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EQUIVARIANT STABLE HOMOTOPY GROUPS OF SPHERES WITH INVOLUTIONS, II

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Introduction. This note is the second paper in a series of papers with the same title, in which we aim at computing of the equivariant stable homotopy groups of spheres with linear involutions. In the present paper we give the computation of $\pi^S_{p,q}$ for $p+q=9$, 10 and 11. At the end of this paper we list the tables of $\pi^S_{p,q}$ for $0\leq p+q\leq 13$ and $-1\leq q\leq p$, and $\lambda^S_{p,q}$ for $0\leq p+q\leq 13$. The computations of 12 and 13 stems are similar situations to 4 and 5 stems since $\pi^S_{12}=0$ and $\pi^S_{13}=\boldsymbol{Z}/3$, hence they are easily obtained by the forgetful exact sequence.

We quote the part I of this series by [I]. All other references are listed at the end of [I].

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1. 9 stem

The equivariant Toda bracket

$$\langle 120\mathring{\sigma},\ 2,\ \xi^*_{3,2}\omega_2^{2n+1}\rangle^\tau$$

is well-defined. By parallel arguments to the case of $[\nu^2\omega_1^{4n+3}]_3$ (see [I], (15.2)), there exists an element

$$(1.1)\qquad [120\sigma\omega_1^{4n+3}]_3\in\langle 120\mathring{\sigma},\ 2,\ \xi^*_{3,2}\omega_2^{2n+1}\rangle^\tau\subset\pi_S^{4n+3,-4n-10}(S^{3,0}_+)$$

such that

$$(1.1')\qquad \psi(\delta_3[120\sigma\omega_1^{4n+3}]_3)=\mu\,.$$

Put

$$(1.1'')\qquad \mathring{\mu}_{4n}=\delta_3[120\sigma\omega_1^{-4n+3}]_3\in\langle 120\mathring{\sigma},\ 2,\ \mathring{\eta}_{4n}\rangle^\tau\subset\pi^S_{4n,-4n+9}\,.$$

Then we have

Proposition 1.2. i) $\eta^*_{1,3}[120\sigma\omega_1^{4n+3}]_3=120\sigma\omega_1^{4n+3}$ *and* $[120\sigma\omega_1^{4n+3}]_3$ *is of*