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Abstracts of Short Communications and Posters

Section:

8. Analysis

1991 MS Classification: 15, 47
Chien, Mao-Ting, Soochow University, Taiwan
A parametrization of the c-numerical ranges of certain matrices
Let $A \in M_n$, the n-by-n complex matrices. For an n-tuple $c = (c_1, c_2, \cdots, c_n)$ in $\mathbf{R}^n$, the c-numerical range of A is the set
$W_c(A) = \{\sum_{j=1}^n c_j x_j^* A x_j : \{x_1, x_2, \cdots, x_n\}$ is an orthonormal basis of $\mathbf{C}^n\}$.
We give a parametrization of the c-numerical ranges of idempotent matrices, and give a necessary and sufficient condition for the c-numerical range of an idempotent matrix to be an elliptical disc.
Reference M. T. Chien, The envelope of the generalized numerical range, Lin. Multilin. Alg. 43(1998), 363-376.