GKM-orbifolds and their equivariant cohomology rings

Jongbaek Song *(KAIST),* jongbaek.song@gmail.com

If a topological space X with torus action satisfies certain conditions, then one can make use of GKM theory to compute its equivariant cohomology ring. When X is an orbifold, GKM-theory is restricted to field coefficients. In this talk, we discuss GKM theory over integer coefficients and apply this to a certain class of GKM-orbifolds. In particular, for the case when X is equipped with an half dimensional torus action, which we call them *torus orbifolds*, we introduce the notion of *weighted face ring*. It encodes the orbit space of torus action on X together with singularities. Applying GKM-theory to this class of orbifolds, we get a description of the integral equivariant cohomology rings of torus orbifolds in terms of weighted face rings. This is a joint work with Alastair Darby and Shintaro Kuroki.