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Indecomposable modules for canonical algebras

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In 1984 Ringel introduced the class of canonical algebras which plays an important role in representation theory. We are interested in an explicit description of indecomposable modules over a canonical algebra by vector spaces and matrices, a question which can be asked for an arbitrary algebra which is given by a quiver with relations. This problem seems to be difficult in general, whereas often one has knowledge about the dimension vectors of the indecomposable modules, little is know about the matrices.
If
 is a canonical algebra of domestic type in joint work with Kusin. we described all indecomposable
-modules.
For a tubular canonical algebra
, it seems to be impossible to describe the matrices of all indecomposable modules. However, we can show that each exceptional
-module can be exhibited by matrices involving as coefficients
 and
 if
 is of type
,
 or
 and coefficients
 and
 if
 of type
 and defined by a parameter

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. Moveover, the proof yields an algorithmic description of the exceptional modules over a tubular canonical algebra. Whereas the methods in the domestic situation are purely combinatoric, we use in the tubular case methods of non-commutative algebraic geometry as introduced by Geigle and Lenzing.
Finally, we discuss some problems concerning the case of exceptional modules over wild canonical algebras.

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