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Leavitt path algebras over arbitrary rings and their graded ideals.

We expand the work of M. Tomforde by further extending the construction of Leavitt path algebras (LPAs) over arbitrary associative, unital rings. We show that many of the results over a field and over a commutative ring hold in the more general setting. In particular, a two-sided analog of a Hilbert basis theorem holds for LPAs over noetherian rings. Further, we expand what is known of the ideal spectrum for LPAs over fields to our general context and describe two classes of graded ideals of LPAs. We then describe all graded ideals using these classes. Lastly, we give characterization of when such LPAs are prime, and a description of graded prime ideals. (Received January 23, 2019)