

Symmetry in Dimension three: A quantum approach

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Abstract. Let M be an oriented compact three-manifold and G a finite cyclic group of prime order. The manifold M is said to be symmetric if G acts non trivially on M . Several classical methods have been used to study the symmetries of three-manifolds. In this talk, we shall explain how to use the quantum invariants to study this problem. Namely, we will show how Murasugi's results on periodic knots have been extended to quantum invariants of three-manifolds by Chbili and Gilmer in the case of the $Su(2)$ and the $Su(3)$ quantum invariants. Then, by Chen-Le to all complex simple Lie algebras and by Qazaqzeh to modular categories.