

COMPACT OPERATORS ON SPACES OF STRONGLY BOUNDED AND SUMMABLE SEQUENCES

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ABSTRACT. The sets w_0^p , w^p , and w_∞^p of sequences that are strongly summable to zero, strongly summable, and strongly bounded, with index p for $1 \leq p < \infty$, by the Cesàro method of order 1 were first introduced and studied by Maddox who characterised the class (w^p, c) of all matrix transformations from w^p into the space c of all convergent sequences. We present the complete list of characterisations of the classes of matrix transformations from each one of Maddox's spaces into the sets c_0 of null sequences, c , and ℓ_∞ of bounded sequences. We also give the representation of the general linear operator from w^p into c . Finally we compute or estimate the Hausdorff measure of noncompactness of linear operators from w_0^p , w^p and w_∞^p into c_0 , c and ℓ_∞ , and apply our results to characterise the respective classes of compact operators.

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2000 *Mathematics Subject Classification.* Primary: 46A45 ; Secondary: 40H05.

Key words and phrases. Sequence spaces, matrix transformations, Hausdorff measure of noncompactness, compact and Fredholm operators.

Research supported by the pesearch project #1440033 of the Serbian Ministry of Science, Technology and Development.