The Generalized Auslander-Reiten Condition

A ring R is said to satisfy the Generalized Auslander-Reiten Condition (GARC) if for each R-module M with $\mathrm{Ext}^i(M, M \oplus R) = 0$ for all $i > n$, the projective dimension of M is at most n. In the special case when $n = 0$, we obtain the Auslander-Reiten Condition (ARC) for a ring R. The Auslander-Reiten Conjecture, a long-standing open conjecture, asserts that all Artin algebras satisy ARC. Examples of rings which do not satisfy GARC have been produced. In this talk we show that GARC is a homological property of a ring that depends only on its derived category. This is joint work with Kosmas Diveris.