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The geometry of tropical curves

Abstract

Tropical curves are objects in the world of polyhedral geometry, essentially metric graphs, but through the work of numerous researchers, a remarkable collection of polyhedral structures have been associated to these objects, in analogy with the complex geometry of Riemann surfaces. By using a process called tropicalization it is possible to find tropical curves as limits of families of Riemann surfaces, and as a consequence, constrain the geometry of Riemann surfaces using combinatorics. The last 15 years has a number of applications of these ideas to questions of classical and contemporary interest, including enumerative geometry, the construction and study of moduli, and number theory. I will attempt to entertain you with some stories extracted from this circle of ideas.