

*Counting curls and hunting monomials-  
Tropical mirror symmetry for elliptic curves*

Abstract:

Mirror symmetry relates Gromov-Witten invariants of an elliptic curve with certain integrals over Feynman graphs. We prove a tropical generalization of mirror symmetry for elliptic curves, i.e., a statement relating certain labeled Gromov-Witten invariants of a tropical elliptic curve to more refined Feynman integrals. This result easily implies the tropical analogue of the mirror symmetry statement mentioned above and, using the necessary Correspondence Theorem, also the mirror symmetry statement itself. In this way, our tropical generalization leads to an alternative proof of mirror symmetry for elliptic curves. We can use the techniques for computing Feynman integrals to prove that they are quasimodular forms.

Joint work with Janko Boehm, Kathrin Bringmann and Arne Buchholz.

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