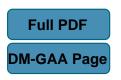
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## ZERO-TERM RANK PRESERVERS OF INTEGER MATRICES

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## Abstract

The zero-term rank of a matrix is the minimum number of lines (row or columns) needed to cover all the zero entries of the given matrix. We characterize the linear operators that preserve the zero-term rank of the  $m \times n$  integer matrices. That is, a linear operator T preserves the zero-term rank if and only if it has the form  $T(A) = P(A \circ B)Q$ , where P,Q are permutation matrices and  $A \circ B$  is the Schur product with B whose entries are all nonzero integers.

**Key words and phrases:** linear operator, term-rank, zero-term rank, (P, Q, B)-operator.

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