

1065-14-195

Eric Katz* (EEKatz@math.utexas.edu), 1 University Station C1200, Austin, TX 78712-0257.

Lifting Tropical Curves in Space and Linear Systems on Graphs.

Tropicalization is a procedure for associating a polyhedral complex to a subvariety of an algebraic torus. We give a necessary condition for a graph to arise as the tropicalization of an algebraic curve. We make use of Baker's technique of specializing linear systems from curves to graphs to study the vanishing locus of particular 1-forms on a degenerating family of algebraic curves. Our condition reproduces a generalization of Speyer's well-spacedness condition and also gives new conditions. The method used is closely related to Coleman's method of effective Chabauty in the bad reduction case as studied by Lorenzini-Tucker and McCallum-Poonen. No knowledge of tropical geometry is required. (Received September 13, 2010)