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The structure of one-parameter families

By Drozd's Tame-/Wild-Theorem the one-parameter families for a tame algebra over an algebraically closed field are rational, that is, are up to finitely many points given by the projective line. Over an arbitrary field there is still no extension of Drozd's theorem and the general structure of the one-parameter families for tame algebras is still unknown. It is widely accepted that such families will be those induced by the one-parameter families associated with tame bimodules.

We present a structure theorem for the one-parameter families associated with a tame bimodule: Each such family can be naturally identified with the projective prime spectrum of a (not necessarily commutative) graded factorial domain. As an application commutativity of the endomorphism ring of the generic module (the "function field") is characterized in terms of the so-called multiplicities.