

Noncommutative Castelnuovo-Mumford Regularity and AS-regular Algebras

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Abstract

Let A be a connected graded k -algebra generated in degree 1, with a balanced dualizing complex. I will talk about the Castelnuovo-Mumford regularity and the Ext-regularity and prove that these regular theories coincide for all finitely generated A -modules if and only if that A is a Koszul AS-regular algebra. By using Castelnuovo-Mumford regularity, we also prove that any Koszul standard AS-Gorenstein algebra is AS-regular.