

SOME REALISATION OF THE BANACH SPACE OF ALL CONTINUOUS LINEAR FUNCTIONALS ON ℓ_1 APPROXIMATED BY WEAKLY SYMMETRIC CONTINUOUS LINEAR FUNCTIONALS

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A general notion of a weakly symmetric continuous linear functional on a Banach space, in the case where the space is ℓ_1 (i.e., the space of all absolutely summable sequences of complex numbers), reduces to a continuous linear functional whose Riesz representation is a periodic sequence. We consider the completion of the space of all such linear continuous functionals on ℓ_1 with periods of Riesz representations equal to powers of 2. It is known [1] that this completion is a Banach space with a Schauder basis. In this work, we construct a sequence Banach space with the standard Schauder basis $\{e_m = \underbrace{(0, \dots, 0}_{m-1}, 1, 0, \dots)\}_{m=1}^\infty$ that is isometrically isomorphic

to this completion. Results of the work can be used to describe spectra of topological algebras of analytic functions on ℓ_1 that can be approximated by weakly symmetric functions.

[1] Vasylyshyn T., Zagorodnyuk A., The space of continuous linear functionals on ℓ_1 approximated by weakly symmetric continuous linear functionals, *Symmetry* **17** (2025), 206.