

## A MATRIX INEQUALITY FOR POSITIVE DOUBLE JOHN DECOMPOSITION

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*Abstract.* In 1998, Barthe [2] established the reversed Brascamp-Lieb inequality and its geometric version. The matrix inequality for John decomposition played a key role in the proof of the geometric Brascamp-Lieb inequality (see also Ball [1]). In this paper, we propose a new matrix inequality based on the so called “double John decomposition”, which is a generalization of the results of Ball and Barthe.

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