A Dirac-type class in the $K$-homology of a quantum flag variety

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Abstract

Compact semisimple Lie groups and their flag varieties admit well-known deformations to noncommutative spaces. Seeing as the classical objects are some of the nicest examples of smooth manifolds, one would like to be able to describe their quantized cousins as noncommutative manifolds. But despite more than a decade of work, examples of “geometric” spectral triples (à la Connes) have only been found in relatively few cases. We will start off by discussing this problem, and then define a bounded spectral triple ($K$-homology class) of Dirac-type for the quantized flag variety of $SU(3)$. This class has application to the Baum-Connes Conjecture for discrete quantum groups. (Joint work with Christian Voigt, Glasgow).