SPECIAL FACTORS OF INVERTIBLE ELEMENTS IN SIMPLE UNITAL PURELY INFINITE $C^*$-ALGEBRAS

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Abstract. In simple unital purely infinite $C^*$-algebra $A$, Leen proved that any element in the identity component of the invertible group is a finite product of symmetries of $A$. Revising Leen's factorization, we show that a multiple of eight of such factors are $*$-symmetries of the form $1 - 2P_{i,j}(u)$, where $P_{i,j}(u)$ are certain projections of the $C^*$-matrix algebra, defined by Dye as

$$P_{i,j}(u) = \frac{1}{2}(e_{i,i} + e_{j,j} + e_{i,1}ue_{1,j} + e_{j,1}u^*e_{1,i}),$$

for a given system of matrix units $\{e_{i,j}\}_{i,j=1}^n$ of $A$ and a unitary $u \in U(A)$.

REFERENCES


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