

Abstract

Noncommutative Calabi-Yau algebras is an analogue of the coordinate ring of Calabi-Yau variety in noncommutative algebraic geometry. Artin-Schelter regular algebras and lots of quantum groups are examples of skew Calabi-Yau algebras. A skew Calabi-Yau algebra is Calabi-Yau algebra if and only if its Nakayama automorphism is inner. Homological determinants of quantum actions on skew Calabi-Yau algebras will be defined, which can be viewed as a generalization of the usual determinants (of graded automorphism of polynomial algebras). Some applications will also be given at the end of the talk.