A Noncommutative Nullstellensatz for Leavitt Path Algebras

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Abstract

Hilbert's Nullstellensatz states that a quotient of the algebra of polynomial functions on an algebraic variety over an algebraically closed field is the algebra of polynomial functions on a (sub)variety if and only if its radical is trivial. A noncommutative analogue is: "A quotient of a Leavitt path algebra over an algebraically closed field is isomorphic to a Leavitt path algebra if and only if its radical is trivial (Koc-Ozaydin)". This suggests that a Leavitt path algebra behaves like a noncommutative algebra of polynomial functions on a directed graph. (Based on research partially supported by the TUBITAK grant 122F414.)