1145-03-1818 **Natasha Dobrinen*** (natasha.dobrinen@du.edu), University of Denver, Department of Mathematics, C.M. Knudson Hall 300, Denver, CO 80208. *Ramsey theory of the Henson graphs.*

A central question in the theory of homogeneous relational structures asks which structures have finite big Ramsey degrees. An infinite structure **S** is *homogeneous* if any isomorphism between two finitely generated substructures of **S** can be extended to an automorphism of **S**. **S** has *finite big Ramsey degrees* if for each finite substructure A of **S**, there is a number n(A) such that any coloring of the copies of A in **S**, can be reduced down to no more than n colors on some substructure $\mathbf{S}'$ isomorphic to **S**. A main obstacle to a fuller development of this research area has been the lack of techniques and methods. In this talk, we present new work proving that all Henson graphs $\mathcal{H}_k$, the k-clique-free universal homogeneous graphs for $k \geq 3$, have finite big Ramsey degrees. Our proof provides a streamlined and unified approach to the Ramsey theory of Henson graphs, likely to extend to a large class of homogeneous structures with forbidden configurations. Central to the proof is the method of forcing, used to obtain a Ramsey theorem in ZFC for trees coding copies of $\mathcal{H}_k$, building on ideas of Harrington. (Received September 24, 2018)