WHICH LENS SPACES CAN BE DISTINGUISHED BY THE TURAEV-VIRO INVARIANTS

M. V. SOKOLOV

Abstract

For any $v \in Z$ define a function $h_v : Z \to Z_2$ by the formula

$$h_v(x) = \begin{cases} 1 & \text{if } x \equiv \pm 1 \bmod v \\ 0 & \text{if } x \not\equiv \pm 1 \bmod v \end{cases}$$

The result of the paper is equivalent to the following statement: *two lens spaces $L(p_1, q_1)$ and $L(p_2, q_2)$ can not be distinguished by the Turaev-Viro invariants if and only if $p_1 = p_2 = p$ and for any divisor $v > 2$ of p we have $h_v(q_1) = h_v(q_2)$.* (This simple reformulation of the result was suggested by S. V. Matveev.)