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Ivo Herzog* (herzog.23@osu.edu), 435 Galvin Hall, 4240 Campus Drive, Lima, OH 45804.

Almost algebraically compact modules. Preliminary report.

An associative ring R is said to satisfy the Camillo-Krause condition on the right if for every nonzero right ideal I of R , the cyclic right R -module R/I is artinian. It is an outstanding open problem whether all such rings are right noetherian. Considered as a left module over itself, such a ring R satisfies the equation

$$\mathrm{Hom}_R(H(R)/R, H(R)) = 0,$$

where $R \subseteq H(R)$ denotes the pure-injective envelope of R . We call any left R -module that satisfies the equation almost algebraically compact and we note that if R is a fully bounded noetherian ring, then it is almost algebraically compact as a module over itself. Given a ring R that is almost algebraically compact over itself, the equation above implies that the pure-injective envelope $R \subseteq H(R)$ admits a ring structure extending that of R . The proof mimicks the classical proof of the existence of the maximal ring of fractions for certain classes of rings. We consider some reasonable ring theoretic conditions on R under which the projective indecomposable summands of $H(R)$ correspond under elementary duality to those injective indecomposable right R -modules that are envelopes of simple right R -modules. (Received September 29, 2000)