1165-14-140 **Maria Angelica A Cueto*** (cueto.5@osu.edu), 231 W 18th Ave, Columbus, OH 43210, and **Hannah Markwig**. *Combinatorics and real lifts of bitangents to tropical quartic curves.*

Smooth algebraic plane quartics over algebraically closed fields have 28 bitangent lines. By contrast, their tropical counterparts have infinitely many bitangents. They are grouped into seven equivalence classes, one for each linear system associated to an effective tropical theta characteristic on the tropical quartic curve. In this talk, I will discuss recent work joint with Hannah Markwig (arXiv:2004.10891) on the combinatorics of these bitangent classes and its connection to the number of real bitangents to real smooth quartic curves characterized by Pluecker. We will see that they are tropically convex sets and they come in 41 symmetry classes. The classical bitangents map to specific vertices of these polyhedral complexes, and each tropical bitangent class captures four of the 28 bitangents. We will discuss the situation over the reals and show that each tropical bitangent class has either zero or four lifts to classical bitangent defined over the reals, in agreement with Pluecker's classification. (Received January 15, 2021)