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On the degenerations of asymptotically conical Calabi-Yau metrics

The analytic study of complete non-compact Ricci-flat Kahler metrics began with the work of Tian-Yau in the 90s, who used PDE methods to produce many interesting examples of such metrics. In this talk, we will discuss the degenerations of non-compact Ricci-flat Kahler metrics from an analytic point of view: by studying the limit of the corresponding complex Monge-Ampere equations. In certain cases, we will see that the degenerate metric limit induces a complete singular Ricci-flat Kahler metric on a quasi-projective variety and we will discuss the applications to constructions of complete Ricci-flat Kahler metrics with singularities. This is joint work with T. Collins and B. Guo.