

Communications in
**Mathematical
Physics**

Volume 69 1979

Chief Editor A. Jaffe, Cambridge, MA

Editorial Board H. Araki, Kyoto
E. Brézin, Saclay
R. Geroch, Chicago, IL
J. Ginibre, Orsay
J. Glimm, New York, NY
R. Haag, Hamburg
J. L. Lebowitz, New Brunswick, NJ
E. Lieb, Princeton, NJ
J. Moser, New York, NY
K. Osterwalder, Zürich
D. Ruelle, Bures-sur-Yvette
B. Simon, Princeton, NJ
Ya. G. Sinai, Moscow
R. Stora, Geneva

Advisory Board M. F. Atiyah, Oxford
G. 't Hooft, Utrecht
C. N. Yang, Stony Brook, NY



Springer-Verlag
Berlin Heidelberg New York

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., P. O. Box 8891, Boston, MA 02114.

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.

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.

Springer-Verlag Berlin Heidelberg New York

Printers: Brühlsche Universitätsdruckerei, Gießen

Printed in Germany — © by Springer-Verlag Berlin Heidelberg 1979

Contents

Berg, B., Lüscher, M.: Computation of Quantum Fluctuations Around Multi-Instanton Fields from Exact Green's Functions: The CP^{n-1} Case	57
Bessis, D.: A New Method in the Combinatorics of the Topological Expansion	147
Bowen, R.: Invariant Measures for Markov Maps of the Interval	1
Bricmont, J., Lebowitz, J. L., Pfister, C. E.: Non-Translation Invariant Gibbs States with Coexisting Phases. III. Analyticity Properties	267
Dunlop, F.: Analyticity of the Pressure for Heisenberg and Plane Rotator Models	81
Fuller, W., Lenard, A.: Addendum	99
Gaveau, B.: Fonctions Propres et Non-Existence Absolue d'Etats Liés dans Certains Systèmes Quantiques	131
Golo, V. L., Monastyrsky, M. I., Novikov, S. P.: Solutions to the Ginzburg-Landau Equations for Planar Textures in Superfluid ^3He	237
Golubitsky, M., see Schaeffer, D.	209
Haba, Z.: Hölder Continuity of Sample Paths in Euclidean Field Theory	247
Lebowitz, J. L., see Bricmont, J., et al.	267
Longo, R.: Notes on Algebraic Invariants for Non-commutative Dynamical Systems	195
Lenard, A., see Fuller, W.	99
Lüscher, M., see Berg, B.	57
Martin, A.: Boundedness of Total Cross-Sections in Potential Scattering	89
Monastyrsky, M. I., see Golo, V. L., et al.	237
Novikov, S. P., see Golo, V. L., et al.	237
Palais, R. S.: The Principle of Symmetric Criticality	19
Pfister, C. E., see Bricmont, J., et al.	267
Pong Soo Jang: On Positivity of Mass for Black Hole Space-Times	257
Schaeffer, D., Golubitsky, M.: Boundary Conditions and Mode Jumping in the Buckling of a Rectangular Plate	209
Taubes, C. H.: $O(2)$ Symmetric Connections in an $SU(2)$ Yang-Mills Theory	179
Vaserstein, L. N.: On Systems of Particles with Finite-Range and/or Repulsive Interactions	31
Yajima, K.: The Quasi-Classical Limit of Quantum Scattering Theory	101
Zamolodchikov, A. B.: Z_4 -Symmetric Factorized S -Matrix in Two Space-Time Dimensions	165

Indexed in Current Contents

Communications in
**Mathematical
 Physics**

Volume 69 Number 1 1979

- R. Bowen Invariant Measures for Markov Maps of the Interval 1
- R. S. Palais The Principle of Symmetric Criticality 19
- L. N. Vaserstein On Systems of Particles with Finite-Range and/or Repulsive Interactions 31
- B. Berg, M. Lüscher Computation of Quantum Fluctuations Around Multi-Instanton Fields from Exact Green's Functions: The CP^{n-1} Case 57
- F. Dunlop Analyticity of the Pressure for Heisenberg and Plane Rotator Models 81
- A. Martin Boundedness of Total Cross-Sections in Potential Scattering 89
- W. Fuller, A. Lenard Addendum 99

Indexed in Current Contents



Springer-Verlag
 Berlin Heidelberg New York

Commun. Math. Phys.
 ISSN 0010-3616 CMPHAY 69(1) 1-100 (1979)

October 1979

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., P. O. Box 8891, Boston, MA 02114.

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" and may send manuscripts 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. E. Brézin</i> , Service de Physique Théorique, CEN Saclay, B. P. 2, F-91190 Gif-sur-Yvette, France	<i>Quantum fields and statistical mechanics</i>
<i>Prof. R. Geroch</i> , E. Fermi Institute, University of Chicago, 933 East 56 Street, Chicago, IL 60637, USA	<i>General relativity, cosmology</i>
<i>Prof. J. Glimm</i> , Laboratoire de Physique Théorique et Hautes Énergies, Université de Paris IX, Batiment 211, F-91405 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 08540, USA	<i>Equilibrium statistical mechanics</i>
<i>Prof. J. Moser</i> , New York University, Courant Institute of Mathematical Sciences, 251 Mercer Street, New York, NY 10012, USA	<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> , Jadwin Physics Laboratory, Princeton University, Princeton, NJ 08540, 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> , from Sept. 1, 78 to Aug. 31, 80: CERN, Theory Division, CH-1211 Geneva 23, Switzerland	<i>Lagrangian quantum field theory</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

Volumes 64-70 (3 issues each) will appear in 1979. The price of each volume is DM 158.— or \$ 79.00. Information about obtaining back volumes and microform editions is available upon request.

North America. Subscription rate: \$ 576.50, 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.

All Other Countries. Subscription rate: DM 1106,—, plus postage and handling. Orders can either be placed with your bookdealer or sent directly to: Springer-Verlag, Heidelberger Platz 3, D-1000 Berlin 33.

Springer-Verlag

Journal Production Dept.
Postfach 105280
D-6900 Heidelberg 1
Telephone (06221) 487328
Telex 04-61690

Springer-Verlag

Heidelberger Platz 3
D-1000 Berlin 33
Telephone (030) 822001
Telex 01-83319

Springer-Verlag New York Inc.

175 Fifth Avenue
New York, NY 10010, USA
Telephone (212) 477-8200
Telex 0023232235