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J-GROUPS OF SUSPENSIONS OF STUNTED LENS SPACES MOD 8

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1. Introduction

Let $L^n(q)=S^{2n+1}/\boldsymbol{Z}_q$ be the $(2n+1)$-dimensional standard lens space mod q. As defined in [7], we set

$$(1.1)\qquad \begin{aligned} L_q^{2n+1} &= L^n(q)\,, \\ L_q^{2n} &= \{[z_0, \cdots, z_n]\in L^n(q)\,|\, z_n \text{ is real and } z_n\geqq 0\}\,. \end{aligned}$$

In the previous paper [10], we determined the J-groups $\tilde{J}(S^j(L^m_q/L^n_q))$ of the suspensions of the stunted lens spaces L^m_q/L^n_q for $q=4$ and for $j\equiv 1 \pmod 2$. The purpose of this paper is to determine the KO- and J-groups of suspensions of stunted lens spaces mod 8.

This paper is organized as follows. In section 2 we state the main theorems: the structures of $\widetilde{KO}(S^j(L^m_8/L^n_8))$ and $\tilde{J}(S^j(L^m_8/L^n_8))$ for $j\equiv 0 \pmod 2$ are given in Theorems 1 and 2 respectively. In section 3 we prepare some lemmas and recall known results in [8], [9] and [11]. By virtue of the results in [8], the proofs of Theorems 1 and 2 for the case $j\equiv 0 \pmod 4$ are given in section 4. Applying the method used in the corresponding parts of [10], we prove Theorems 1 and 2 for the case $j\equiv 2 \pmod 4$ in the final section.

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2. Statement of results

We prepare functions $h_1, h_2, h_3, h_4, a_1, a_2, a_3, a_4, a_5, a_6$ and a_7 defined by

$$(2.1)\qquad \begin{cases} h_1(n) = [n/4]+[(n+7)/8]+[(n+4)/8] \\ h_2(n) = [n/4]+[(n+7)/8]+[n/8]+1 \\ h_3(m, n) = [m/4]-[n/4] \\ h_4(m, n) = [m/8]-[n/8]\,. \end{cases}$$