Title: Algebraic precursors to graph C*-algebras: the Leavitt path algebras

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Abstract: Most of the rings one encounters as basic examples have the "Invariant Basis Number" property: for every pair of positive integers m and n, if the free left R-modules R^m and R^n are isomorphic, then $m = n$. There are, however, many important classes of rings which do not have this property. At first glance such rings might seem pathological but they arise quite naturally in a number of contexts (e.g. as endomorphism rings of infinite dimensional vector spaces), and possess a significant (perhaps surprising) amount of structure. We describe a class of such rings, the (now-classical) Leavitt algebras, and then describe their recently developed generalizations, the Leavitt path algebras. One of the nice aspects of this subject is that pictorial representations (using graphs) of the algebras are readily available. In addition, there are strong connections between these algebraic structures and a class of C*-algebras, a connection which is currently the subject of great interest to both algebraists and analysts.