Boston, 1978 (in coedition with ACADEMIA, Publishing House of the Czechoslovak Academy of Sciences, Prague).

5 invited papers by: I. Csiszar — J. Durbin — N. S. Rajbman — L. Schmetterer — M. Ullrich — 57 communications by: H. Bandemer — J. M. Bernardo — B. Bouchon — U. Capar — J. Cochlar — K. Conradsen — S. Csibi — M. Csorgo, J. Komlos, P. Major, P. Revesz, G. Tusnady — H. Drygas — W. Dziubdziela — M. A. Ciguère, G. P. H. Styan — O. A. Glonti — A. L. Goel, A. M. Joglekar — Z. Govindarajalu — I. Guttman, R. Dutter — F. R. Hampel — G. Härtler — S. Ihara — A. Irle, N. Schmitz — S. Jilovec — J. Jureckova — V. Kankova — Pl. Kannappan — Pl. Kannappan, P. N. Rathie — F. Kempe, H. Alvberendt — A. Kozek — P. R. Krishnaiah, F. J. Schuurmann — L. Kubat — J. Lanke — L. Lee, W. A. Thompson, Jr. — F. Liese — J. Marosi, G. Tusandy — A. M. Mathai — I. Mihoc — J. Mikiewicz — T. Nemetz — F. Oesterreicher — L. Piccinato — D. Pötschke — S. Raudys — A. L. Rukhin — L. Rüschendorf — I. Rusu, F. Cotiu — A. K. Md. E. Saleh — Y. Sayed, J. Bogr — W. Schlee — A. K. Shahani — F. Streit — P. Thyregod — Z. Vizkova — S. Watanabe — K. Winkelbauer — R. Zielinski.

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*R. Ansorge* : Survey of equivalence theorems in the theory of difference approximations for partial initial value problems. — *P. Arminjon* : Finite element analysis of moving loads on a floating ice sheet. — *F. Brezzi and P. A. Raviart* : Mixed finite element methods for 4th order elliptic equations. — *G. Capriz and M. Capovani* : Classes of matrices and related computational problems. — *G. Dahlquist* : On the relation of  $G$ -stability to other stability concepts for linear multistep methods. — *J. Descloux* : On the equation of Boussinesq. — *E. G. D'jakonov* : On triangulations in the finite element method and efficient iterative methods. — *J. Douglas Jr. and T. Dupont* :  $H^{-1}$  Galerkin methods for problems involving several space variables. — *H. Fujita* : On the semi-discrete finite element approximation for the evolution equation  $ut + A(t)u = O$  of parabolic type. — *J. W. J. Hosken and S. M. Deregowksi* : Model parameterising and inversion in seismic reflection data processing. — *N. N. Kuznetsov* : On stable methods for solving nonlinear first order partial differential equations in the class of discontinuous functions. — *P. Lesaint* : Numerical solution of the equation of continuity. — *J. L. Lions* : Some remarks on stiff non linear boundary value problems. — *D. Loewenthal* : Numerical computation of the roots of polynomials by spectral factorization. — *W. L. Miranker, M. van Veldhuizen and G. Wahba* : Two methods for the stiff highly oscillatory problem. — *T. Nakagawa and T. Ushijima* : Finite element analysis of the semi-linear heat equation of blow-up type. — *N. R. Nassif and J. Descloux* : Stability study for time-dependent linear parabolic equations and its application to Hermitian methods. — *J. A. Nitsche* : On  $L^\infty$ -convergence of finite element approximations to the solution of a nonlinear boundary value problem. — *E. L. Ortiz* : Polynomial condensation in one and several variables with applications. — *P. Rabinowitz* : Ignoring the singularity in numerical integration. — *P. Rozsa* : A direct method for the numerical solution of elliptic partial differential equations. — *M. N. Spijker* : The behaviour of error bounds in the numerical solution of initial value problems when the step size  $h$  tends to zero. — *J. Stoer* : Quadratic termination and quadratic convergence of minimization algorithms. — *F. G. Tcheremissine* : Methods of integration of the Boltzmann kinetic equation. — *S. Treitel, P. R. Gutowski and E. A. Robinson* : Empirical spectral analysis revisited. — *J. E. Dendy, Jr., B. Schwartz and B. Wendroff* : Computing travelling wave solutions of a nonlinear heat equation. — *M. Yamaguti and M. Mimura* : A method of finite differences for solving a system of semi-linear partial differential equations.

**P. T. JOHNSTONE.** — **Topos theory.** — London mathematical society monographs, vol. 10. — Un vol. relié, 16 × 24, de xxiii, 367 p. — Prix: £17.50. — Academic press, London/New York/San Francisco, 1977.

*Preliminaries* : Category theory. Sheaf theory. Grothendieck topologies. Giraud's theorem. — *Elementary toposes* : Definition and examples. Equivalence relations and partial maps. The category  $\mathcal{E}^{op}$ . Pullback functors. Image factorizations. — *Internal category theory* : Internal categories and diagrams. Internal limits and colimits. Diagrams in a topos. Internal profunctors. Filtered categories. — *Topologies and sheaves* : Topologies. Sheaves. The associated sheaf functor.  $sh_j(\mathcal{E})$  as a category of fractions. Examples of topologies. — *Geometric morphisms* : The factorization theorem. The glueing construction. Diaconescu's theorem. Bounded morphisms. — *Logical aspects of topos theory* : Boolean toposes. The axiom of choice. The axiom (SG). The Mitchell-Bénabou language. — *Natural number objects* : Definition and basic properties. Finite cardinals. The object

classifier. Algebraic theories. Geometric theories. Real number objects. — *Theorems of Deligne and Barr*: Points. Spatial toposes. Coherent toposes. Deligne's theorem. Barr's theorem. — *Cohomology*: Basic definitions. Cech cohomology. Torsors. Profinite fundamental groups. — *Topos theory and set theory*: Kuratowski-finiteness. Transitive objetccts. The equiconsistency theorem. The filterpower construction. Independence of the continuum hypothesis. — *Appendix*: Locally internal categories.

Hans GRAUERT, Ingo LIEB. — **Differential- und Integralrechnung III.** — Integrations-theorie, Kurven- und Flächenintegrale, Vektoranalysis. — 2., neubearbeitete und erweiterte Auflage. — Heidelberger Taschenbücher, vol. 43. — Un vol. broché, 13,5 × 21, de xiv, 210 p. — Prix: DM 19.80. — Springer-Verlag, Berlin/Heidelberg/New York, 1977.

*Integration im n-dimensionalen Raum*: Halbstetige Funktionen. Treppenfunktionen. Integrierbarkeit. Integration halbstetiger Funktionen. Integrationskriterien. Elementare Integrationsregeln. Monotone Folgen. Der Konvergenzsatz von Lebesgue. Messbare Mengen. Treppenfunktionen und Nullmengen. Messbare Funktionen. Beispiele integrierbarer Funktionen. Mehrfache Integration. Grenzübergänge unter dem Integralzeichen. — *Alternierende Differentialformen*: Die Grassmannprodukte eines Vektorraumes. Alternierende Differentialformen. Differenzierbare Abbildungen. Differentialformen auf zulässigen Mengen. Beispiele und Rechenregeln. Das Poincarésche Lemma. — *Kurven- und Flächenintegrale*: Ketten. Der Stokessche Satz. Die Transformationsformel. Semireguläre Pflasterungen. Absolut stetige Funktionen. Rektifizierbare Wege. — *Vektoranalysis*: Differentialformen und Vektorfelder im  $\mathbf{R}^3$ . Kurven- und Flächenintegrale im  $\mathbf{R}^3$ . Veranschaulichung von Differentialformen. — *Anwendungen auf die Elektrodynamik*: Elketrisches und magnetisches Feld. Ströme. Stromdichte und Erregungsgrößen.

S. SCHACH, Th. SCHAEFER. — **Regressions- und Varianzanalyse: eine Einführung.** — Hochschultext. — Un vol. broché, 16,5 × 24,5, de viii, 262 p. — Prix: DM 29.00. — Springer Verlag, Berlin/Heidelberg/New York, 1978.

*Allgemeine Theorie des Linearen Modells*: Einleitende Bemerkungen. Spezialfälle. Die Methode der kleinsten Quadrate. Der inhomogene Fall. Der Satz von Gauss-Markoff und das Identifikationsproblem. Kanonische Darstellung des Linearen Modells und erwartungstreue Schätzer für  $\sigma^2$ . Die multivariate Normalverteilung und mit ihr zusammenhängende Prüfverteilungen. Die multivariate Normalverteilung.  $\chi^2$ ,  $F$ - und  $t$ -Verteilungen. Quadratische Formen normalverteilter Zufallsvariabler. Das Klassische Lineare Modell. Konfidenzbereiche für schätzbare Funktionen. Tests typischer Hypothesen. Simultane Konfidenzintervalle. Das verallgemeinerte Lineare Modell. — *Ergänzungen zur Regressionsanalyse*: Stochastische Regressoren. Zweistufige Regression. Multikollinearität und Orthogonalität. Orthogonale Polynome und Polynomiale Regression. Vergleich zweier Regressionsgeraden. Asymptotische Eigenschaften der Gauss-Markoff-Schätzer bei vollem Rang. Das Regressionsmodell mit Fehlern in den Variablen. Stochastische Spezifikation. Funktionale Spezifikation. — *Einige wichtige Modelle der Varianzanalyse*: Einfachklassifikation. Problemstellung und Modell. Alternative Parametrisierung. S- und T-methode der multiplen Vergleiche für Kontraste Zweifachklassifikation. Der Fall " $k > 1$ " (mehr als eine Beobachtung pro Zelle). Der Fall " $k = 1$ " (eine Beobachtung pro Zelle). Bemerkungen zu randomisierten Block- und einigen unvollständigen Versuchsplänen. Kovarianzanalyse. Modelle mit zufälligen Effekten. Einfachklassifikation. Zweifachklassifikation (Modell vom Typ II). Zweifachklassifikation (ein gemischtes Modell).

**Topology and algebra: proceedings of a colloquium in honor of B. Eckmann.** — Ed. by M.-A. Knus, G. Mislin and U. Stammbach. — Monographies de L'Enseignement mathématique, vol. 26. — Un vol. broché, 16 × 24, de 280 p. — Prix: FS 75.00. — Université de Genève, L'Enseignement mathématique, Genève, 1978.

*Foreword.* — *Addresses of the speakers.* — *P. Hilton*: Some contributions of Beno Eckmann to the development of topology and related fields. — *J. F. Adams*: Maps between classifying spaces. — *M. André*: La  $(2p + 1)$ -ième déviation d'un anneau local. — *A. Banyaga*: The group of diffeomorphisms preserving a regular contact form. — *R. Bieri*: On groups of cohomology dimension 2. — *R. Bott*: On the characteristic classes of groups of diffeomorphisms. — *A. Dold*: A coincidence-fixed-point index. — *P. Griffiths and J. Harris*: On Cayley's explicit solution to Poncelet's porism. — *A. Haefliger*: On the Gelfand-Fuks cohomology. — *J.-Cl. Hausmann and P. Vogel*: Reduction of structures on manifolds by semi-s-cobordism. — *J.-Cl. Hausmann and M. Kervaire*: Sous-groupes dérivés des groupes de noeuds. — *F. Hirzebruch*: Überlagerungen der projektiven Ebene und Hilbertsche Modulflächen. — *M. Huber and W. Meier*: Cohomology and the derived functors of the inverse limit. — *I. M. James*: Alternative homotopy theories. — *M.-A. Knus*: Modules quadratiques sur un anneau de polynômes. — *H.-P. Kraft*: Bahnenräume bei linearen Darstellungen reduktiver Gruppen. — *S. MacLane*: Origins of the cohomology of groups. — *W. Meier*: K-theory and localization. — *J. Milnor and W. Thurston*: Characteristic numbers of 3-manifolds. — *G. Mislin*: Finitely dominated complexes with metacyclic fundamental groups. — *U. Stammbach*: Cohomological characterisations of finite solvable and nilpotent groups. — *R. Strehel*: On finitely related soluble groups. — *S. Suter & D. Zagier*: Dilatationen von abelschen Gruppen. — *U. Würgler*: On the relation of Morava K-theories to Brown-Peterson homology.

Francesco M. SCUDO, James R. ZEIGLER. — **The golden age of theoretical ecology: 1923-1940.** — A collection of works by V. Volterra, V. A. Kostitzin, A. J. Lotka and A. N. Kolmogoroff. — Lecture notes in biomathematics, vol. 22. — Un vol. broché, 17 × 25, de xi, 490 p. — Prix: DM 43.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

*Historical introduction.* — LOGISTIC APPROACHES: *V. Volterra*: Calculus of variations and the logistic curve. Population growth, equilibria, and extinction under specified breeding conditions: a development and extension of the theory of the logistic curve. *V. A. Kostitzin*: The logistic law and its generalizations. The physiological segregation and the variation of species. *V. Volterra*: Comments on the note by Mr. Régnier and Miss Lambin: Study of a case of microbial competition (*Bacillus coli-Staphylococcus aureus*). *V. A. Kostitzin*: The integro-differential equations for the toxic contamination of a medium. *V. Volterra and V. A. Kostitzin*: Comments on the toxic action of the medium relative to the note by Mr. Régnier and Miss Lambin. — COMPETITION AND PREDATION: *V. Volterra*: Variations and fluctuations in the numbers of coexisting animal species. Principles of mathematical biology: pt. 2. The general equations of biological strife in the case of historical actions. *A. J. Lotka*: The growth of mixed populations: two species competing for a common food supply. *A. N. Kolmogoroff*: On Volterra's theory of the struggle for existence. *V. A. Kostitzin*: On asymptotically stable periodic solutions in biological differential equations. — PARASITISM, EPIDEMICS AND SYMBIOSIS: *A. J. Lotka*: Contribution to the analysis of malaria epidemiology. I: General part. *F. R. Sharpe and A. J. Lotka*: Contribution to the analysis of malaria epidemiology. IV: Incubation lag. *V. A. Kostitzin*: Symbiosis, parasitism and evolution. — GENOTYPIC SELECTION AND EVOLUTION: *V. A. Kostitzin*: Mathematical biology: Evolution. General differential

equations for the problem of natural selection. On the Mendelian coefficients of heredity. The differential equations for the problem of natural selection in the case of mutations on sexual chromosomes. On the singular points of the differential equations in the problem of natural selection. Natural selection and transformation of the species from the mathematical, statistical and biological points of view. — LIFE AND THE EARTH: V. A. Kostitzin : Evolution of the atmosphere: organic circulation, glacial periods.

**C\*-algebras and applications to physics.** — Proceedings, 2d Japan-USA seminar, Los Angeles, April 18-22, 1977. — Edited by R. V. Kadison and Huzihiro Araki. — Lecture notes in mathematics. vol. 650. — Un vol. broché, 17 × 25, de v, 192 p. — Prix: DM 20.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

*E. Effros* : Aspects of non-commutative order. — *H. Choda* : Correspondences between von Neumann algebras and discrete automorphism groups. — *J. Glimm* : The construction and decomposition of quantum fields using operator theory, probability and fiber bundles. — *H. Araki* : On KMS states of a  $C^*$  dynamical system. — *S. Sakai* : Recent developments in the theory of unbounded derivations in  $C^*$ -algebras. — *J. Bunce & W. Paschke* : Quasi\* expectations and injective operator algebras. — *J. Tomiyama & K. Yabuta* : General short exact sequence theorem for Toeplitz operators of uniform algebras. — *K. Saito* :  $AW^*$ -algebras with monotone convergence property and type III, non- $W^*$ ,  $AW^*$ -factor. — *O. Takenouchi* : A non- $W^*$ ,  $AW^*$ -factor. — *A. Van Daele* : Fixed points and commutation theorems. — *D. Kastler* : Algebraic features of equilibrium states. — *G. Emch* : Minimal dilations of  $CP$ -flows. — *R. Powers* : Resistance inequalities for the isotropic Heisenberg model. — *E. Størmer* : Homogeneity of the state space of factors of type  $III_1$ . — *R. Kadison* : Product isometries and automorphisms of the *CAR* algebra. — *M. Osikawa* : Construction of *ITPFI* with nontrivial uncountable *T*-set. — *H. Takemoto* : On the algebraic reduction theory for countable direct summand  $C^*$ -algebras of separable  $C^*$ -algebras.

**Differential topology, foliations and Gelfand-Fuks cohomology.** — Proceedings of the symposium held at the Pontifica Universidade Católica do Rio de Janeiro, 5-24 January, 1976. — Edited by Paul A. Schweitzer. — Lecture notes in mathematics, vol. 652. — Un vol. broché, 17 × 25, de XIII, 252 p. — Prix: DM 27.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

*Gelfand-Fuks theory and characteristic classes of foliations* : *A. Haefliger* : Cohomology of Lie algebras and foliations. — *A. Haefliger* : Whitehead products and differential forms. — *R. Bott* : On some formulas for the characteristic classes of group-actions. — *H. Shulman and J. Stasheff* : De Rham theory for  $B\Gamma$ . — *R. B. Gardner* : Differential geometry and foliations: the Godbillon-Vey invariant and the Bott-Pasternack vanishing theorems. — *P. A. Schweitzer & A. P. Whitman* : Pontryagin polynomial residues of isolated foliation singularities. — *Qualitative theory of foliations* : *G. Reeb* : Structures feuilletées. — *J. Palis* : Rigidity of the centralizers of diffeomorphisms and structural stability of suspended foliations. — *R. Langevin & H. Rosenberg* : Integrable perturbations of fibrations and a theorem of Seifert. — *C. Camacho* : Structural stability of foliations with singularities. — *G. Reeb & P. A. Schweitzer* : Un théorème de Thurston établi au moyen de l'analyse non standard. — *W. Schachermayer* : Addendum: Une modification standard de la démonstration non standard de Reeb et Schweitzer. — *G. Hector* : Croissance des feuilletages presque sans holonomie. — *E. Fedida* : Sur la théorie des feuilletages associés en repère mobile: cas des feuilletages de Lie. — *Group actions and related*

*topics* : R. J. Knill : On the index of isolated closed tori. — F. Hegenbarth : An application of the  $\rho$ -invariant. — I. J. Dejter :  $G$ -transversality to  $CF^n$ . — *Open problems* : P. A. Schweitzer (editor) : Some problems in foliation theory and related areas.

**Locally interacting systems and their application in biology.** — Proceedings of the School-seminar on Markov interaction processes in biology, held in Pushchino, Moscow region, March 1976. — Ed. by R. L. Dobrushin, V. I. Kryukov and A. L. Toom. — Lecture notes in mathematics, vol. 653. — Un vol. broché, 17 × 25, de xi, 202 p. — Prix: DM 24.80. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

A. L. Toom : Monotonic evolutions in real spaces. — B. S. Cirel'son : Reliable storage of information in a system of unreliable components with local interactions. — M. G. Shnirman : On non-uniqueness in some homogeneous networks. — G. L. Kurdyumov : An algorithm-theoretic method in studying homogeneous random networks. — G. A. Galperin : One-dimensional monotonic tessellations with memory. — G. N. Borisyuk et al : Estimation of information capacity of Purkinje cells. — M. B. Averintsev : On some classes of Gibbsian random fields. — N. B. Vasilyev : Bernoulli and Markov stationary measures in discrete local interactions. — O. N. Stavskaya : Markov fields as invariant states for local processes. — V. I. Kryukov : Markov interaction processes and neuronal activity. — A. M. Molchanov : An estimate of the number of phases. — A. N. Chetayev : On walks over a partially ordered set (some inequalities for conditional probabilities). — V. A. Malyshev : One particle states and scattering theory for Markov processes. — I. V. Evstigneev : A note on Gibbs representation.

Joe P. BUHLER. — **Icosahedral Galois representations.** — Lecture notes in mathematics, vol. 654. — Un vol. broché, 17 × 25, de iii, 143 p. — Prix: DM 18.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

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**Probability theory on vector spaces.** — Proceedings, Trzebieszowice, Poland, September 1977. — Ed. by A. Weron. — Lecture notes in mathematics, vol. 656. — Un vol. broché, 17 × 25, de viii, 274 p. — Prix: DM 27.00. — Springer-Verlag, Berlin/Heidelberg/New York, 1978.

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*Introduction générale aux problèmes de temps d'arrêt optimal*: Orientation. Description formelle des problèmes de temps d'arrêt. Caractérisation analytique par la programmation dynamique. Exemples de problèmes de temps d'arrêt optimal. Problèmes de temps d'arrêt optimal et problèmes de frontière libre. Généralisations. Différentes caractérisations de la fonction coût optimal. — *Equations différentielles stochastiques et équations aux dérivées partielles linéaires du 2<sup>e</sup> ordre*: Rappels sur le calcul des probabilités et la théorie des processus stochastiques. Intégrales stochastiques. Equations différentielles stochastiques: formulation forte. Equations différentielles stochastiques: formulation faible. Equations aux dérivées partielles linéaires elliptiques du 2<sup>e</sup> ordre. Equations aux dérivées partielles linéaires du second ordre de type parabolique. Interprétation probabiliste de la solution des problèmes aux limites du 2<sup>e</sup> ordre. Processus de Markov associé à la solution d'une équation différentielle stochastique. — *Problèmes de temps d'arrêt optimal et inéquations variationnelles*: I. V. stationnaires. Inéquations variationnelles d'évolution. Problèmes de temps d'arrêt optimal. Cas stationnaire. Problèmes de temps d'arrêt optimal. Cas d'évolution. Jeux différentiels stochastiques avec temps d'arrêt. — *Problèmes de temps d'arrêt et de contrôle optimal stochastique*: Contrôle par « variable continue » et par temps d'arrêt. Rappels sur l'équation de Hamilton-Jacobi. Inéquation de Hamilton-Jacobi. Opérateur non sous forme divergence. Inéquations variationnelles de Hamilton-Jacobi. Contrôle sur les coefficients de plus haut degré. Contrôle et temps d'arrêt optimaux avec croissance polynomiale. Le principe de séparation.

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