

1139-16-670

Miodrag C Iovanov* (miodrag-iovanov@uiowa.edu), 14 MacLean Hall, Iowa City, IA 52242.

The tame-wild dichotomy for infinite dimensional algebras and the Brauer-Thrall 3 conjectures.

The tame-wild dichotomy is a fundamental result in the representation theory of finite dimensional algebras, due to Drozd. For infinite dimensional algebras and coalgebras, it is an open question (conjectured true) whether the tame-wild dichotomy for f.d. representations still holds. We settle this conjecture in the positive in its full generality. The key part of the approach is proving new representation theoretic characterizations for when the Ext quiver of the category of finite dimensional representations of an arbitrary algebra A is locally finite: this is so exactly when for every dimension vector d , the representations of A of dimension vector d are all contained in a finite subcategory (a category of modules over a finite dimensional quotient algebra). We also show that tame/not wild are local in the sense of noncommutative localization: a category of comodules is tame/not wild if and only if every "finite" localization is so. As applications of the methods, we obtain a proof for another conjecture in representation theory called the "Brauer-Thrall 3 conjecture", also raised by Simson, for the class of all wild algebras: over such algebras, there are indecomposable representations of arbitrarily large (infinite) dimension. (Received February 20, 2018)