On the integral cohomology ring of the Peterson variety

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The Peterson variety is a subvariety of the full-flag variety, given as a particular case of regular nilpotent Hessenberg varieties. Abe-Harada-Horiguchi-Masuda proved that the cohomology ring of the Peterson variety is isomorphic to the $\mathfrak{S}_n$-invariant subring of the cohomology ring of the permutohedral variety, where the coefficients are taken in the field of rational numbers. In this talk, I will explain that the same isomorphism works for the integral coefficients as well. This is a joint work with Haozhi Zeng.