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ABELIAN SELF–COMMUTATORS IN FINITE FACTORS

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Abstract. An *abelian self-commutator* in a C*-algebra $\mathcal{A}$ is an element of the form $A = X^*X - XX^*$, with $X \in \mathcal{A}$, such that X^*X and XX^* commute. It is shown that, given a finite AW*-factor $\mathcal{A}$, there exists another finite AW*-factor $\mathcal{M}$ of same type as $\mathcal{A}$, that contains $\mathcal{A}$ as an AW*-subfactor, such that any self-adjoint element $X \in \mathcal{M}$ of quasitrace zero is an abelian self-commutator in $\mathcal{M}$.

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REFERENCES

[1] S. BERBERIAN, *Baer $*$-rings*, Springer-Verlag, New York-Heidelberg-Berlin, 1972
[2] B. BLACKADAR, D. HANDELMAN, *Dimension functions and traces on C*-algebras*, J. Funct. Analysis. Vol. 45, 1982
[3] U. HAAGERUP, *Quasitraces on exact C*-algebras are traces*, Preprint 1991
[4] I. KAPLANSKY, *Rings of Operators*, W. A. Benjamin Inc. New York, 1968
[5] S.H. KIM, G. NAGY, *Spectral symmetry in II_1-factors*, Preprint 2004, arXiv.org: math.OA/0408275
[6] F.J. MURRAY, J. VON NEUMANN, *On Rings of Operators*, Ann. Math. Vol. 37, No. 1, 1937

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