

# Analogies between graphs and algebraic curves

*Abstract:* Finite graphs can be viewed, in many respects, as discrete analogues of algebraic curves. In this talk, we consider this analogy in the context of linear equivalence of divisors on a graph. We will interpret such an equivalence in terms of a chip-firing game. We will state a graph-theoretic version of the Riemann-Roch theorem, and outline its proof. Additionally, we will discuss harmonic morphisms between graphs, characterizations of "hyperelliptic graphs", and connections of our results to tropical geometry. This is joint work with Matt Baker.