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*Morphism extension classes of graphs*

The concept of homomorphism-homogeneity was introduced by Cameron and Nešetřil in 2006 as a variation on ultrahomogeneity: instead of requiring isomorphisms between finite substructures to extend to automorphisms of the ambient structure, they require homomorphisms between finite substructures to extend to endomorphisms. By adjusting the type of initial homomorphism and final endomorphism, one obtains 18 morphism-classes (for example, one can require monomorphisms to extend to bijective endomorphisms).

In this talk, I will present the partial order of morphism-extension classes for graphs and connected graphs, and a surprising result for countably infinite connected HH-homogeneous graphs: if they embed an infinite independent set, then the Rado graph is a spanning subgraph. As a corollary, almost all MB-homogeneous graphs are bimorphism-equivalent to the Rado graph.

Joint work with Thomas Coleman and David Hartman.