

the canonical line bundles over equivariant real projective spaces of general dimension

Graduate School of Natural Science and Technology

Okayama University

QI Yan

We have already shown that if G is a cyclic group with odd order and V is a 3-dimensional real G -module, then $\gamma^{\oplus 4}$ is isomorphic to a product G -bundle, where γ denotes the canonical line bundle over $P(V)$.

In this talk we will discuss the canonical line bundle γ in the following two cases.

Case 1. The order of G is even.

Case 2. The order of G is odd and the dimension of the real projective space is general.

In case 1, we obtain a result for a cyclic group G with even order, a real G -module $V = \mathbb{R} \oplus W$ such that G trivially acts on \mathbb{R} and the order-two element of G freely acts on $W \setminus \{0\}$. The result is $k[\gamma] \neq 0$ in $\widetilde{KO}_G(P(V))$ for any $k \neq 0$.

In case 2, for a cyclic group G with odd order and a real G -module $V = \mathbb{R} \oplus W$, where G acts freely on $W \setminus \{0\}$. Set $\dim W = 2m$. Then the complex G -vector bundle $\gamma^{\oplus 2^{m+1}} \otimes \mathbb{C}$ is a trivial G -bundle over $P(V)$.

E-mail address: qiyan@math.okayama-u.ac.jp