The period and Calabi-Yau dimension on finite dimensional mesh algebras

Manuel Saorin

Department of Mathematics
University of Múrcia
msaorinc@um.es

Standard representation-finite triangulated categories were classified by Claire Amiot in her thesis. The Auslander algebras of these categories, i.e., the endomorphism algebras of the direct sum of one isomorphic copy of each indecomposable object, are precisely the finite dimensional mesh algebras, also called m-fold mesh algebras, which had been previously introduced by Erdmann-Skowronski. They are self-injective algebras which are Ω-periodic, where Ω is the Heller syzygy operator, and include as particular cases all (usual and generalized) preprojective algebras. In this talk, based on joint work with Estefania Andreu Juan,see [1], we will explicitly calculate the period of these algebras and will determine those algebras in the class whose stable category is Calabi-Yau in the sense of Kontsevich. In this latter case we will give the precise formula for the corresponding Calabi-Yau dimension. The formulas heavily depend on the associated Dynkin graph and its Coxeter number.

References

[1] Estefania Andreu Juan and Manuel Saorin. *The symmetry, period and Calabi-Yau dimension of finite dimensional mesh algebras* DOI:10.1016/j.algebra.2015.01.006