

# Tropical games and mirror symmetry

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At the heart of my joint program with Mark Gross (UCSD) for a geometric explanation of mirror symmetry lie the notions of *toric degeneration* of complex varieties and its associated *intersection complex*. The latter should be viewed as *abstract tropical variety* whose underlying topological space is a manifold. In the talk I will explain that the picture is even nicer than ever hoped for: Under natural, mild conditions there is an algorithm producing canonically a toric degeneration with a given associated tropical manifold, to any finite order. The construction works by a combinatorial game that produces an ever growing number of polyhedral subsets of codimension one inside the tropical manifold.

This result not only provides an explicit framework for the study of refined mirror phenomena by tropical means, but it also gives a vast generalization of toric geometry where polytopes are replaced by (polarized) tropical manifolds.