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**Rigidity of Bott-Samelson-Demazure-Hansen Variety for  $\mathrm{PSp}(2n, \mathbb{C})$**

Let  $G = \mathrm{PSp}(2n, \mathbb{C})$  ( $n \geq 3$ ) and  $B$  be a Borel subgroup of  $G$  containing a maximal torus  $T$  of  $G$ . Let  $w$  be an element of the Weyl group  $W$  and  $X(w)$  be the Schubert variety in the flag variety  $G/B$  corresponding to  $w$ . Let  $Z(w, \underline{i})$  be the Bott-Samelson-Demazure-Hansen variety (the desingularization of  $X(w)$ ) corresponding to a reduced expression  $\underline{i}$  of  $w$ .

In this article, we study the cohomology groups of the tangent bundle on  $Z(w_0, \underline{i})$ , where  $w_0$  is the longest element of the Weyl group  $W$ . We describe all the reduced expressions  $\underline{i}$  of  $w_0$  in terms of a Coxeter element such that all the higher cohomology groups of the tangent bundle on  $Z(w_0, \underline{i})$  vanish.

**Keywords:** Bott-Samelson-Demazure-Hansen variety, Coxeter element, tangent bundle.

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