

Graph structural implications of homomorphism complexes

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Lovasz used topological properties of the neighborhood complex of a graph to prove the Kneser conjecture. Recent work by Babson and Kozlov and others has extended these ideas to general homomorphism complexes and applied more powerful topological tools. In this talk I will present one example of a such a homomorphism complex and its application. I will examine the relationship between topological connectivity of the complex $Hom(K_n, G)$, complete m -partite subgraphs of G , and complete minors of G . These will be considered from a graph theorist's perspective, requiring only basic topological knowledge.