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

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Abstract. Let $p \geqslant 1$ and n be a non-negative integer and $A = (a_{m,k})_{m,k\geqslant 0}$ 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.

Mathematics subject classification (2010): 26D15, 40C05, 40G05, 47B37, 47B39.
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