

Lecture Notes in Physics

Edited by H. Araki, Kyoto; J. Ehlers, München; K. Hepp, Zürich; R. Kippenhahn, München; H. A. Weidenmüller, Heidelberg; J. Wess, Karlsruhe; and J. Zittartz, Köln

Titles in High Energy Physics and Mathematical Physics

Volume 303

P. Breitenlohner, D. Maison, K. Sibold (Eds.)

Renormalization of Quantum Field Theories with Non-linear Field Transformations

Proceedings of a Workshop, Ringberg Castle, Tegernsee, FRG, February 16-20, 1987

1988 VI, 239 pages Hard cover DM 40,- ISBN 3-540-19263-8

Contents: Non-linear Field Transformation in Four Dimensions: Contributions by P. Breitenlohner, R. Collina, D. Maison, O. Piguet, R. Sénéor, K. Sibold. - Non-linear O -Models: Contributions by C. Becchi, A. Bissi, G. Bonneau, H. Dorn, R. Flume, P. Mitter, D. Oliveir, C. Pope, K. Stelle, G. Valent. - Cohomological and Geometrical Methods, Relation to String Theory: Contributions by L. Bonora, M. Bregola, P. Cotta-Ramusino, K. Lechner, P. Pasti, M. Rinaldi, R. Stora, M. Tonin.

Volume 302

François Gieres

Geometry of Supersymmetric Gauge Theories (Including BRS Differential Algebras)

1988 VIII, 189 pages. Hard cover DM 34,-. ISBN 3-540-19080-5

Contents: The Canonical Geometric Structure of Rigid Superspace and Susy Transformations - The General Structure of Sym-Theories. - Classical Sym-Theories in the Gauge Real Representation. - BRS-Differential Algebras in Sym-Theories - Geometry of Extended Supersymmetry. - Appendices: Superspace Conventions and Notations (for $N=1, d=4$). Complex (and Hermitian) Conjugation in Simple Supersymmetry. Complex Conjugation in $N=2$ Supersymmetry. Geometric Interpretation of the Canonical Linear Connection on Reductive Homogeneous Spaces. Koszul's Formula (BRS Cohomology). On the Description of Anticommuting Spinors in Ordinary and Supersymmetric Field Theories. - References. - Subject Index.

Volume 296

M. Month, S. Turner (Eds.)

Frontiers of Particle Beams

Proceedings of a Topical Course held by the Joint US-CERN School on Particle Accelerators at South Padre Island, Texas, October 23-29, 1986
1988. XII, 700 pages Hard cover DM 120,-. ISBN 3-540-19022-8

Contents: Physics and Technology. - High Energy Electron Linear Colliders. - Perspectives on Accelerators - List of Participants.

Springer-Verlag

Berlin Heidelberg New York London Paris Tokyo

Heidelberger Platz 3, D-1000 Berlin 33 175 Fifth Ave., New York, NY 10010, USA
28, Lurke Street, Bedford MK40 3HU, England · 26, rue des Carmes, F-75005 Paris
37-3, Hongo 3-chome, Bunkyo-ku, Tokyo 113, Japan · Room 1603, Citicorp Centre,
18 Whitfield Road, Causeway Bay, Hong Kong

Volume 294

D. Berenyi, G. Hock (Eds.)

High Energy Ion-Atom Collisions

Proceedings of the 3rd Workshop on High-Energy Ion-Atom Collisions Debrecen, Hungary, August 3-5, 1987

1988 VIII, 540 pages Hard cover DM 88,-. ISBN 3-540-18732-4

Contents: Classical Collisional Ionization. - Electron Capture - Alignments and Angular Distributions. - Electron Capture and Loss in the Continuum. - Ion-Solid and Ion-Molecule Collisions - Electron Correlations - Multiple Ionization - Instrumentation and New Techniques. - Concluding Remarks by J. Macek. - Author Index. - List of Participants.

Volume 290

K. T. Hecht

The Vector Coherent State Method and Its Application to Problems of Higher Symmetries

1987. V, 154 pages. Hard cover DM 34,-. ISBN 3-540-18537-2

Contents: Introduction. - The Vector Coherent State Method - Detailed Examples. - Other Applications - The Calculation of $SL(3)$ Wigner Coefficients. - An Indirect Application of Vector Coherent State Theory - References.

Volume 286

R. Alicki, K. Lendi

Quantum Dynamical Semigroups and Applications

1987. VIII, 196 pages. Hard cover DM 39,-. ISBN 3-540-18276-4

Contents: General Theory and Applications to Unstable Particles: General Theory: Introduction. Completely positive dynamical semigroups. Hamiltonian models and Markovian approximation. Extensions of the formalism. A system of N 2-level atoms. - **Quantum Dynamical Semigroups for Unstable Particles:** Introduction. Damped and Pumped Quantum Harmonic Oscillator. Models of unstable particles. - Appendices. - References. - **N-Level Systems and Applications to Spectroscopy:** Introduction. General structure of quantum Markovian master equations for N-level systems. Two-level systems. Generalized magnetic or optical Bloch-equations Three-level systems. Comparison with common versions of master equations. Open quantum systems with non-constant relaxation in time-dependent external fields. Determination of relaxation parameters from first principles. Entropy and irreversibility Conclusion - Appendices. - References.

Volume 281

P. Blanchard, P. Combe, W. Zheng

Mathematical and Physical Aspects of Stochastic Mechanics

1987. VIII, 171 pages. Hard cover DM 34,-. ISBN 3-540-18036-2

Contents: Introduction. - Kinematics of Stochastic Diffusion Processes - Nelson Stochastic Dynamics - Newtonian Processes. - Global Existence for Diffusions with Singular Drifts. - Stochastic Variational Principles - Two Viewpoints Concerning Quantum and Stochastic Mechanics - A Non-Quantal Look at Stochastic Mechanics - Appendix. - Bibliography.

tm.8589/5/1

Springer 

Jetzt erschienen!

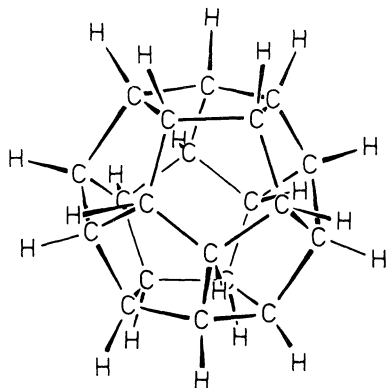
R. Wille, Technische Hochschule Darmstadt
(Hrsg.)

Symmetrie

in Geistes- und Naturwissenschaft

Hauptvorträge und Diskussionen des Symmetrie-Symposiums an der Technischen Hochschule Darmstadt vom 13. bis 17. Juni 1986 im Rahmen des Symmetrieprojektes der Stadt Darmstadt

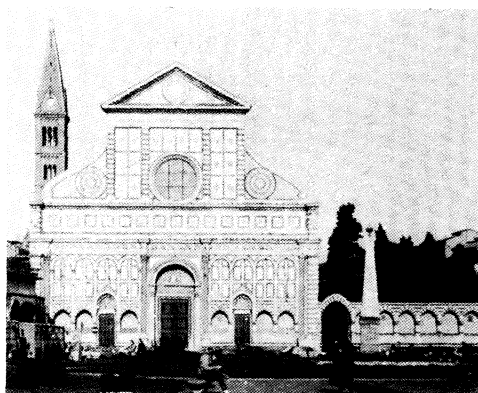
1988. 193 Abbildungen. VIII, 250 Seiten.
Broschiert DM 45,-. ISBN 3-540-16909-1



The dodecahedrane

Springer-Verlag

Berlin Heidelberg New York London Paris Tokyo
Heidelberger Platz 3, D-1000 Berlin 33 175 Fifth Ave., New York, NY 10010,
USA · 28, Lurke Street, Bedford MK40 3HU, England 26, rue des Carmes,
F-75005 Paris 37-3, Hongo 3-chome, Bunkyo-ku, Tokyo 113, Japan
Room 1603, Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong



Fassade von Santa Maria Novella, Florenz

Die Rolle der Symmetrie als Werkzeug der Orientierung des Menschen in Raum und Zeit ist in allen Epochen und Zivilisationen aufzuspüren. Sowohl das natur- und geisteswissenschaftliche Denken als auch die Künste und die Prinzipien menschlichen Handelns neigen dazu, sich in Strukturen symmetrischer Natur auszuformen.

Zum Beispiel hat die zeitgenössische Physik, mit dem Rüstzeug der modernen Mathematik versehen, den Symmetriebegriff ins Zentrum des Interesses gerückt. Die in den letzten Jahren so erfolgreichen Bemühungen um eine Vereinheitlichung der Grundkräfte der Natur, die damit verbundene tiefe Einsicht in den Kosmos der Elementarteilchen und die daraus hervorgegangenen kosmologischen Erkenntnisse sind beeindruckende Belege für die Wirklichkeit des Symmetrieprinzips.

Welche Faszination der Symmetriebegriff ausübt, zeigt die folgende Themenauswahl: Sir Ernst Gombrich – Symmetrie, Wahrnehmung und künstlerische Gestaltung; Hermann Haken – Die Rolle der Symmetrie in der Synergetik; Spontane Entstehung von Strukturen in der Natur; Frei Otto – Symmetrie zwischen Biologie und Architektur; Heinz-Otto Peitgen – Symmetrie im Chaos – Selbstähnlichkeit in komplexen Systemen. Neben den Hauptvorträgen, gehalten von namhaften Fachvertretern der Natur- und Geisteswissenschaften, sind auch die fachverbindenden Diskussionen dieser Vorträge dokumentiert.

tm.8475/5/1

Springer

Why not take a **CHANCE?!**

new journal

CHANCE: NEW DIRECTIONS FOR STATISTICS AND COMPUTING captures the excitement, innovation, and fresh perspective that statistics can yield. A statistics publication to entertain you while it informs you – that's something new for you, the professional who works with statistics.

An exciting new journal for professional statisticians as well as for those who use statistical analysis in a variety of business, industrial, and research pursuits. **CHANCE** focuses on statistics and computing from a statistical perspective, with a view to the future of statistics and its application to a broad range of enterprises

In **CHANCE**, the newest ideas and applications of statistics – how these are linked with advances in computer technology—are presented with verve and good writing.

Editors-in-Chief:

William F Eddy, Pittsburgh, Pennsylvania
Stephen E Fienberg, Pittsburgh, Pennsylvania

The editorial board is composed of recognized authorities in the field of statistics

Subscription Information:

1988: Volume 1 (4 issues)
DM 94,- plus carriage charges
Title No 144

For further information
and sample copies,
please write to
Springer-Verlag,
Dept ZS,
Heidelberger Platz 3,
D-1000 Berlin 33

tm 10.236/5/1

Springer



Communications in
**Mathematical
Physics**

Chief Editor A. Jaffe, Cambridge, MA

Editorial Board M. Aizenman, New York, NY
L. Alvarez-Gaumé, Genève
H. Araki, Kyoto
A. Connes, Bures-sur-Yvette
J.-P. Eckmann, Genève
M. E. Fisher, College Park, MD
J. Fröhlich, Zürich
K. Gawedzki, Bures-sur-Yvette
J. L. Lebowitz, New Brunswick, NJ
J. Mather, Princeton, NJ
G. Parisi, Roma
B. Simon, Pasadena, CA
Ya. G. Sinai, Moscow
T. Spencer, Princeton, NJ
S.-T. Yau, Cambridge, MA

Advisory Board M. F. Atiyah, Oxford
F. Hirzebruch, Bonn
G. 't Hooft, Utrecht
R. Schrieffer, Santa Barbara, CA
I. Singer, Cambridge, MA
C. N. Yang, Stony Brook, NY

Responsible for Advertisements

Springer-Verlag
Printers
Printed in Germany

E. Lückermann, M. Stresow, Heidelberger Platz 3, D-1000 Berlin 33
Telephone: (030) 8207-0, Telex 01-85411
Berlin Heidelberg New York Tokyo
Brülsche Universitätsdruckerei, Giessen
© Springer-Verlag Berlin Heidelberg 1988
Springer-Verlag GmbH & Co KG, D-1000 Berlin 33