1096-14-2737 **M Brandon Meredith*** (mbmeredith@ucsd.edu). *Mirror Symmetry on Toric Surfaces via Tropical Geometry.*

Mirror symmetry is a curious duality, first noticed by physicists and then excitedly embraced by mathematicians, between certain manifolds (the A-side) and their "mirror" spaces (the B-side). On the A-side, certain counts of objects on a manifold are carried out (the purview of enumerative geometry), while on the B-side, special functions are integrated. Interestingly, the same numbers come out on both sides.

This talk considers mirror symmetry on toric surfaces, which are varieties with certain convenient combinatorial properties and include many well-known surfaces such as the affine and projective planes and $\mathbb{P}^1 \times \mathbb{P}^1$. These surfaces are especially suited to being exploited by tropical geometry, which is a form of algebraic geometry over the "tropical semi-ring." Dramatically, key information about both sides of mirror symmetry on toric surfaces can be gleaned from the tropics.

The mirror symmetry of a certain subclass of toric varieties, those that are Fano, has seen much progress. This talk will discuss a generalization to non-Fano toric surfaces, where some curves are "hidden" from the viewpoint of tropical geometry. We will discuss how we verified these methods by carrying out explicit calculations on the second Hirzebruch surface. (Received September 18, 2013)