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Canonical metrics, stability and moduli space

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Abstract. In the last half century, the interplay between canonical metrics and stability for various algebraic objects has been a central topic in geometry. Many new theories are developed to understand each side, as well as their relation. In my talk, I will survey the recent progress on one example of this kind: the complete solution of the Yau-Tian-Donaldson Conjecture for varieties with a positive Chern class. While this is a differential geometry problem, its solution largely depends on the development of a new algebraic theory. We will focus on this algebraic theory, and its application on a new moduli construction.