

Calabi-Yau pairs of low complexity

José Yáñez

UCLA, USA

The complexity of a Calabi-Yau pair (X, B) is an invariant that relates the dimension of X , the Picard rank of X , and the coefficients of B . It was proven by Brown, McKernan, Svaldi and Zong that the complexity of a Calabi-Yau pair is nonnegative, and a variety X admits a Calabi-Yau pair of complexity 0 if and only if X is toric. In this talk we will discuss the geometry of Calabi-Yau pairs of index one and complexity one or two. Both descriptions are done in terms of cluster type varieties, a generalization of toric varieties. In the case of complexity one, we prove that (X, B) is of cluster type. In the case of complexity two, we give a criterion to decide whether the pair is cluster type or not. This is joint work with Joshua Enwright, Jennifer Li and Joaquín Moraga.

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