Equivariant Bordism of 2-Torus Manifolds and Unitary Toric Manifolds

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The equivariant bordism classification of manifolds with group actions is an essential subject in the study of transformation groups. We are interesting in the action of 2-torus $\mathbb{Z}_2^n$ and torus T^n, and study the equivariant bordism of 2-torus manifolds and unitary toric manifolds. In this talk,we'll give a new description of the group $\mathcal{Z}_n(\mathbb{Z}_2^n)$ of 2-torus manifolds, and determine the dimention of $\mathcal{Z}_n(\mathbb{Z}_2^n)$ as a $\mathbb{Z}_2$-vector space. With the help of toric topology, Lü and Tan proved that the bordism classes in $\mathcal{Z}_n(\mathbb{Z}_2^n)$ can be represented by small covers. We will give a new proof to this result. These results can be generalized to the equivariant bordism $\mathcal{Z}_n^U(T^n)$ of unitary toric manifolds, that is, we will a give new description of $\mathcal{Z}_n^U(T^n)$, and prove that $\mathcal{Z}_n^U(T^n)$ can be generated by equivariant bordism classes represented by quasi-toric manifolds with omniorientations.

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