

Communications in Mathematical Physics

Volume 80 Number 3 1981

- G. Segal Unitary Representations of some Infinite Dimensional Groups 301
- C. H. Taubes The Existence of Multi-Monopole Solutions to the Non-Abelian, Yang—Mills—Higgs Equations for Arbitrary Simple Gauge Groups 343
- M. Requardt How Conclusive is the Sealing Argument? The Connection Between Local and Global Scale Variations of Finite Action Solutions of Classical Euler—Lagrange Equations 369
- E. Witten A New Proof of the Positive Energy Theorem 381
- K. Kuroda The Geometrical Phase Transitions in a Lattice Model 403
- S. W. Hawking Interacting Quantum Fields Around a Black Hole 421
- L. Alvarez-Gaume,
D. Z. Freedman Geometrical Structure and Ultraviolet Finiteness in the Supersymmetric σ -Model 443

Indexed in Current Contents



Springer-Verlag
Berlin Heidelberg New York

Communications in Mathematical Physics

Copyright. It is a fundamental condition that submitted manuscripts have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature, and translations. Photographic reproduction, microform, or any other reproduction of text, figures, or tables from this journal is prohibited without permission obtained from the publisher.

Special Regulations for the USA. The Article Fee Code on the first page of an article in this journal indicates the copyright owner's consent that in the USA copies may be made for personal or internal use, provided the stated fee for copying beyond that permitted by Section 107 or 108 of the United States Copyright Law is paid through the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA. If a code does not appear, copies of the article may be made without charge, provided permission is obtained from the publisher.

The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for such copying.

Authors should mark manuscripts according to the "Instructions to Authors." They should be aware that manuscripts which are not properly marked require additional time for publication. Manuscripts should be sent to:

<i>Prof. H. Araki</i> , Research Institute for Mathematical Sciences, Kyoto University, Kyoto, 606, Japan	<i>Mathematical methods with direct relevance to physics</i>
<i>Prof. J. Glimm</i> , Laboratoire de Physique Théorique et Hautes Énergies, Université de Paris IX, Batiment 211, F-91 405 Orsay, France	<i>Quantum mechanics</i>
<i>Prof. J. Glimm</i> , The Rockefeller University, 1230 York Avenue, New York, NY 10021, USA	<i>Fluid mechanics</i>
<i>Prof. R. Haag</i> , II. Institut für Theoretische Physik, Luruper Chaussee 149, D-2000 Hamburg 50, Federal Republic of Germany	<i>Conceptual structure</i>
<i>Prof. A. Jaffe</i> , Lyman Laboratory of Physics, Harvard University, Cambridge, MA 02138, USA	<i>Chief Editor</i>
<i>Prof. J. L. Lebowitz</i> , Department of Mathematics, Rutgers University, New Brunswick, NJ 08903, USA	<i>Nonequilibrium statistical mechanics</i>
<i>Prof. E. Lieb</i> , Physics Department, Princeton University, P. O. Box 708, Princeton, NJ 08544, USA	<i>Equilibrium statistical mechanics</i>
<i>Prof. J. Moser</i> , Department of Mathematics, E. T. H. Zentrum, CH-8092 Zürich, Switzerland	<i>Classical dynamical systems</i>
<i>Prof. K. Osterwalder</i> , E.T.H. Zentrum, CH-8092 Zürich, Switzerland	<i>Constructive quantum field theory and general theory of quantized fields</i>
<i>Prof. D. Ruelle</i> , IHES, F-91440 Bures-sur-Yvette, France	<i>Dissipative dynamical systems</i>
<i>Prof. B. Simon</i> , Department of Mathematics, California Institute of Technology, Pasadena, CA 91125, USA	<i>Scattering theory and atomic physics</i>
<i>Prof. Ya. G. Sinai</i> , L. D. Landau Institute for Theoretical Physics, Academy of Sciences, Vorobyevskoe Shosse, 2, 117334 Moscow, USSR	<i>Statistical physics and dynamical systems</i>
<i>Prof. R. Stora</i> , (to Aug. 31, '81): CERN, Theory Division, CH-1211 Geneva 23, Switzerland	<i>Lagrangian quantum field theory</i>
<i>Prof. S.-T. Yau</i> , School of Mathematics, The Institute for Advanced Study, Princeton, NJ 08540, USA	<i>Relativity; Geometry and Physics</i>

100 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.

Subscription Information. Vols. 78-81 (3-4 issues each) will appear in 1981. The price of each volume is DM 336.00 or US \$ 198.00. Information about obtaining back volumes and microform editions available upon request.

Change of address. Six weeks should be allowed for all changes to become effective. All communications should include both old and new addresses (with postal codes) and should be accompanied by an address label from a recent issue.

North America. Annual subscription rate: US \$ 815.00, including postage and handling. Subscriptions are entered with prepayment only. Orders should be addressed to: Springer-Verlag New York Inc., Service Center Secaucus, 44 Hartz Way, Secaucus, NJ 07094, USA, Telephone (201) 348-4033, Telex 0023 125994.

Members of the International Association of Mathematical Physics (IAMP) are entitled to receive the journal strictly for their own personal use at a special reduced rate. The orders must be placed through the IAMP.

All Other Countries. Annual subscription rate: DM 1344.00, plus postage and handling. Airmail delivery on request only. For Japan, postage (Surface Airmail Lifted) and handling is DM 114.00.

Orders for all countries except North America can either be placed with your bookdealer or sent directly to: Springer-Verlag, Heidelberg Platz 3, D-1000 Berlin 33.

Offices

Springer-Verlag, Journal Department I, Postfach 105 280, D-6900 Heidelberg 1, Telefon (0 62 21) 4 87-1, Telex 04-61 690
Springer-Verlag, Heidelberg Platz 3, D-1000 Berlin 33, Telefon (0 30) 82 07-1, Telex 01-83 319
Springer-Verlag, New York Inc., 175 Fifth Avenue, New York, NY 10010, Telefon (2 12) 477-8 200, Telex 2 32 235