

Communications in
**Mathematical
Physics**

Volume 178 1996

Chief Editor A. Jaffe, Cambridge, MA

Editorial Board H. Araki, Tokyo
D. Brydges, Charlottesville, VA
A. Connes, Bures-sur-Yvette
R. Dijkgraaf, Amsterdam
G. Felder, Zürich
M. E. Fisher, College Park, MD
M. Herman, Palaiseau
M. Jimbo, Kyoto
A. Kupiainen, Helsinki
J. L. Lebowitz, New Brunswick, NJ
B. Simon, Pasadena, CA
Ya. G. Sinai, Princeton, NJ
S.-T. Yau, Cambridge, MA

Advisory Board M. F. Atiyah, Oxford
L. Faddeev, St. Petersburg
F. Hirzebruch, Bonn
I. Singer, Cambridge, MA
C. N. Yang, Stony Brook, NY



Springer

Copyright

Submission of a manuscript implies: that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, if any, as well as by the responsible authorities at the institute where the work has been carried out; that, if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the publisher; and that the manuscript will not be published elsewhere in any language without the consent of the copyright holders.

All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e. g., as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.

The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Special regulations for photocopies in the USA:

Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of U.S. Copyright Law, provided a fee is paid. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0010-3616, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.

The Canada Institute for Scientific and Technical Information (CISTI) provides a comprehensive, worldwide document delivery service for all Springer-Verlag journals. For more information, or to place an order for a copyright-cleared Springer-Verlag document, please contact Client Assistant, Document Delivery, Canada Institute for Scientific and Technical Information, Ottawa K1A 0S2, Canada (Tel.: 613-993-9251; Fax: 613-952-8243; e-mail: cisti.docdel@nrc.ca).

Springer-Verlag Berlin Heidelberg New York Tokyo Hong Kong Barcelona Budapest

Printers: Saladruck, Berlin

Printed in Germany – © Springer-Verlag Berlin Heidelberg 1996

Springer-Verlag GmbH & Co KG, Berlin, Germany

Contents

- Albanese, C.: The Adiabatic Approximation for Quantum Spin Systems with a Spectral Gap 527
- Aldaya, V., Calixto, M., Guerrero, J.: Algebraic Quantization, Good Operators and Fractional Quantum Numbers 399
- Álvarez, M., de Carvalho Filho, F. M., Griguolo, L.: Time-Dependent Quantum Scattering in 2+1 Dimensional Gravity 467
- Aspinwall, P. S., Morrison, D. R.: Stable Singularities in String Theory 115
- Avan, J., Babelon, O., Billey, E.: The Gervais-Neveu-Felder Equation and the Quantum Calogero-Moser Systems 281
- Babelon, O. → Avan, J. 281
- Billey, E. → Avan, J. 281
- Bouzouina, A., De Bièvre, S.: Equipartition of the Eigenfunctions of Quantized Ergodic Maps on the Torus 83
- Branson, T.: An Anomaly Associated with 4-Dimensional Quantum Gravity 301
- Bricmont, J., Kupiainen, A.: High Temperature Expansions and Dynamical Systems 703
- Brylinski, J.-L., McLaughlin, D. A.: Čech Cocycles for Characteristic Classes 225
- Calixto, M. → Aldaya, V. 399
- Chae, D., Kim, N.: On the Breakdown of Axisymmetric Smooth Solutions for the 3-D Euler Equations 391
- Chalykh, O. A., Veselov, A. P.: Integrability and Huygens' Principle on Symmetric Spaces 311
- Cremmer, E., Gervais, J.-L., Schnitger, J.: Operator Coproduct-Realization of Quantum Group Transformations in Two-Dimensional Gravity I 147
- De Bièvre, S. → Bouzouina, A. 83
- de Carvalho Filho, F. M. → Álvarez, M. 467
- Enock, M., Vainerman, L.: Deformation of a Kac Algebra by an Abelian Subgroup 571
- Evans, W. D., Perry, P., Siedentop, H.: The Spectrum of Relativistic One-Electron Atoms According to Bethe and Salpeter 733
- Feigin, B., Frenkel, E.: Quantum \mathcal{W} -Algebras and Elliptic Algebras 653
- Finley III, J. D.: The Robinson-Trautman Type III Prolongation Structure Contains K_2 375
- Frenkel, E. → Feigin, B. 653
- Frenkel, E., Reshetikhin, N.: Quantum Affine Algebras and Deformations of the Virasoro and \mathcal{W} -Algebras 237
- Frenkel, I. B., Khesin, B. A.: Four Dimensional Realization of Two Dimensional Current Groups 541
- Gervais, J.-L. → Cremmer, E. 147
- Griguolo, L. → Álvarez, M. 467
- Grosse, H., Klimčík, C., Prešnajder, P.: Topologically Nontrivial Field Configurations in Noncommutative Geometry 507
- Guerrero, J. → Aldaya, V. 399
- Ioachim, B., Schücker, T.: Yang–Mills–Higgs versus Connes–Lott 1
- Jakšić, V., Pillet, C.-A.: On a Model for Quantum Friction III. Ergodic Properties of the Spin – Boson System 627
- Jiang, S.: Global Spherically Symmetric Solutions to the Equations of a Viscous Polytropic Ideal Gas in an Exterior Domain 339
- Khesin, B. A. → Frenkel, I. B. 541
- Kim, N. → Chae, D. 391
- Klimčík, C. → Grosse, H. 507

- Kodama, Y., Ye, J.: Iso-Spectral Deformations of General Matrix and Their Reductions on Lie Algebras 765
- Kuksin, S. B.: Growth and Oscillations of Solutions of Nonlinear Schrödinger Equation 265
- Kupiainen, A. → Bricmont, J. 703
- Lapointe, L., Vinet, L.: Exact Operator Solution of the Calogero-Sutherland Model 425
- McLaughlin, D. A. → Brylinski, J.-L. 225
- Morrison, D. R. → Aspinwall, P. S. 115
- Nakayashiki, A., Yamada, Y.: Crystallizing the Spinon Basis 179
- Nazarov, M., Olshanski, G.: Bethe Subalgebras in Twisted Yangians 483
- Olshanski, G. → Nazarov, M. 483
- Perry, P. → Evans, W. D. 733
- Piazza, P.: Determinant Bundles, Manifolds with Boundary and Surgery 597
- Pillet, C.-A. → Jakšić, V. 627
- Podleś, P., Woronowicz, S. L.: On the Classification of Quantum Poincaré Groups 61
- Prešnajder, P. → Grosse, H. 507
- Rehren, K.-H.: Comments on a Recent Solution to Wightman's Axioms 453
- Reshetikhin, N. → Frenkel, E. 237
- Rozansky, L.: Residue Formulas for the Large k Asymptotics of Witten's Invariants of Seifert Manifolds. The Case of $SU(2)$ 27
- Sadun, L.: A Simple Geometric Representative for μ of a Point 107
- Schneider, G.: Diffusive Stability of Spatial Periodic Solutions of the Swift-Hohenberg Equation 679
- Schnittger, J. → Cremmer, E. 147
- Schücker, T. → Iochum, B. 1
- Siedentop, H. → Evans, W. D. 733
- Szarek, S. J., Voiculescu, D.: Volumes of Restricted Minkowski Sums and the Free Analogue of the Entropy Power Inequality 563
- Vainerman, L. → Enock, M. 571
- Veselov, A. P. → Chalykh, O. A. 311
- Vinet, L. → Lapointe, L. 425
- Voiculescu, D. → Szarek, S. J. 563
- Wang, S.: Deformations of Compact Quantum Groups via Rieffel's Quantization 747
- Weidl, T.: On the Lieb-Thirring Constants $L_{\gamma,1}$ for $\gamma \cong 1/2$ 135
- Woronowicz, S. L. → Podleś, P. 61
- Yamada, Y. → Nakayashiki, A. 179
- Ye, J. → Kodama, Y. 765
- Zucchini, R.: Extrinsic Hermitian Geometry of Functional Determinants for Vector Subbundles and the Drinfeld-Sokolov Ghost System 201

Indexed in *Current Contents*
 Abstracted/Indexed in
MATH Database,
Zentralblatt für Mathematik
 Evaluated and abstracted for PHYS on STN

Communications in Mathematical Physics

Volume 178 Number 3 1996

- C. Albanese The Adiabatic Approximation for Quantum Spin Systems with a Spectral Gap 527
- I. B. Frenkel, B. A. Khesin Four Dimensional Realization of Two Dimensional Current Groups 541
- S. J. Szarek, D. Voiculescu Volumes of Restricted Minkowski Sums and the Free Analogue of the Entropy Power Inequality 563
- M. Enock, L. Vainerman Deformation of a Kac Algebra by an Abelian Subgroup 571
- P. Piazza Determinant Bundles, Manifolds with Boundary and Surgery 597
- V. Jaksic, C.-A. Pillet On a Model for Quantum Friction III. Ergodic Properties of the Spin – Boson System 627
- B. Feigin, E. Frenkel Quantum \mathcal{W} -Algebras and Elliptic Algebras 653
- G. Schneider Diffusive Stability of Spatial Periodic Solutions of the Swift–Hohenberg Equation 679
- J. Briemont, A. Kupiainen High Temperature Expansions and Dynamical Systems 703
- W. D. Evans, P. Perry, H. Stedentop The Spectrum of Relativistic One-Electron Atoms According to Bethe and Salpeter 733
- S. Wang Deformations of Compact Quantum Groups via Rieffel's Quantization 747
- Y. Kodama, J. Ye Iso-Spectral Deformations of General Matrix and Their Reductions on Lie Algebras 765
- Contents of Volume 178 I

Indexed in *Current Contents*

Abstracted/Indexed in

MATH Database,

Zentralblatt für Mathematik

Evaluated and abstracted for *PHYS* on *STN*

CMPHAY 178 (3) 527–788

July (I) 1996



Springer



Springer L^AT_EX and plain-T_EX macros

We can use your T_EX files directly for phototypesetting if you have used our macros. Makropackages are available for the following journals:

L_{Journal}1 L^AT_EX styles for Acta Informatica, Applicable Algebra in Engineering, Communication and Computing, Archive for Mathematical Logic, Astronomy & Astrophysics Reviews, Calculus of Variations, Communications in Mathematical Physics, Continuum Mechanics and Thermodynamics, Economic Theory, Inventiones mathematicae, Journal of Evolutionary Economics, Journal of Mathematical Biology, Manuscripta mathematica, Mathematische Annalen, Mathematische Semesterberichte, Mathematische Zeitschrift, Numerische Mathematik, Probability Theory and Related Fields, Statistical papers, Theoretica Chimica Acta

P_{Journal}1g global plain T_EX packages for all journals mentioned above; **P_{Journal}1** may also still be used. All packages are available via mailserver, FTP server or on DOS diskettes.

Mailserver

Send an e-mail message to svserv@vax.ntp.springer.de which must contain one (several) of the following commands:

L_{Journal}1 `get /tex/latex/ljour1.zip`
P_{Journal}1g `get /tex/plain/pjour1g.zip`

In order to be transmitted ungarbled via the net, the files are pkzipped and unencoded. The line `get /tex/help-tex.txt` in your e-mail to svserv will send you a file explaining how to unpack the files you receive. Please do not send regular e-mail to this address.

FTP server

The internet address is 192.129.24.12 (trick.ntp.springer.de) The username is FTP or ANONYMOUS and the files are in the directory `/pub/tex`

Diskettes

To get the macro files and the AMS fonts (when needed) on 3.5" DOS diskettes please write to:

Springer-Verlag, Journal Production,
Tiergartenstr. 17
D-69121 Heidelberg, Germany
e-mail: springer@vax.ntp.springer.de
FAX number: x 49 6221 487625

Please indicate clearly which macro package you need and the journal for which your paper is intended.

Use our L^AT_EX and plain-T_EX macros to prepare your article for this and for other Springer journals.