

Communications in

Mathematical Physics

Volume 37 1974

Chief Editor K. Hepp, Zürich

Editorial Board H. Araki, Kyoto
J. Ehlers, München
G. Gallavotti, Napoli
R. Haag, Hamburg
W. Hunziker, Zürich
J. L. Lebowitz, New York
K. Symanzik, Hamburg
A. S. Wightman, Princeton

Advisory Board R. Jost, Zürich
M. C. Polivanov, Moscow
D. Ruelle, Bures-sur-Yvette



Springer-Verlag
Berlin Heidelberg New York

The exclusive copyright for all languages and countries, including the right for photomechanical and any other reproductions, also in microform, is transferred to the publisher.

Alle Rechte, einschließlich das der Übersetzung in fremde Sprachen und das der fotomechanischen Wiedergabe oder einer sonstigen Vervielfältigung, auch in Mikroform, vorbehalten. Jedoch wird gewerblichen Unternehmen für den innerbetrieblichen Gebrauch nach Maßgabe des zwischen dem Börsenverein des Deutschen Buchhandels e. V. und dem Bundesverband der Deutschen Industrie abgeschlossenen Rahmenabkommens die Anfertigung einer fotomechanischen Vervielfältigung gestattet. Wenn für diese Zeitschrift kein Pauschalabkommen mit dem Verlag vereinbart worden ist, ist eine Wertmarke im Betrage von DM 0,40 pro Seite zu verwenden. *Der Verlag lässt diese Beträge den Autorenverbänden zufließen.*

Springer-Verlag, Berlin Heidelberg New York

Printers: Brühlsche Universitätsdruckerei, Gießen

Printed in Germany — © by Springer-Verlag Berlin Heidelberg 1974

Contents

Avishai, Y., Ekstein, H.: Einstein's Equivalence Principle. An Explicit Statement and Its Derivation from Special Relativistic Presymmetry	193
Bove, A., Da Prato, G., Fano, G.: An Existence Proof for the Hartree-Fock Time-dependent Problem with Bounded Two-Body Interaction	183
Boya, L.J., Cariñena, J.F., Santander, M.: On the Continuity of the Boosts for Each Orbit	331
Bümmerstede, J., Lücke, W.: Haag-Ruelle-Hepp Scattering Formalism for Essentially Local Non-Localizable Fields	121
Cariñena, J.F., s. Boya, L., <i>et al.</i>	331
Da Prato, G., s. Bove, A., <i>et al.</i>	183
Davies, E.B.: Parametric Interactions and Scattering	161
Del Gross, G.: On the Local Central Limit Theorem for Gibbs Processes.	141
Del Gross, G.: Erratum	256
DeWitt-Morette, C.: Feynman Path Integrals. I. Linear and Affine Techniques. II. The Feynman-Green Function	63
Eardly, D.M.: Self-similar Spacetimes: Geometry and Dynamics	287
Ehlers, J.: The Geometry of the (Modified) GHP-Formalism	327
Ekstein, H., s. Avishai, Y.	193
Fano, G., s. Bove, A., <i>et al.</i> ,	183
Feldman, J.: The $\lambda\varphi_3^4$ Field Theory in a Finite Volume	93
Glaser, V.: On the Equivalence of the Euclidean and Wightman Formulation of Field Theory	257
Goldstein, S., Lebowitz, J.L.: Ergodic Properties of an Infinite System of Particles Moving Independently in a Periodic Field	1
Held, A.: A Formalism for the Investigation of Algebraically Special Metrics. I. 311	
Lebowitz, J.L., s. Goldstein, S.	1
Levy, S.I.: Hilbert Space Theoretic Methods in the Study of Correlation Measures	41
Lücke, W., s. Bümmerstede, J.	121
McIntosh, C.B.G.: A Family of Jordan-Brans-Dicke Kerr Solutions	335
Mielnik, B.: Generalized Quantum Mechanics.	221
Müller zum Hagen, H., Yodzis, P., Seifert, H.-J.: On the Occurrence of Naked Singularities in General Relativity. II.	29

Naudts, J.: A Generalised Entropy Function	175
Piguet, O.: Construction of a Strictly Renormalizable Effective Lagrangian for the Massive Abelian Higgs Model	19
Roberts, J. E.: Some Applications of Dilatation Invariance to Structural Ques- tions in the Theory of Local Observables	273
Santander, M., s. Boya, L.J., <i>et al.</i>	331
Seifert, H.-J., s. Müller zum Hagen, H., <i>et al.</i>	29
Speer, E. R.: Analytic Renormalization Using Many Space-Time Dimensions .	83
Yodzis, P., s. Müller zum Hagen, H., <i>et al.</i>	29

Indexed in Current Contents

Communications in

Mathematical Physics

Volume 37 Number 1 1974

Chief Editor K. Hepp, Zürich

Editorial Board H. Araki, Kyoto
J. Ehlers, München
G. Gallavotti, Napoli
R. Haag, Hamburg
W. Hunziker, Zürich
J.L. Lebowitz, New York
K. Symanzik, Hamburg
A. S. Wightman, Princeton

Advisory Board R. Jost, Zürich
M. C. Polivanov, Moscow
D. Ruelle, Bures-sur-Yvette



Springer-Verlag
Berlin Heidelberg New York

Commun. math. Phys. - CMPHAY 37 (1) 1-92 (1974)

28. VI. 1974

Communications in Mathematical Physics

It is a fundamental condition that manuscripts submitted have not been, and will not be published elsewhere, either simultaneously or at a later date. With the acceptance of a manuscript for publication, the publishers acquire the sole copyright for all languages and countries. Unless special permission has been granted by the publishers, no photographic reproductions, microform or any other reproductions of a similar nature may be made of the journal, of individual contributions contained therein or of extracts therefrom.

75 offprints of each article will be supplied to the author free-of-charge and additional copies may be obtained at cost price if ordered before the issue goes to press.

Manuscripts may be sent to:

Prof. H. Araki, Research Institute for Mathematical Sciences, Kyoto University, Kyoto, Japan

Mathematical methods (Functional analysis, operator algebra and group theory, with direct relevance to physics)

Prof. J. Ehlers, Max-Planck-Institut für Physik und Astrophysik, Föhringer Ring 6, D-8000 München 40, Bundesrepublik Deutschland

General relativity (Gravitation and classical field theory)

Prof. G. Gallavotti, from November 1, 1973—November 1, 1974: Theoretical Physics Department, Catholic University, Nijmegen, The Netherlands

Equilibrium statistical mechanics (Thermodynamic functions, phase transitions, equilibrium states, exactly soluble models)

Prof. R. Haag, II. Institut für theoretische Physik, Luruper Chaussee 149, D-2000 Hamburg 50, Bundesrepublik Deutschland

General structure of quantum field theory and foundations of quantum mechanics

Prof. K. Hepp, Theoretische Physik, E.T.H. Zürich, Hönggerberg, CH-8049 Zürich, Schweiz

Chief Editor

Prof. W. Hunziker, Theoretische Physik, E.T.H. Zürich, Hönggerberg, CH-8049 Zürich, Schweiz

Classical and quantum mechanics of finitely many degrees of freedom

Prof. J. L. Lebowitz, Belfer Graduate School of Science, Yeshiva University, New York, N.Y. 10033, USA

Nonequilibrium statistical mechanics (Time development of infinite systems, ergodic theory, transport theory, random processes, dissipative phenomena)

Prof. K. Symanzik, DESY, Notkestrieg 1, D-2000 Hamburg 52, Bundesrepublik Deutschland

Lagrangian quantum field theory (Perturbative approach)

Prof. A. S. Wightman, Princeton University, Jadwin Hall, Princeton, N.J. 08540, USA

Constructive quantum field theory

In order to avoid delay in publication this journal appears in loose numbers which can be subsequently assembled in volumes. One volume usually consists of 4 numbers. The price of one volume is DM 128,— plus postage and handling.

Springer-Verlag

D-6900 Heidelberg 1

D-1000 Berlin 33

Springer-Verlag

Postfach 105 280

Heidelberger Platz 3

New York Inc.

Telefon (06221) 48 71

Telefon (030) 82 2001

175 Fifth Avenue

Telex 04-61 690

Telex 01-83 319

New York, N.Y. 10001