Notes on the Spectrum of Lower TriangularDouble-Band Matrices

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Abstract

In the paper by Srivastava and Kumar [P.D. Srivastava, S. Kumar,Thai J. Math. 8 (2) (2010) 221–233], the authors have introduced the lowertriangular double-band matrix Δv as an operator on the sequence space $l1$ andstudied the spectrum and fine spectrum of this operator over $l1$. The operator Δvon $l1$ is defined by $\Delta vx = (v_k x_k - v_{k-1} x_{k-1})_{k=0}^{\infty}$ with $x_{-1} = 0$, where $x = (x_k) \in l1$and (v_k) is either constant or strictly decreasing sequence of positive real numberssatisfying certain conditions. In this paper we give notes on the point spectrumand the residual spectrum of the operator Δv over the space $l1$ in the case when(v_k) is a strictly decreasing sequence of positive real numbers.

Keywords:*Spectrum of an operator; Generalized difference operator; Sequencespaces.*