

**Fine spectra of upper triangular triple-band matrices over the sequence space  $\ell_p$ ,**  
( $0 < p < \infty$ )

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**Abstract** The operator  $A(r, s, t)$  on sequence space on  $\ell_p$  is defined  $A(r, s, t)x = (rx_{k-1} + sx_k + tx_{k+1})_{k=0}^{\infty}$  where  $x = (x_k) \in \ell_p$ , with ( $0 < p < 1$ ). The main purpose of this paper is to determine the fine spectrum with respect to the Goldberg's classification of the operator  $A(r, s, t)$  defined by a triple sequential band matrix over the sequence space  $\ell_p$ . Additionally, we give the approximate point spectrum, defect spectrum and compression spectrum of the matrix operator  $A(r, s, t)$  over the space  $\ell_p$ .

## References

- [1] A.M. Akhmedov, F. Başar, *On the fine spectrum of the Cesàro operator in  $c_0$* , Math. J. Ibaraki Univ. **36**(2004), 25–32.
- [2] F. Başar, B. Altay, *On the space of sequences of  $p$ -bounded variation and related matrix mappings*, Ukrainian Math. J. **55**(1)(2003), 136–147.
- [3] H. Bilgiç, H. Furkan, *On the fine spectrum of the operator  $B(r, s, t)$  over the sequence spaces  $\ell_1$  and  $bv$* , Math. Comput. Modelling **45**(2007), 883–891.  
H. Furkan, H. Bilgiç, F. Başar, *On the fine spectrum of the operator  $B(r, s, t)$  over the sequence spaces  $\ell_p$  and  $bv_p$ , ( $1 < p < \infty$ )*, Comput. Math. Appl. **60**(7)(2010), 2141–2152.
- [4] S. Goldberg, *Unbounded Linear Operators*, Dover Publications, Inc. New York, 1985.
- [5] E. Kreyszig, *Introductory Functional Analysis with Applications*, John Wiley & Sons Inc. New York · Chichester · Brisbane · Toronto, 1978.
- [6] J.I. Okutoyi, *On the spectrum of  $C_1$  as an operator on  $bv$* , Commun. Fac. Sci. Univ. Ank. Ser. A<sub>1</sub>. **41**(1992), 197–207.
- [7] J.B. Reade, *On the spectrum of the Cesaro operator*, Bull. Lond. Math. Soc. **17**(1985), 263–267.
- [8] B.E. Rhoades, *The fine spectra for weighted mean operators*, Pacific J.
- [9] P.D. Srivastava, S. Kumar, *Fine spectrum of the generalized difference operator  $\Delta_{uv}$  on sequence space  $l_1$* , Appl. Math. Comput. in press.
- [10] R.B. Wenger,
- [11] M. Yildirim, *On the fine spectrum of the Rhaly operators on  $\ell_p$* , East Asian Math. J. **20**(2004), 153–160.