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On the necessity and sufficiency of *PLUS* factorizations. (English) Zbl 1071.15012

[Linear Algebra Appl.](#) 400, 193-202 (2005).

A *PLUS* factorization for an arbitrary nonsingular $n \times n$ matrix A has the form $A = PLUS$, where P is a permutation matrix, L is a unit lower triangular matrix, U is an upper triangular matrix whose diagonal entries are prescribed as long as the determinant is equal to that of A up to a possible sign adjustment, and S is a unit lower triangular matrix of which all but $n - 1$ off-diagonal entries are zeros and the positions of those $n - 1$ entries are also flexibly customizable.

The authors show that the necessary condition for the existence of a *PLUS* factorization of a matrix A as given by P . Hao [ibid. 382, 135–154 (2004; [Zbl 1050.15012](#))] is not sufficient and they find a sufficient condition for such a factorization.

Reviewer: [Erich W. Ellers \(Toronto\)](#)

MSC:

[15A23](#) Factorization of matrices

Cited in **2** Documents

Keywords:

[triangular factorization](#); [reversible integer transform](#); [transform by shears](#); [PLUS factorization](#)

Full Text: [DOI](#)

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