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Summary

In [33], it was proved that an injective module is indecomposable if and only if its endomorphism ring is local. The first aim of this thesis is to generalize this result from indecomposable modules to square-free ones by showing that an injective module is square-free if and only if its endomorphism ring is quasi-duo. We then describe all maximal right (left, two-sided) ideals of the endomorphism ring of an arbitrary injective module. We then study two classes of modules: Loewy modules with finite Loewy invariants over an arbitrary ring and max modules with finite radical invariants over a semilocal ring. We prove that the endomorphism rings of these modules are semilocal, generalizing in this way a result that proved by Camps and Dicks for artinian modules [9]. In [12], Facchini proved that, over a commutative ring, a module is artinian if and only if it is a Loewy module with finite Loewy invariants. Here we show that this is not necessarily true for modules over non-commutative rings. Finally, we answer two questions posed in [32]. We prove that, for any division algebra D with center F , there exist x, y, a, b in the multiplicative group D^* of D such that $F(xy - yx)$ and $F(aba^{-1}b^{-1})$ are maximal subfields of D .

