ALEX KRUCKMAN, Indiana University Bloomington
Generic theories, independence, and NSOP$_1$

"Generic theories" are a fruitful source of examples in model theory: start with a tame base theory T, expand it by adding extra structure, and take the model companion T^*. Generic theories can often be shown to be simple by characterizing a well-behaved notion of independence in T^* (namely forking independence) in terms of independence in T. Recently, there has been increased interest in the class of NSOP$_1$ theories, spurred by the work of Chernikov, Kaplan, and Ramsey, who showed that NSOP$_1$ theories can also be characterized by the existence of a well-behaved notion of independence (namely Kim independence). Many examples of generic theories which fail to be simple have been shown to be NSOP$_1$ by this method.

In this talk, I will present a number of new examples of this phenomenon: In joint work with Nicholas Ramsey, we study the theory of the generic L-structure in an arbitrary language L. More generally, starting with a base L-theory T which is NSOP$_1$, model complete, and eliminates the quantifier "exists infinitely many", we consider the generic expansion of T to an arbitrary language containing L and the generic Skolemization of T. In joint work with Gabriel Conant, we study the generic projective plane, considered as an incidence structure. More generally, we consider the generic bipartite graph omitting a fixed complete bipartite graph $K_{m,n}$. We show that all of these examples are NSOP$_1$, and we characterize various notions of independence (Kim, forking, dividing, thorn forking, and algebraic independence) in these theories.