

1. Record Nr.	UNINA9910454773603321
Titolo	Topology and physics [[electronic resource]] : Proceedings of the Nankai International Conference in Memory of Xiao-Song Lin, Tianjin, China, 27-31 July 2007 // editors, Kevin Lin, Zhenghan Wang, Weiping Zhang
Pubbl/distr/stampa	Hackensak, N.J., : World Scientific, c2008
ISBN	981-281-911-8
Descrizione fisica	1 online resource (468 p.)
Collana	Nankai tracts in mathematics ; ; v. 12
Altri autori (Persone)	LinXiao-song <1957-2007.> LinKevin WangZhenghan ZhangWeiping <1964->
Disciplina	514.22 514/.22
Soggetti	Low-dimensional topology Quantum field theory Algebraic topology Field theory (Physics) Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Papers from a memorial conference in honor of Xiao-Song Lin, organized by the Chern Institute of Mathematics and held in Tianjin, July 27-31, 2007.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Foreword; Preface; Short Biography of Lin; Mathematics of Lin; Organizing Committees; List of Participants; Program; Welcome Speech of Weiping Zhang; Speech of Boju Jiang; CONTENTS; Part A Invited Contributions; The Modified Calabi-Yau Problems for CR-manifolds J. Cao and S.-C. Chang; 0. Introduction; 1. Bounded solutions to $d =$ on manifolds with negative curvature; 2. The modified Calabi-Yau problems for singular spaces and CR-manifolds; A. Sup-harmonic functions on Alexandrov spaces with nonnegative sectional curvature B. The generalized Calabi problems for Kahler domains with boundaries C. The Calabi-Escobar type problem for Kahler domains with boundaries; Acknowledgments; References; On Picture (2+1)-TQFTs M.

Freedman, C. Nayak, K. Walker and Z. Wang; 1. Introduction; 2. Jones representations; 2.1. Braid statistics; 2.2. Generic Jones representation of the braid groups; 2.3. Unitary Jones representations; 2.4. Uniqueness of Jones-Wenzl projectors; 3. Diagram TQFTs for closed manifolds; 3.1. "d-isotopy", local relation, and skein relation; 3.2. Picture classes; 3.3. Skein classes; 3.4. Recoupling theory 3.5. Handles and S-matrix 3.6. Diagram TQFTs for closed manifolds; 3.7. Boundary conditions for picture TQFTs; 3.8. Jones-Kauffman skein spaces; 4. Morita equivalence and cut-paste topology; 4.1. Bimodules over picture category; 4.2. Cutting and paste as Morita equivalence; 4.3. Annularization and quantum double; 5. Temperley-Lieb-Jones categories; 5.1. Annular Markov trace; 5.2. Representation of Temperley-Lieb-Jones categories; 5.3. Rectangular Temperley-Lieb-Jones categories for low levels; 5.3.1. Level=1, $d_2 = 1$; 5.3.2. Level=2, $d_2 = 2$; 5.3.3. Level=3, $d_2 = 1 + d$ or $d_2 = 1$ 5.4. Annular Temperley-Lieb-Jones theories for low levels 5.4.1. Level=1, $d_2 = 1$; 5.4.2. Level=2, $d_2 = 2$; 5.4.3. Level=3, $d_2 = 1 + d$ or $d_2 = 1$; 5.5. Temperley-Lieb-Jones categories for primitive 4th roots of unity; 5.6. Temperley-Lieb-Jones categories for primitive 2nd root of unity, d_2 ; 6. The definition of a TQFT; 6.1. Redefined labels for TQFTs; 6.2. Anomaly of TQFTs and extended manifolds; 6.3. Axioms for TQFTs; 6.4. More consequences of the axioms; 6.5. Framed link invariants and modular representation; 6.6. Verlinde algebras and Verlinde formulas 7. Diagram and Jones-Kauffman TQFTs 7.1. Diagram TQFTs; 7.2. Jones-Kauffman TQFTs; 8. WRT and Turaev-Viro $SU(2)$ -TQFTs; 8.1. Flagged TLJ categories; 8.2. Turaev-Viro Unitary TQFTs; 8.3. WRT Unitary TQFTs; 9. Black-White TQFTs; 9.1. Black-white TLJ categories; 9.2. Labels for black-white theories; 9.2.1. Level=2, $d_2 = 2$; 9.2.2. Level=3; 9.3. BW TQFTs; 10. Classification and Unitarity; 10.1. Classification of diagram local relations; 10.2. Unitary TQFTs; 10.3. Classification and unitarity; Appendix A. Topological phases of matter; Ground states manifolds as modular functors Elementary excitations as particles

Sommario/riassunto

This unique volume, resulting from a conference at the Chern Institute of Mathematics dedicated to the memory of Xiao-Song Lin, presents a broad connection between topology and physics as exemplified by the relationship between low-dimensional topology and quantum field theory. The volume includes works on picture $(2+1)$ -TQFTs and their applications to quantum computing, Berry phase and Yang-Baxterization of the braid relation, finite type invariant of knots, categorification and Khovanov homology, Gromov-Witten type invariants, twisted Alexander polynomials, Faddeev knots, generalized Ricci flow