

On characteristic classes for bundles on quantum spaces

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We study the quantization of spaces whose K-theory in the classical limit is the ring of dual numbers $\mathbb{Z}[t]/(t^2)$. For a compact quantum space, we give sufficient conditions that guarantee there is a morphism of abelian groups from $K_0 \rightarrow \mathbb{Z}[t]/(t^2)$, compatible with the tensor product of bimodules.

Applications include the standard quantum sphere S_q^2 and a quantum 4-sphere S_q^4 coming from quantum symplectic groups. For the former the K-theory is generated by the Euler class of a monopole bundle while for the latter, the K-theory is generated by the Euler class of the instanton bundle.

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