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SOME PROPERTIES OF THE p–SPECTRAL RADIUS ON TENSORS FOR GENERAL HYPERGRAPHS AND THEIR APPLICATIONS

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Abstract. Let $H=(V,E)$ be a general hypergraph with rank m and co-rank m_c and A_H be its adjacency tensor, the p-spectral radius $\rho^{(p)}(H)$ of H is defined as $\rho^{(p)}(H)=\max_{x\in S_p^{n-1}} x^T A_H x$, where $S_p^{n-1}=\{x\in R^n \mid \|x\|_p=1\}$. For $m=m_c$ and $p\geqslant m$, we know that there is a unique positive eigenvector $x\in S_p^{n-1}$ belonging to $\rho^{(p)}(H)$ and $\rho^{(p)}(H)$ can be computed by α-normal labeling method. In this paper, we generalize these properties to the case for $m\neq m_c$ and some other properties are obtained. At the same time, some applications are also given on the properties attained in this paper.

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