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Functional inequalities for spectral radii of nonnegative matrices.

Linear Algebra Appl. 129, 103-130 (1990).

Let f be a function of nonnegative m -tuples of nonnegative numbers. If A_1, \dots, A_m are $n \times n$ nonnegative matrices, define $f(A_1, \dots, A_m)$ to be the $n \times n$ matrix whose (i,j) element is $f(a_{ij}^1, \dots, a_{ij}^m)$ where the superscript is an index not an exponent. Let $\rho(A)$ denote the spectral radius of A . The paper characterizes all functions which satisfy $\rho(f(A_1, \dots, A_m)) \leq f(\rho(A_1), \dots, \rho(A_m))$, and studies various classes for which $f(\rho(A_1), \dots, \rho(A_m)) \leq \rho(f(A_1, \dots, A_m))$. *G.P.Barker*

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