Leavitt path algebras and invariant basis property

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A ring R is said to have the Invariant Basis Number property or more simply IBN in case no two free left R-modules of different rank are isomorphic. W. G. Leavitt constructed some non-IBN algebras – what we now call Leavitt algebras – in the 1960's. In 2005, Abrams-Aranda Pino, and Ara-Moreno-Pardo introduced the Leavitt path algebra as a quotient of a path algebra constructed on a given quiver. The Leavitt path algebra of the quiver with one vertex and n loops turns out to be the Leavitt algebra R of type (1,m), that is $_R R^1 \cong {_R} R^m$ and $_R R^1 \ncong {_R} R^n$ for any $1 < n < m$. On the other hand, there is an abundance of examples of Leavitt path algebras which have IBN.

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