MATHEMATICS COLLOQUIUM

Topology and combinatorics of real toric manifolds

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Abstract: A toric variety, which arose in the field of algebraic geometry or toric geometry, is a normal algebraic variety with an algebraic action of a complex torus having a dense orbit. A compact smooth toric variety is called a toric manifold. For a given toric manifold, its subset consisting of points with real coordinates is called a real toric manifold. A real toric manifold is a natural real subvariety of toric variety, and it plays an important role in toric geometry.

Although a formula for the cohomology ring of toric manifolds have been well established since 1980s, only little is known about the topology of real toric manifolds. In general, the topological structures of real toric manifolds are more complicated than those of toric manifolds. For instance, every real toric manifold is not a simply connected while every toric manifold is simply connected.

In this talk, we provide a simple and nice formula of the cohomology ring of real toric spaces, and find a relationship between the topology of real toric manifolds and the combinatorics of its underlying simplicial complex.

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Place: MAGC 1.302

Refreshments will be served at 12:05pm
For further information, or for special accommodations, please contact Dr. Zhijun Qiao via email at zhijun.qiao@utrgv.edu or at 956-665-3406.