Prime Decomposition of Real Toric Threefolds

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Abstract

A differential threefold is prime when it does not admit a non-trivial connected sum decomposition. A theorem of Kneser and Milnor asserts that every threefold can be uniquely decomposed as the connected sum of such prime manifolds. In this talk, we will provide the prime decomposition of the real loci of smooth toric threefolds. Usually a toric threefold is understood as acted upon by the cube of the real multiplicative group, i.e. the split tridimensional torus. However, there are six different tridimensional tori. First, we will recall the results of Erokhovets for toric threefolds under the action of the split torus. Then, we will focus on the five other cases. This is based on a joint work with Matilde Manzaroli.

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