Hashimoto

Title: Some recent results on constant scalar curvature Kaehler metrics with cone singularities

Abstract: Constant scalar curvature Kaehler (cscK) metrics have been studied intensively in recent years, in relation to the Yau-Tian-Donaldson conjecture which states that their existence is equivalent to a stability notion in algebraic geometry called K-stability. There are many Kaehler manifolds that do not admit cscK metrics, but they often have conic cscK metrics, i.e. cscK metrics that have cone singularities along a divisor. There are many deep results known for conic Kaehler-Einstein metrics, but important open questions remain for more general conic cscK metrics. We show that the existence of conic cscK metrics implies the stability condition that appears in the log version of the Yau-Tian-Donaldson conjecture, and also prove that a conic cscK metric always exists on any given smooth projective variety if we choose the divisor appropriately. This is a joint work with Takahiro Aoi and Kai Zheng.