

INDECOMPOSABLE MODULES FOR DOMESTIC CANONICAL ALGEBRAS

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This is a report on joint work with Dirk Kussin

Let k be a field and $A = kQ/I$ a finite dimensional k -algebra of quiver type. In order to describe finite dimensional left modules over A one has to choose for each vertex of Q a finite dimensional vector space and for each arrow of Q a linear map such that the relations defined by the ideal I are satisfied. Whereas often one has knowledge about the dimension vectors of the indecomposable modules little is known about the linear maps.

We study indecomposable modules for domestic canonical algebras. We will prove the following result.

Theorem 1. *Let k be a field and Λ a domestic canonical k -algebra of quiver type.*

- (1) *Each preprojective or preinjective indecomposable module can be exhibited by $0, 1$ -matrices.*
- (2) *Each indecomposable module lying in an exceptional tube can be exhibited by $0, \pm 1$ -matrices.*

We will give explicit constructions of all these modules provided the characteristic of k is different from 2. If moreover k is algebraically closed, then we obtain a description of *all* indecomposable Λ -modules.