Trieste Notes in Physics

P. Budinich, A. Trautman

The Spinorial Chessboard

1988. VIII, 128 pages. Soft cover DM 45,–.
ISBN 3-540-19078-3

Contents: Introduction. – Notation and Terminology. – Vector Spaces and Inner Products. – Algebras and their Representations. – General Properties of Clifford Algebras. – Complex Clifford Algebras. – Real Clifford Algebras. – References.

Spinor theory is an important tool in mathematical physics, in particular in the context of conformal field theory and string theory. These lecture notes present a new way to introduce spinors by exploiting their intimate relationship with Clifford algebras.
The presentation is detailed and mathematically rigorous. Not only students but also researchers will welcome this book for the clarity of its style and for the straightforward way it applies mathematical concepts to physical theory.

I. T. Todorov

Conformal Description of Spinning Particles

1986. VIII, 74 pages. Soft cover DM 38,–.
ISBN 3-540-16890-7

H. Grosse

Models in Statistical Physics and Quantum Field Theory

1988. 35 figures. Approx. 128 pages.
Soft cover DM 45,–. ISBN 3-540-19383-9

Contents: Introduction. – Spin Systems. – Two-Dimensional Field Theory. – Lattice Gauge Models. – String Models. – Renormalization Group. – General References.

The author presents criteria to prove the existence or nonexistence of phase transitions for the Ising and the Heisenberg model in various dimensions, and discusses a field theoretical model, soliton solutions of completely integral classical systems, and the Schwinger model. He also presents rigorous results for lattice gauge models and gives an introduction to the classical mechanics of strings and the bosonic and fermionic string models.

For the physicist this book should be seen as an introduction to the mathematical treatment of phase transitions of realistic systems. The more mathematically inclined reader may see it as a primer to field theoretical models over a Euclidean space-time lattice. These notes grew out of a series of lectures presented by the author to graduate students at various universities.

h&s 8547/5/1

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

Springer

Communications in Mathematical Physics

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