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The Generalized Auslander-Reiten Conjecture and Derived Equivalences

This is joint work with Kosmas Diveris. In a paper from 1975, Maurice Auslander and Idun Reiten stated the following conjecture: "If M is an R -module with $\text{Ext}^i(M, M \oplus R) = 0$ for all $i > 0$, then M is a projective module." This conjecture remains open for "most" classes of rings, including for artin algebras and commutative rings. A natural generalization is the following statement: "If M is an R -module with $\text{Ext}^i(M, M \oplus R) = 0$ for all $i \gg 0$, then M has finite projective dimension." In our talk we discuss these conjectures, give a version of the latter conjecture for any triangulated category, and use it to show that the generalized version of the Auslander-Reiten Conjecture is stable under any derived equivalence of noetherian rings.