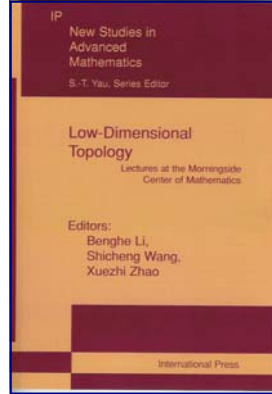


Low Dimensional Topology: Lectures at the Morningside Center (New Studies in Advanced Mathematics)

Editor: Benghe Li, Shicheng Wang and Xuezhi Zhao
 ISBN: 1-57146-112-4
 Year Published: 2003
 Page: 80 pp
 Binding: Softcover
 Price: \$48



Description

This volume contains most of the series of lectures presented during the half-year program of Low-Dimensional Topology, held at The Morningside Center of Mathematics, of the Chinese Academy of Sciences, Beijing. The order of contents is based on the chronological order in which the lectures were presented.

This book is the third volume of the series in New Studies in Advanced Mathematics. The other two volumes are: Morse Theory, Minimax Theory, and their Applications to Nonlinear Differential Equations, and Lectures on Partial Differential Equations: Proceedings in Honor of Louis Nirenberg's 75th Birthday. Each lecture provides a brief introduction to important fields in current research in low-dimensional topology.

Table of Contents

1. Definition of the Seiberg- Witten (SW) invariants of 4-manifolds - John W. Morgan
2. Computation of SW invariants for certain 4-manifolds - John W. Morgan
3. Heegaard splittings of 3-manifolds - Martin Scharlemann
4. Dehn filling - C. McA. Gordon
5. Dehn's Lemma and the Loop Theorem - Hyam Rubinstein
6. Polyhedral Geometry - Hyam Rubinstein
7. Triangulations of 3-manifolds - Hyam Rubinstein

Morse Theory, Minimax Theory and their Applications to Nonlinear Differential Equations

Table of Contents

1. The Difference of Topology at Infinity for the Case of Two Masses in Changing Sign Yamabe Problems on S^3 - Abbas Bahri & Sagun Chanillo
2. Linking, Positive Invariance and Localization of Critical Points - Thomas Bartsch
3. Is There Failure of the Inverse Function Theorem? - Haim Brezis
4. Blow-up of Solutions of Nonlinear Parabolic Problems - Chao-Nien Chen
5. Variational Problems Which are Nonquadratic at Infinity - David G Costa
6. Homoclinic Orbits of Hamiltonian Systems, Yanheng Ding
7. Selfadjointness of Hamiltonian Operator and Some Problems in Symplectic Geometry - Mei-Yue Jiang
8. Dirichlet Problem of p -Laplacian with Nonlinear Term $f(x, u) \sim u^{p-1}$ at Infinity - Gongbao Li & Huan-Song Zhou
9. Some Advances in Morse Theory and Minimax Theory - Shujie Li
10. On a Class of Elliptic Eigenvalue Problems with Constraint - Yongqing Li
11. Iteration Theory of Maslov-type Index and its Applications - Chungen Liu
12. Number of Invariant Sets of Descending Flow with Applications in Critical Point Theory - Zhaoli Liu and Jingxian Sun
13. The Maslov-type Index and its Iteration Theory with Applications to Hamiltonian Systems - Yiming Long
14. The Spectrum of p -Laplacian Systems under Dirichlet, Neumann and Periodic Boundary Conditions - Raul Manasevich and Jean Mawhin
15. A Note on Hamiltonian Systems of Multiple Pendulum Type - Paul H. Rabinowitz
16. Nontrivial Critical Points for Asymptotically Quadratic Functional at Resonance - Jiabao Su
17. Positive Solutions Having Prescribed Symmetry for Nonlinear Elliptic Problems - Zhi-Qiang Wang
18. A Decomposition Lemma and Critical Minimization Problems - Michel Willem
19. The Effect of Sublinear Term at Origin in Some Elliptic Problems - Shaoping Wu
20. Positive Mass Theorem for Modified Energy Condition - Xiao Zhang

Editors: H. Brezis, S.J. Li, J.Q. Liu, and P. H. Rabinowitz
 ISBN: 1-57146-109-4
 Year Published: 2003
 Page: 286 pp
 Binding: Hardcover
 Price: \$48

Description

Based on lectures held at the Morningside Center of Mathematics, at the Chinese Academy of Sciences, Beijing from April 1st to September 30th, 1999. This volume contains both survey and creative papers dealing with Morse Theory, Minimax theory, Iteration theory of Maslov-type index and critical minimization problems. The book particularly emphasizes applications to nonlinear differential equations including semilinear elliptic boundary problems, p -Laplacian systems, periodic, homoclinic and heteroclinic orbits of Hamiltonian systems and symplectic geometry.

