

Some characterizations of the indefinite chaotic order

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Abstract

A selfadjoint involutive matrix J endows C^n with an indefinite inner product $[\cdot, \cdot]$ given by $[x, y] := y^* J x$, $x, y \in C^n$. For a pair A, B of J -selfadjoint matrices with positive eigenvalues, the J -chaotic order is defined by $\log(A) \geq^J \log(B)$, where $\log(t)$ denotes the principal branch of the logarithm function. Some inequalities for J -selfadjoint matrices involving the α -power mean are presented and some characterizations of the indefinite chaotic order are obtained. Indefinite variants of well known results valid for positive definite matrices are considered [1], [2]. For instance, an indefinite satellite to the chaotic Furuta inequality is obtained [3]. Some results in this talk are based on a joint work with N. Bebiano, R. Lemos and J. da Providência.

Keywords

J -selfadjoint matrix, Furuta inequality of indefinite type, J -chaotic order, α -power mean.

References

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