Summary: In this paper, we present a general Banach space of absolutely $k$-summable series using a triangle matrix operator and prove that this is a BK-space isometrically isomorphic to the space $\ell_k$. We also establish the $\alpha$-, $\beta$-, $\gamma$-duals and base of the new space. Finally, we qualify some matrix and compact operators on the new space making use of the Hausdorff measure of noncompactness. Our results include, as particular cases, a number of well-known results.

MSC:
46A45 Sequence spaces (including Köthe sequence spaces)
46B45 Banach sequence spaces
40C05 Matrix methods for summability
47B37 Linear operators on special spaces (weighted shifts, operators on sequence spaces, etc.)

Keywords:
sequence space; absolute summability; matrix mapping; compact operator; Hausdorff measure of non-compactness

Full Text: DOI

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