

Quotient construction of toric orbifolds and its applications to torus cobordism of lens spaces and equivariant formality of toric orbifolds

Dong Youp Suh

It is well-known that any $2n$ -dimensional quasitoric manifolds can be constructed from an n -dimensional simple convex polytope Q and a characteristic function λ as a quotient space $T^n \times Q / \sim$ where the equivalence relation is defined using λ . By modifying the above construction we can construct torus manifolds which bound lens spaces with torus actions, explicitly. Moreover such construction is applied to find a sufficient condition for toric orbifolds to be equivariantly formal, namely their odd degree cohomology vanishes by Bahri-Ray-Sarka-Song. In this talk we discuss these constructions and results. We also discuss some necessary conditions for equivariant formality of torus orbifolds. This talk is based on joint works with Soumen Sarkar and Jongbaek Song.

DEPARTMENT OF MATHEMATICAL SCIENCES KAIST, DAEJEON, KOREA
E-mail address: `dysuh@kaist.ac.kr`