From algebraic to tropical divisors (and back again)

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The main topic of this talk is the process of specialization of divisors on algebraic curves to divisors on tropical curves and, in particular, the realizability problem, i.e. the problem of deciding which tropical divisors are specializations of algebraic divisors of the same rank and multiplicity profile. I will outline a comprehensive (and completely combinatorial) solution to the realizability problem for effective canonical divisors as well as a partial solution to the realizability problem for principal divisors. These results are intimately related to the problem of describing compactifications of strata of abelian differentials and of double ramification loci respectively. Along the way, I will present a natural moduli-theoretic framework to think about the process of specialization as a natural deformation retraction to the skeleton.

References

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