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 $O(10^7)$ 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