

REPRESENTATION DIMENSION OF CLUSTER-CONCEALED ALGEBRAS

ALFREDO ESTEBAN GONZALEZ CHAIO

ABSTRACT. Auslander introduced the concept of representation dimension for artin algebras, motivated by the connection of arbitrary artin algebras with representation finite artin algebras. He expected this notion to give a reasonable way of measuring how far an artin algebra is from being of representation finite type. On the other hand, Buan-Marsh-Reiten introduced the cluster-tilted algebras as the endomorphism algebras $\text{End}_{\mathcal{C}}(T)^{op}$ of a cluster-tilting object T in a cluster category \mathcal{C} . A cluster concealed algebra is given by $B = \text{End}_{\mathcal{C}}(\tilde{T})^{op}$ where T is a cluster tilting object induced by a postprojective tilting H -module. We are going to show that the representation dimension of a cluster-concealed algebra B is 3. We compute its representation dimension by showing an explicit Auslander generator for the cluster-tilted algebra. In order to do this, tilting and torsion theory of hereditary algebras became very useful tools. Also the concept of slices, became a key tool to find Auslander generators for cluster-concealed algebras.

E-mail address: Agonzalezchaio@gmail.com

UNIVERSIDAD NACIONAL DE MAR DEL PLATA.