

Abstract

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“Quantum differentiability on quantum tori”

The core ingredients of the quantised calculus, introduced by A. Connes, are a separable Hilbert space H , a unitary self-adjoint operator F on H and a C^* -algebra \mathcal{A} represented on H such that for all $a \in \mathcal{A}$ the commutator $[F, a]$ is a compact operator on H . Then the quantised differential of $a \in \mathcal{A}$ is defined to be the operator $\mathbf{d}a = i[F, a]$. We provide a full characterisation of quantum differentiability in the sense of Connes on quantum tori \mathbb{T}_θ^d . We also prove a quantum integration formula which differs substantially from the commutative case. A joint work with Ed McDonald and Xiao Xiong.