

Peterson varieties and Cartan toric orbifolds

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The Peterson variety is a subvariety of the flag variety, and it is known to provide some connections between geometry and representation theory. By the works of Harada-Horiguchi-Masuda (2015) and Horiguchi-Masuda-Shareshian-Song (2021), the rational cohomology ring of the Peterson variety is isomorphic to that of a certain toric orbifold. In this talk, I will explain a geometric relation between these spaces which induces the above isomorphism of cohomology rings. If time permits, I will also explain the correspondence of their nonnegative parts. This is joint work with Haozhi Zeng.