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AN EQUIVARIANT PULLBACK STRUCTURE OF TRIMMABLE GRAPH C-ALGEBRAS*

We introduce a class of graphs called trimmable. Then we show that the Leavitt path algebra of a trimmable graph is graded-isomorphic to a pullback algebra of simpler Leavitt path algebras and their tensor products. Next, specializing the ground field to the field of complex numbers and completing Leavitt path algebras to graph C*-algebras, we prove that the graph C*-algebra of a trimmable graph is $U(1)$ -equivariantly isomorphic with an appropriate pullback C*-algebra. As a main application, we consider a trimmable graph yielding the C*-algebra $C(S_q^{2n+1})$ of the Vaksman-Soibelman quantum sphere, and use the resulting pullback structure of its gauge invariant subalgebra $C(CP_q^n)$ defining the quantum complex projective space to show that the generators of the even K-group of $C(CP_q^n)$ are given by a Milnor connecting homomorphism applied to the (unique up to sign) generator of the odd K-group of $C(S_q^{2n-1})$ and by the generators of the even K-group of $C(CP_q^{n-1})$. Based on joint works with Francesca Arici, Francesco D'Andrea, Atabey Kaygun and Mariusz Tobolski.