Associated noncommutative vector bundles over the Vaksman-Soibelman quantum complex projective spaces

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Abstract

By a diagonal embedding of $U(1)$ in $SU_q(n)$, we prolongate the diagonal $U(1)$-action on the Vaksman-Soibelman quantum sphere S_q^{2n+1} to the $SU_q(n)$-action on the prolongated bundle $S_q^{2n+1} \times_{U(1)} SU_q(n)$. Then, using the index pairing, we prove that the noncommutative vector bundles associated via the fundamental representation of $SU_q(n)$, for $n \in \{2, \ldots, N\}$, yield generators of the K_0-group of the C*-algebra $C(\mathbb{CP}_q^N)$ of the Vaksman-Soibelman quantum complex projective space $\mathbb{CP}_q^N$. Based on joint work with Francesca Arici and Mariusz Tobolski.