

The cohomology rings of real toric spaces

A real toric space is a topological space which admits a well-behaved Z_2^k -action. Real moment-angle complexes, real toric varieties and small covers are typical examples of real toric spaces. A real toric space is determined by the pair of a simplicial complex K and a characteristic matrix Λ .

In this talk, we discuss the cohomology formulae for real toric spaces. First, we give an integral cohomology group formula of real toric manifolds. Second, we give an explicit R -cohomology ring formula of a real toric space in terms of K and Λ , where R is a commutative ring with unity in which 2 is a unit. Interestingly, it has a natural $(Z \oplus \text{row } \Lambda)$ -grading.