

Compact quantum groups with representations of bounded degree

Jacek Krajczok

University of Warsaw
jk.krajczok@gmail.com

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Abstract

Compact quantum groups are objects which are analogues of compact Hausdorff groups in the realm of noncommutative geometry. One of their features is that coinverse, i.e. map which in the classical case is given by precomposition with an inverse, does not need to be bounded. Whenever coinverse is bounded, we say that compact quantum group \mathbb{G} is of Kac type. I wish to present an argument which says that if every irreducible representation of a given compact quantum group \mathbb{G} has dimension less than a fixed natural number, then \mathbb{G} must be of Kac type. Proof is based on a certain inequality which involves quantum dimensions d_α and numbers related to operators $\rho_\alpha \in \text{Mor}(U^\alpha, (U^\alpha)^{cc})$.