

## The generalized monotonicity property of the Perron root

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### Abstract

The paper presents a new monotonicity property of the Perron root of a nonnegative matrix. It is shown that this new property implies known monotonicity properties and also the Chistyakov two-sided bounds for the Perron root of a block-partitioned nonnegative matrix. Moreover, based on the monotonicity property suggested, the equality cases in Chistyakov's theorem are analyzed. Applications to bounding above the spectral radius of a complex matrix are presented. Bibliography: 9 titles. © 2007 Springer Science+Business Media, Inc.

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