

Weighted Stanley-Reisner ring and the Equivariant cohomology ring of a singular toric variety.

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Given an abstract simplicial complex K , the corresponding Stanley-Reisner ring $R[K]$ is obtained from the polynomial ring with coefficient ring R by quotienting certain ideal which encodes the face structure of K . The Stanley-Reisner ring $R[\Sigma]$ of a simplicial fan Σ can be naturally defined by considering its underlying simplicial complex. It is well-known that the equivariant cohomology ring of a smooth toric variety is isomorphic to the Stanley-Reisner ring of the corresponding fan which is smooth. However, in general, if the toric variety is singular, then its equivariant cohomology ring can be identified with the Stanley-Reisner ring over the rational coefficients. In this talk, we define a weighted Stanley-Reisner ring with integer coefficients and explain how it is related to the equivariant cohomology ring of a singular toric variety.