

Cambridge University Press

978-0-521-39978-4 - Geometry of Low-dimensional Manifolds 1: Gauge Theory and Algebraic Surfaces

Edited by S. K. Donaldson and C. B. Thomas

Table of Contents

[More information](#)

CONTENTS

Contents of Volume 2	vi
Contributors	vii
Names of Participants	viii
Introduction	ix
Acknowledgments	xiv
PART 1: FOUR-MANIFOLDS AND ALGEBRAIC SURFACES	1
Yang-Mills invariants of four-manifolds S.K. Donaldson	5
On the topology of algebraic surfaces Robert E. Gompf	41
The topology of algebraic surfaces with $q = pg = 0$ Dieter Kotschick	55
On the homeomorphism classification of smooth knotted surfaces in the 4-sphere Matthias Kreck	63
Flat algebraic manifolds F.A.E. Johnson	73
PART 2: FLOER'S INSTANTON HOMOLOGY GROUPS	93
Instanton homology, surgery and knots Andreas Floer	97
Instanton homology Andreas Floer, notes by Dieter Kotschick	115
Invariants for homology 3-spheres Ronald Fintushel and Ronald J. Stern	125
On the Floer homology of Seifert fibered homology 3-spheres Christian Okonek	149
\mathbf{Z}_q -invariant $SU(2)$ instantons over the four-sphere Mikio Furuta	161
PART 3: DIFFERENTIAL GEOMETRY AND MATHEMATICAL PHYSICS	175
Skyrme fields and instantons N.S. Manton	179
Representations of braid groups and operators coupled to monopoles Ralph E. Cohen and John D.S. Jones	191
Extremal immersions and the extended frame bundle D.H. Hartley and R.W. Tucker	207
Minimal surfaces in quaternionic symmetric spaces F.E. Burstall	231
Three-dimensional Einstein-Weyl geometry K.P. Tod	237
Harmonic Morphisms, conformal foliations and Seifert fibre spaces John C. Wood	247

Cambridge University Press

978-0-521-39978-4 - Geometry of Low-dimensional Manifolds 1: Gauge Theory and Algebraic Surfaces

Edited by S. K. Donaldson and C. B. Thomas

Table of Contents

[More information](#)

CONTENTS OF VOLUME 2

Contents of Volume 1	vi
Contributors	vii
Names of Participants	viii
Introduction	xi
Acknowledgements	xiv
PART 1: SYMPLECTIC GEOMETRY	1
Introduction	3
Rational and ruled symplectic 4-manifolds Dusa McDuff	7
Symplectic capacities H. Hofer	15
The nonlinear Maslov index A.B. Givental	35
Filling by holomorphic discs and its applications Yakov Eliashberg	45
PART 2: JONES/WITTEN THEORY	69
Introduction	71
New results in Chern-Simons theory Edward Witten, notes by Lisa Jeffrey	73
Geometric quantization of spaces of connections N.J. Hitchin	97
Evaluations of the 3-manifold invariants of Witten and Reshetikhin-Turaev for $sl(2, \mathbb{C})$ Robion Kirby and Paul Melvin	101
Representations of braid groups M.F. Atiyah, notes by S.K. Donaldson	115
PART 3: THREE-DIMENSIONAL MANIFOLDS	123
Introduction	125
An introduction to polyhedral metrics of non-positive curvature on 3-manifolds I.R. Aitchison and J.H. Rubinstein	127
Finite groups of hyperbolic isometries C.B. Thomas	163
<i>Pin</i> structures on low-dimensional manifolds R.C. Kirby and L.R. Taylor	177