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Kähler-Einstein Metrics on Compact Cohomogeneity One Fano Manifolds via Effective Approximations

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Abstract of Poster Presentation: Kähler-Einstein metrics emerge when a complex, topological manifold, under additional conditions, admits a metric that is both Einstein and Kähler. They are beautiful objects which arise naturally in many facets of mathematics–and moreover, are of great importance in the study of string theory. We want to determine under what conditions a compact Fano manifold of Type I cohomogeneity one admits Kähler-Einstein metrics; for which is done by verifying the classes of the manifolds being Fano manifolds and their stability; however, by using the standard methods currently available to us, this proves to be quite a cumbersome task which yields very limited results. In order to overcome this obstacle, we have developed new specialized methods which are effective at retrieving large-scale information of classes of these compact Fano manifolds and their corresponding Kähler-Einstein properties.

[Joint work with Anthony Van]

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