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CREP

CREP is the abbreviation of Combinatorial REPresentation Theory. It is a program system designed to deal with the category of representations of an associative unital algebra of finite dimension over a field. In the last 3 decades it has turned out that the language of quivers is an appropriate approach to this area. Quiver is a shorthand for directed graph with possibly multiple edges and loops. This is a purely combinatorial object inviting to computational access. The aim of CREP is to provide algorithms using this access for research and teaching.

Physically, the system consists of various packages of programs to work with particular classes of finite-dimensional algebras (e. g. completely separating algebras, hereditary algebras) resp. related structures (e. g. partially ordered sets) and combinatorial aspects of their finite-dimensional representations (e. g. dimension vectors, Tits and Euler quadratic forms, thin modules, preprojective, preinjective and tubular Auslander-Reiten components). Moreover, there are several data bases containing the results of important classifications (e. g. tame concealed algebras, sincere representation-directed algebras, minimal wild concealed algebras, representation-finite iterated tilted algebras). The programs are written in Pascal, C and in the Maple programming language. Nevertheless, the user will only see a package of Maple routines.

More details about CREP can be found in the Web under the URL
http://www.mathematik.uni-bielefeld.de/~sek/crep.html.