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Biserial algebras and bricks

Biserial algebras form an important class of tame algebras, which include the class of special biserial algebras. In this talk, we study the bricks over such algebras, which are the modules having a division algebra as endomorphism algebra. For a general finite dimensional algebra A, bricks over A form an important family of indecomposable modules. They are the simple objects of the wide subcategories of the module category, they include all stable modules in the sense of King, and more recently, have shown to be deeply connected to the τ-tilting theory and the so-called wall-and-chamber structure of A. We will show that a biserial algebra B has finitely many bricks (then called brick-finite) if and only if no quotient of B is gentle of infinite type. The latter can be detected by classifying the minimal brick-infinite biserial algebras, that is, the biserial algebras which are brick-infinite but such that every proper quotient is brick-finite. We also consider some infinite dimensional bricks (called generic bricks) and explain how the existence of those is equivalent to the existence of infinite families of bricks. This is joint work with Kaveh Mousavand.