NUMERICAL RADIUS INEQUALITIES FOR SQUARE–ZERO AND IDEMPOTENT OPERATORS

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Abstract. We show that if $A$ is a square-zero or an idempotent operator on a Hilbert space and $B$ commutes with $A$, then $w(AB) \leq \min\{w(A)\|B\|,\|A\|w(B)\}$ holds, where $w(\cdot)$ and $\|\cdot\|$ denote, respectively, the numerical radius and operator norm of an operator.


Key words and phrases: Numerical range, numerical radius, square-zero operator, idempotent operator.

REFERENCES