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Alheydis Geiger

Counting tropical binodal surfaces

Tropical geometry has been a successful tool in the enumerative geometry of curves. Much less is known about the enumerative geometry of surfaces. In algebraic geometry, there are 280 binodal cubic surfaces passing through 17 points in general position. So far it has not been possible to reproduce this count in the tropical world, because the tropicalizations of two nodes can be so close together that they are no longer encoded like two single nodes. The extrem case of this is when the nodes tropicalise to the same point in the tropical surface. As only tropicalizations of single nodes are understood until now, we can only count those tropical cubic surfaces for which the two nodes are separated. That yields 214 of the 280 cubics. In this talk, we present progress on the study of non-separated nodes in tropical surfaces and on methods to count multinodal tropical surfaces of arbitrary degree. This talk presents joint work with Madeline Brandt.