

## ***LOGIC SEMINAR***

**Guest Speaker: Alex Kruckman**  
**Wesleyan University**



**Date:** Tuesday, March 21, 2023

**Time:** 2:00 PM

**Location:** 125 Hayes-Healy Hall

**Zoom URL:** NA

***Lecture Title:***

**Kim's Lemmas and tree properties**

***Abstract***

One of the most important technical steps in the development of simplicity theory in the 1990s was a result now known as Kim's Lemma: In a simple theory, if a formula  $\phi(x; b)$  divides over a model  $M$ , then  $\phi(x; b)$  divides along every Morley sequence in  $\text{tp}(b/M)$ . More recently, variants of Kim's Lemma have been shown by Chernikov, Kaplan, and Ramsey to follow from, and in fact characterize, two generalizations of simplicity in different directions: the combinatorial dividing lines NTP1 (which is now known to be equivalent to NSOP1 and NSOP2) and NTP2. After surveying the Kim's Lemmas of the past, I will suggest a new variant of Kim's Lemma, as well as a new model-theoretic tree property, BTP, which implies this new Kim's Lemma and generalizes both TP1 and TP2. I will also compare BTP with ATP, another tree property generalizing both TP1 and TP2, which was introduced recently by Ahn and Kim. This is joint work with Nick Ramsey.