MR1416312 (97k:47043) 47D25 (46L05 47A30 47B47)
Stachó, L. L. (H-SZEG-B); **Zalar, B. [Zalar, Borut]** (SV-MARCE-BS)
On the norm of Jordan elementary operators in standard operator algebras. (English summary)
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Let $\mathcal{A}$ be an associative algebra. Then given $a, b \in \mathcal{A}$, a basic elementary operator $M_{a,b}\colon \mathcal{A} \to \mathcal{A}$ can be defined by $M_{a,b}(x) = axb$. An elementary operator is a finite sum $E = \sum_{i=1}^{n} M_{a_i,b_i}$ of basic ones.

It was proved by Mathieu that in the case of prime C^*-algebras the norm of a basic elementary operator can not only be estimated but in fact computed precisely. Mathieu also considered the operators $U_{a,b} = M_{a,b} + M_{b,a}$ and proved that $\|U_{a,b}\| \geq \frac{2}{3}\|a\| \cdot \|b\|$, where $U_{a,b}$ act on a prime C^*-algebra $\mathcal{A}$ [see M. Mathieu, Bull. Austral. Math. Soc. **42** (1990), no. 1, 115–120; MR1066365 (91k:46079)]. In the present paper, for the case of a standard operator algebra $\mathcal{A}$ acting on a Hilbert space $\mathcal{H}$, the authors obtain the estimate $\|U_{a,b}\| \geq 2(\sqrt{2} - 1)\|a\| \cdot \|b\|$.

A standard operator algebra is a subalgebra of $\mathcal{B}(\mathcal{H})$ containing all finite-rank operators, where $\mathcal{B}(\mathcal{H})$ consist of all bounded linear operators.

Reviewed by *Chun Lan Jiang*