

Encyclopaedia of Mathematical Sciences

Volume 4

Editor-in-Chief: R.V. Gamkrelidze

V. I. Arnol'd S. P. Novikov (Eds.)

Dynamical Systems IV

Symplectic Geometry and its Applications

With 62 Figures



Springer-Verlag Berlin Heidelberg GmbH

Consulting Editors of the Series: N.M. Ostianu, L.S. Pontryagin
Scientific Editors of the Series:
A.A. Agrachev, Z.A. Izmailova, V.V. Nikulin, V.P. Sakharova
Scientific Adviser: M.I. Levshtein

Title of the Russian edition:
Itogi nauki i tekhniki, Sovremennye problemy matematiki,
Fundamental'nye napravleniya, Vol. 4, Dinamicheskie sistemy 4
Publisher VINITI, Moscow 1985

Mathematics Subject Classification (1980):
58F05, 58F06, 58F07, 70Hxx

ISBN 978-3-662-06795-6 ISBN 978-3-662-06793-2 (eBook)
DOI 10.1007/978-3-662-06793-2

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in other ways, and storage in data banks. Duplication of this publication or parts thereof is only permitted under the provisions of the German Copyright Law of September 9, 1965, in its version of June 24, 1985, and a copyright fee must always be paid. Violations fall under the prosecution act of the German Copyright Law.

© Springer-Verlag Berlin Heidelberg 1990

Originally published by Springer-Verlag Berlin Heidelberg New York in 1990.

Softcover reprint of the hardcover 1st edition 1990

Typesetting: Macmillan India Limited, Bangalore-25

2141/3140-543210 - Printed on acid-free paper

List of Editors, Contributors and Translator

Editor-in-Chief

R.V. Gamkrelidze, Academy of Sciences of the USSR, Steklov Mathematical Institute, ul. Vavilova 42, 117966 Moscow, Institute for Scientific Information (VINITI), Baltiiskaya ul. 14, 125219 Moscow, USSR

Consulting Editors

V.I. Arnol'd, Steklov Mathematical Institute, ul. Vavilova 42, 117966 Moscow, USSR

S.P. Novikov, L.D. Landau Institute for Theoretical Physics, Academy of Sciences of the USSR, Vorobeyskoe Shosse 2, 117334 Moscow, USSR

Contributors

V.I. Arnol'd, Steklov Mathematical Institute, ul. Vavilova 42, 117966 Moscow, USSR

B.A. Dubrovin, Moscow University, Department of Mechanics and Mathematics, Chair of Geometry and Topology, Leninskie Gory, 119899 Moscow, USSR

A.B. Givental', Institute of Chemical Physics of the Academy of Sciences of the USSR, Vorobeyskoe Sh. 20, 117977 Moscow, USSR

A.A. Kirillov, Moscow University, Department of Mechanics and Mathematics, 117234 Moscow, USSR

I.M. Krichever, State Research Institute of Energy, Leninskij Pr. 19, 117927 Moscow, USSR

S.P. Novikov, L.D. Landau Institute for Theoretical Physics, Academy of Sciences of the USSR, Vorobeyskoe Shosse 2, 117334 Moscow, USSR

Translator

G. Wassermann, Fakultät und Institut für Mathematik, Ruhr-Universität Bochum, Universitätsstraße 150, D-4630 Bochum 1

Contents

Symplectic Geometry

V.I. Arnol'd, A.B. Givental'

1

Geometric Quantization

A.A. Kirillov

137

Integrable Systems. I

B.A. Dubrovin, I.M. Krichever, S.P. Novikov

173

Index

281