



# Conformal Field Theory and Topology

By Toshitaki Kohno

American Mathematical Society. Paperback. Book Condition: new. BRAND NEW, Conformal Field Theory and Topology, Toshitaki Kohno, One of the most remarkable interactions between geometry and physics since 1980 has been an application of quantum field theory to topology and differential geometry. An essential difficulty in quantum field theory comes from infinite-dimensional freedom of a system. Techniques dealing with such infinite-dimensional objects developed in the framework of quantum field theory have been influential in geometry as well. This book focuses on the relationship between two-dimensional quantum field theory and three-dimensional topology which has been studied intensively since the discovery of the Jones polynomial in the middle of the 1980s and Witten's invariant for 3-manifolds which was derived from Chern-Simons gauge theory. This book gives an accessible treatment for a rigorous construction of topological invariants originally defined as partition functions of fields on manifolds. The book is organized as follows: the introduction starts from classical mechanics and explains basic background materials in quantum field theory and geometry. Chapter 1 presents conformal field theory based on the geometry of loop groups. Chapter 2 deals with the holonomy of conformal field theory. Chapter 3 treats Chern-Simons perturbation theory. The final chapter discusses topological invariants for...



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