

Large tilting modules over tame hereditary algebras

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This is a report on joint work with Javier Sánchez. We give a complete classification of the infinite dimensional tilting modules over a tame hereditary algebra R .

Important examples of large tilting modules are provided by the modules of the form $T = R_{\mathcal{U}} \oplus R_{\mathcal{U}}/R$ where \mathcal{U} is a union of tubes, and $R_{\mathcal{U}}$ denotes the universal localization of R at \mathcal{U} in the sense of Schofield and Crawley-Boevey. Here $R_{\mathcal{U}}$ is a torsionfree module, and $R_{\mathcal{U}}/R$ is a direct sum of the Prüfer modules corresponding to the tubes in \mathcal{U} .

Over the Kronecker algebra, large tilting modules are of this form in all but one case, the exception being the Lukas tilting module L whose tilting class $\text{Gen } L$ consists of all modules without indecomposable preprojective summands. Over an arbitrary tame hereditary algebra, the situation is more involved due to the possible presence of finite dimensional summands in T coming from non-homogeneous tubes. We give a structure result showing that also in the general case the infinite dimensional part of T is built up from universal localizations, Prüfer modules and (localizations of) the Lukas tilting module.