THE NORM OF BACKWARD DIFFERENCE OPERATOR $\Delta^{(n)}$ ON CERTAIN SEQUENCE SPACES

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Abstract. Let $p \geq 1$ and $n$ be a non-negative integer and $A = (a_{m,k})_{m,k \geq 0}$ be a non-negative matrix. In this paper the norm of backward difference operators $\Delta^{(n)}$ and $\Delta^{(-n)}$ from the sequence space $l_p$ into the certain sequence space $A_p$ are computed, where $A_p$ is the space of all real sequences $x = (x_k)_{k=0}^\infty$ such that

$$\sum_{m=0}^\infty \left| \sum_{k=0}^\infty a_{m,k} x_k \right|^p < \infty.$$ 

Moreover, the results are applied for well known matrices such as Cesàro matrix of order $n$ and Hilbert and also new matrices which are introduced in this study.


Keywords and phrases: Matrix operator, backward difference operator, norm, Cesàro matrix, Hilbert matrix, sequence space.

REFERENCES
