

# The Hadamard product with $B$ matrices and $M$ matrices

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## Abstract

The Hadamard product of matrices has been investigated by several authors, [6], [3]. Recently Fallat and Johnson in [2] considered positive Hadamard powers of entry-wise positive (non negative) matrices.

In this work we show some results about the Hadamard product of  $B$ -matrices. This class of matrices was introduced by Peña in [5], and its relation with known classes of matrices, such as  $P$  matrices and  $M$  matrices, studied. The main result of this work is that a class of  $B$  matrices is closed under Hadamard product. These results can be applied to  $B$  matrices with the same sign pattern, like nonnegative matrices,  $Z$  matrices, ( $M$  matrices), checkerboard pattern.

## Keywords

Hadamard product, Sign pattern,  $B$  matrices,  $M$  matrices.

## References

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