

EQUIVARIANT GEOMETRY OF PFAFFIAN CUBIC THREEFOLDS

ZHIJIA ZHANG

It is known that any smooth cubic threefold Y is given by the vanishing of the Pfaffian of some 6 by 6 skew-symmetric matrix of linear forms. Each Pfaffian representation of Y corresponds to a rank 2 vector bundle on Y . In addition, such a representation also gives rise to a birational map between Y and a smooth Fano threefold of degree 14. In this talk, we explore the range of compatibility of these classical constructions with automorphism groups of smooth cubic threefolds. We give new results on twisted equivariant stable birationalities between X and Y . This is joint work with Yuri Tschinkel.