Specialization of divisors from algebraic to tropical curves

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Abstract:
This minicourse will consist of three lectures, each aimed at a general algebraic geometry audience. In the first lecture we will discuss tropical curves, formulate a Riemann-Roch theorem for them, and give a sketch of the proof. In the second lecture, we will provide a gentle introduction to Berkovich's theory of non-Archimedean analytic spaces, with an emphasis on the cases of curves. We will then formulate and prove the Specialization Lemma, which relates the rank of a divisor on a Berkovich curve X to the rank of its retraction to the skeleton of X. In the final lecture, we will give an overview of some applications of this framework to algebraic geometry, including Brill-Noether theory and the theory of limit linear series.