Projective toric manifolds and wedge operation

Jiyeon Moon *(Ajou University),* j9746@ajou.ac.kr

The wedge operation is a classical operation defined on the set of simplicial complexes. When we know all toric manifolds over a simplicial complex K, there is a way to find all toric manifolds over simplicial complexes $K(J)$ obtained by a sequence of wedges from K, for all positive integer tuple J. It was introduced in [?] and [?].

In this talk, we are interested in the simplicial complex $\mathcal{C}(J)$, where $\mathcal{C}$ is the face complex of the dual of 3-cube with one vertex cut. We completely classify toric manifolds over $\mathcal{C}(J)$ by using the classification of toric manifolds over $\mathcal{C}$ due to [?].

We note that $\mathcal{C}$ supports the simplest non projective toric manifold known as Oda's example. We also show that, for each J, there is only one non-projective toric manifold over $\mathcal{C}(J)$. This talk is jointly with Suyoung Choi and Hanchul Park.

References

[1] S. Choi and H. Park, Wedge operations and torus symmetries, *Tohoku Math. J.* (2) **68**:1 (2016), 91–138.

[2] S. Choi and H. Park, Wedge operations and torus symmetries II, *Canad. J. Math.* **69**:4 (2017), 767–789.

[3] S. Hasui, H. Kuwata, M. Masuda, and S. Park, *Classification of toric manifolds over an n-cube with one vertex cut* arXiv preprint arXiv:1705.07530, (2017).