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The Calabi-Yau Hypersurface Landscape

Thursday, 27 June 2019 17:30 (15 minutes)

I will describe a large scale study of Calabi-Yau hypersurfaces in toric varieties. We construct large ensembles of O(10ˆ7) Calabi Yau hypersurfaces and study key topological properties such as intersection numbers, cones of effective curves and divisors, and fibration structures. I will describe how the properties of a generic hypersurface scale with the Hodge numbers and discuss some of the phenomenological consequences. Finally, I will show that machine learning can be used to classify geometries, predict topological properties given polytope and triangulation data, and construct geometries with extraordinary properties.

Presenter: DEMIRTAS, Mehmet (Cornell University)

Session Classification: Parallel Session