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 ([4]) 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 classical sequence spaces, that is, into the sets c_0 of null sequences, c, ℓ_∞ of bounded sequences, and ℓ_1, the set of all absolutely convergent series. ([1, 3]). We also give the representations of the general linear operators from w^p into any of the classical sequence spaces. Finally we compute or estimate the Hausdorff measure of noncompactness of linear operators between those spaces, and apply the results to characterise the respective classes of compact operators.

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