

Title: Extension problem associated with socle of monomial algebras

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Abstract: We show that a monomial algebra Λ over an algebraically closed field K is self-injective if and only if each map $\text{soc}(\Lambda\Lambda) \rightarrow \Lambda_\Lambda$ can be extended to an endomorphism of $\Lambda\Lambda$, and provide a complete classification of such algebras. As a consequence, we show that the class of self-injective monomial algebras is a subclass of Nakayama algebras.