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Talk 1: Introduction to Tropical geometry and Newton-Okounkov theory

I will introduce two developments in (polyhedral) combinatorics in the approach to solve problems in algebraic geometry and representation theory. They are Tropical geometry and Newton-Okounkov theory. I will talk about the following three questions:
1. What are they? : Find an explicit description of each combinatorial object.
2. How to use them? : Find applications
3. How are they related? : Find relations between these two theories.

Talk 2: Tropical geometry and Newton-Okounkov cones for Grassmannian of planes from compactifications

I will revisit the last question in the previous talk, "How are they related?", for the case of Grassmannian of 2-planes. We construct a family of compactifications of the affine cone of the Grassmannian of 2-planes. We show that both the Tropical and Newton-Okoukov results can be recovered from these compactifications