

## SOME LOWER BOUNDS FOR THE PERRON ROOT OF A NONNEGATIVE MATRIX

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*Abstract.* In this paper, we present some lower bounds for the Perron root of a symmetric non-negative matrix, which are then applied to give the lower bounds of the Perron root of a general nonnegative matrix. These bounds improve the corresponding ones in [3] and [5]. Numerical examples are supplemented to illustrate the effectiveness of the presented bounds.

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