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CRITERIA ON BOUNDEDNESS OF MATRIX OPERATORS IN WEIGHTED SPACES OF SEQUENCES AND THEIR APPLICATIONS

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ABSTRACT. In this paper we prove a new discrete Hardy type inequality involving a kernel which has a more general form than those known in the literature. We obtain necessary and sufficient conditions for the boundedness of a matrix operator from the weighted $l_{p,v}$ space into the weighted $l_{q,u}$ space defined by $(Af)_j := \sum_{i=j}^{\infty} a_{i,j} f_i$, for all $f = \{f_i\}_{i=1}^{\infty} \in l_{p,v}$ in case $1 < q < p < \infty$ and $a_{i,j} \geq 0$. Then we deduce a corresponding dual statement.

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