Title: Relative Auslander-Gorenstein pairs

Abstract: A famous result in representation theory is the Auslander's correspondence which connects finite-dimensional algebras of finite representation-type with Auslander algebras. Over the years, many generalisations of Auslander algebras have been proposed: for instance n-Auslander algebras (by Iyama), n-minimal Auslander–Gorenstein algebras (by Iyama and Solberg), among others. All of the concepts above require the existence of a faithful projective-injective module and use classical dominant dimension. Now replace the faithful projective-injective module with a self-orthogonal module and classical dominant dimension with relative dominant dimension with respect to a module and you get a relative Auslander-Gorenstein pair.

In this talk, we introduce relative Auslander-Gorenstein pairs. Further, we will characterise relative Auslander pairs (those whose underlying algebras have finite global dimension) by the existence and uniqueness of tilting-cotilting modules having higher values of relative dominant and codominant dimension with respect to the self-orthogonal module. At the end, we discuss explicit examples of relative Auslander pairs. (This is joint work with Chrysostomos Psaroudakis.)