# A Baer-like criterion for relative injective modules via model theory

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Baer criterion is a classical result from module theory that asserts that to determine if a module is injective it is enough to test for homomorphisms coming from ideals of the ring. In this talk, we show that relative injective modules satisfy a similar criterion using model theory. More precisely, the result is obtained using independence relations which generalize Shelah's non-forking to abstract elementary classes. This result is one of the first purely algebraic applications of independence relations to algebra in the context of abstract elementary classes. We will introduce all the abstract elementary classes notions used in the talk and in parallel give a quick introduction to abstract elementary classes of modules.

The main result of the talk is joint work with J. Rosicky.